

Shaping the New Flagship

AUGUST 2009

Self Study for Re-accreditation Prepared for
The Higher Learning Commission
A Commission of the North Central Association
of Colleges and Schools

Colorado
University of Colorado at Boulder

The background of the entire page is a photograph showing the silhouette of a flagpole and the top of a building against a bright, orange-hued sunset sky. The sun is low on the horizon, creating a strong backlight effect. The flagpole is tall and slender, with a flag flying from the top. The building's roofline is visible, featuring several small, ornate spires or finials. The overall mood is contemplative and hopeful.

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Colorado
University of Colorado at Boulder



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Message from the Chancellor

I am delighted to share with you the Re-accreditation Self-Study Report of the University of Colorado at Boulder—the culmination of nearly three years of work in strategic planning, analysis, research, and writing. This report is intended to assist the re-accreditation team visiting our campus in early 2010, but the university itself has benefited substantially from the process. As an institution, we have learned much about ourselves: the ongoing impact of our history and traditions, the effects of current conditions under which we operate, and the potential for exciting new directions.

Since 1913, the University of Colorado has been accredited by the North Central Association of Colleges and Schools (NCA), the primary accrediting agency for educational institutions in the United States. Every 10 years, a team of leading external educators visits the university campus to evaluate the institution as a whole and provide recommendations for continued improvement. We view this process as a unique opportunity for focused introspection about our own strengths and challenges—and a chance to gain thoughtful feedback from the consultant-evaluator team of higher education leaders assembled by the NCA Higher Learning Commission. During the process, we look forward to full and lively discussions aimed at helping the University of Colorado at Boulder reach new levels of excellence.

The timing of the self-study process is especially fortuitous, allowing us to meld strategic planning, re-accreditation, and facilities master planning into a continuum of focused effort. Indeed, much of this report is built upon the analysis that took place in the recent strategic planning process. In 2006, the university community engaged in an extensive planning effort that resulted in *Flagship 2030*, an ambitious blueprint for positioning CU-Boulder as a global leader in education, research, creative work, and service by the year 2030. The long planning horizon was chosen consciously—to liberate our thinking from current temporary issues and to encourage creative choices that would transform our university into a model for the “new flagship” of the 21st century.

We are now in the third phase of *Flagship 2030*—establishing concrete plans and priorities for implementation—and we expect to draw upon the re-accreditation process to help us in those decisions. In fact, the self-study has helped us see ourselves in new ways. The process of self-examination has revealed a set of institutional qualities that will serve us well as we move forward under *Flagship 2030*. In this process, we have observed a strong commitment to **environmental stewardship**, a growing **global reach** in a diverse world, **innovative approaches** to teaching and learning, **collaboration** in discovery and creativity, and sustained **vision and agility**. These distinctive qualities—some of which exist now and some that are just emerging—will play a central role in transforming the university into the new flagship we envision. During the re-accreditation team’s visit, we hope to engage with the team on how best to maximize these qualities as we implement *Flagship 2030*.

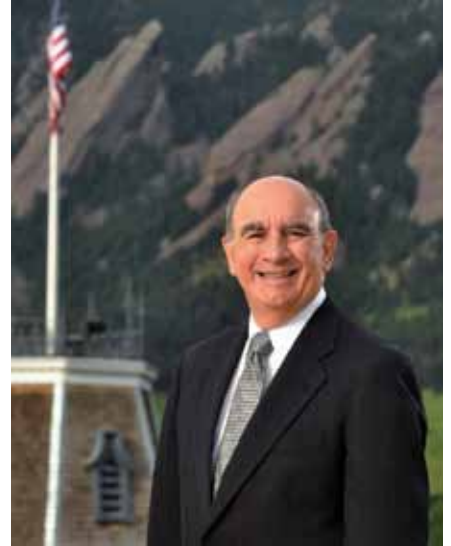
Finally, I wish to acknowledge the hard work of the many committees, planning groups, reviewers, analysts, and others who contributed to the self-study report. In particular, let me recognize the invaluable contributions of the *Flagship 2030* steering committee, subcommittees, and task forces, whose work formed the foundation of this report. In addition, I extend my warm appreciation to the members of the re-accreditation steering committee, whose thoughtful suggestions and input elevated the self-study report. My heartfelt thanks to them all.

Now, we have the distinct pleasure of welcoming the NCA consultant-evaluator team to the Boulder campus in February 2010. I look forward to sharing information about the university, describing the challenges and opportunities that we face, and expressing our hopes and plans for the future. In essence, we plan to make the most of this opportunity to further accelerate our momentum in “shaping the new flagship.”

Sincerely,

Phil P. DiStefano

Phil DiStefano
Chancellor



Preface and
Acknowledgments

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Preface

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PREFACE

The University of Colorado at Boulder: Shaping the New Flagship

In 2006, the University of Colorado at Boulder began a strategic planning process called *Flagship 2030: Serving Colorado, Engaged in the World* that is profoundly changing the face and future of the university. Hundreds of constituents joined in the planning process, bringing to the table a broad range of ideas, perspectives, and recommendations. *Flagship 2030*'s long planning horizon—upwards of a quarter-century—was chosen deliberately to encourage creative thinking about the university's potential, moving the conversation beyond the immediate concerns of today. The resulting initiatives are ambitious and challenging—and they have captured the imagination of the university community and its stakeholders. *Flagship 2030* has begun to position the university as a model for the new flagship university of the 21st century. Despite a difficult economic climate in recent years, CU-Boulder continues to make progress toward that goal.

As the university began preparations for the 2010 NCA re-accreditation process, it became clear that *Flagship 2030* would necessarily frame the discussion about where the university is and where it is going. It also appears that this self-study process can have a reciprocal influence on *Flagship 2030*. In many ways, the strategic planning process formed the basis for the self-examination and contemplation of the university's future that would shape the self-study report. This document describes much of what CU-Boulder learned about itself and its potential during the conception and evolution of *Flagship 2030*—but the self-study process itself has in turn helped identify the “transformative qualities” that define the University of Colorado at Boulder. The self-study, along with feedback from the site team, will help advance the continuous refinement of *Flagship 2030*.





Transformative Qualities

This report provides overviews of numerous programs, initiatives, commitments, plans, and strategies. In aggregate, they depict an active, ambitious university characterized by a set of unique qualities. Some of these qualities exist now, and some are just emerging. They include:

- Environmental stewardship
- Global reach in a diverse world
- Innovations in learning and teaching
- Collaborative discovery
- Sustained vision and agility

In this report are descriptions of many initiatives and accomplishments that underscore the university's commitment to **environmental stewardship**. Summaries are provided on initiatives in climate research, renewable energy initiatives, campus sustainability, and environmental studies. The university is developing **global reach in a diverse world** through expanded international student and scholar exchanges, an abiding interest in multicultural perspectives, and a major thrust to further "internationalize" the university. CU-Boulder has long engaged in **innovations in learning** and is seeking to expand that experience with a residential college initiative, increased opportunities for customized and experiential learning, added alternative degree tracks, and continued emphasis on undergraduate research—all evaluated with authentic assessment practices. **Collaborative discovery** continues to be a hallmark of the university, with a rich tradition of interdisciplinary research and creative work, a proposal for creating a collaborative statewide research enterprise, and the launch of several major research initiatives. This report also describes financial circumstances that have required **sustained vision and agility** in the successful operation of the university. CU-Boulder is working to clarify the possibilities offered by its designation as a state of Colorado enterprise and is building new partnerships with the state and its communities. It has engaged in creative problem solving and has targeted resources toward strategic initiatives.

The transformative qualities outlined here are a thread running through the self-study report. They can be recognized in discussions of the evidence offered for meeting the criteria for re-accreditation. They can be detected in statements by members of the university community. Most importantly, they tell the university something about itself as it begins the ambitious work of *Flagship 2030*.

Self-Study Process

In June 2008, a five-member planning board was formed to provide overall direction for the re-accreditation process. Co-chairs of the board are Chancellor Phil DiStefano and Senior Vice Chancellor and Chief Financial Officer Ric Porreca. Other members include Project Coordinator Joey White, Director of Institutional Analysis Lou McClelland, and Consultant/Writer Pauline Hale.

To assist with the self-study process, subject matter experts were identified, including Associate Vice Chancellor Steve McNally, assisting with the budget and finance area; Associate Vice Chancellor Michael Grant, in the assessment of student learning outcomes; Associate Vice Chancellor and Dean Anne Heinz, for engagement and service; and Associate Vice Chancellor Michael Warden, for self-study communications. Others were Vice Chancellor Sallye McKee, for diversity, equity and community engagement; Interim Vice Chancellor Russ Moore, for research; Director Erika Smith, for budget and finance; Interim Dean John Stevenson, for graduate education; and Interim Provost Stein Sture, for academic affairs.

Later in the year, a 70-member steering committee was named to help with the preparation of the self-study and participate in the NCA Higher Learning Commission site team's visit in February 2010. The steering committee provided information, read and critiqued drafts, and helped educate the rest of the campus about re-accreditation. The steering committee included the planning board members, subject matter experts, vice chancellors, academic affairs associate vice chancellors, *Flagship 2030* task force chairs, deans, governance group representatives (students, staff, and faculty), University of Colorado Foundation vice president for development, and other campus leaders.

The Self-Study Report

This report summarizes the self-study findings, which are organized according to the criteria established by the NCA Higher Learning Commission. Certain themes are viewed as relevant to more than one core component; in such cases, key points are reiterated in the appropriate context. Such purposeful redundancy underscores the integration—indeed, overlapping—of the various aspects of the university's mission. In each chapter, criteria core components are identified alongside the relevant sections.

This self-study report is supplemented by numerous reports, catalogs, brochures, and other materials to help the visiting site team gain a clear understanding of the university's programs, policies, and initiatives. These materials will be made available in the team's conference room during the visit. Other materials will be posted in a virtual resource room on a website for use by the team. In the report itself are multiple web links to sites that provide additional information on specific topics.

The report begins with an introductory chapter (Chapter 1) that offers a brief summary of the university's history, a current "snapshot" of the university, and a description of major developments since the last re-accreditation site visit a decade ago. Chapter 2 provides a report on progress made by the university in responding to suggestions and concerns expressed by the 2000 visiting site team.

In Chapter 3, an overview of *Flagship 2030* describes the university's vision for the next quarter-century and outlines eight Core Initiatives and 10 Flagship

Initiatives designed to help CU-Boulder remain competitive while becoming a global presence in higher education. Beginning with Chapter 4, the report provides evidence of meeting the criteria required by the NCA Higher Learning Commission. Chapter 4 focuses on Criterion 1, followed by Chapter 5 on Criterion 2, Chapter 6 on Criterion 3, Chapter 7 on Criterion 4, and Chapter 8 on Criterion 5. Each of these chapters concludes with a discussion of “Key Strengths,” “Challenges and Issues,” and “*Flagship 2030*: Next Steps.”

Chapter 9 consists of concluding comments and a formal request for continued accreditation by the NCA. The final chapter, Chapter 10, provides appendices including information regarding federal compliance as requested by the NCA Higher Learning Commission. Several appendices provide additional information that supports the university’s formal request for re-accreditation.

Information in the self-study report is current as of August 1, 2009.

Acknowledgments

The university is indebted to numerous individuals and groups who contributed their time and considerable expertise throughout the self-study process. The entire effort involved hundreds of people in the university community as well as stakeholders beyond campus boundaries. Following is a summary of individuals and groups who made major contributions both to the self-study process and the *Flagship 2030* strategic planning process that was the foundation for the self-study report.

CU-Boulder Self-Study Planning Committee

Phil DiStefano, Chancellor, *Co-chair of the CU-Boulder Steering Committee*
 Ric Porreca, Senior Vice Chancellor and Chief Financial Officer, *Co-chair of the CU-Boulder Steering Committee*
 Mary Jo White, Senior Advisor to the Chancellor and Project Coordinator
 Pauline Hale, Consultant/Writer
 Lou McClelland, Director of Institutional Analysis

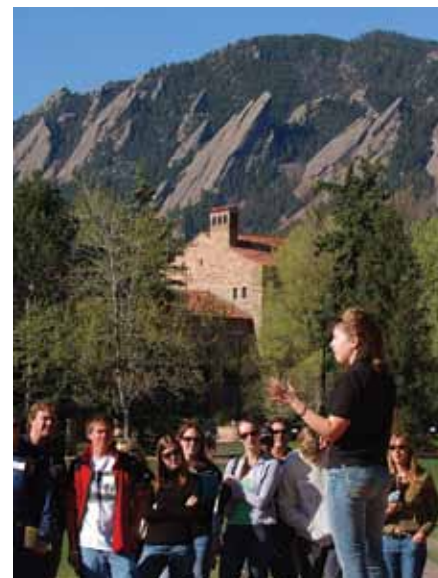
Subject Matter Experts

Michael Grant, Associate Vice Chancellor for Undergraduate Education
 Anne Heinz, Dean of Continuing Education and Professional Studies and Associate Vice Chancellor for Summer Session
 Sallye McKee, Vice Chancellor for Diversity, Equity, and Community Engagement
 Steve McNally, Associate Vice Chancellor for Planning, Budget, and Analysis
 Russ Moore, Interim Vice Chancellor for Research
 Erika Smith, Director of Budget Services, Planning, Budget, and Analysis
 John Stevenson, Interim Dean of the Graduate School and Associate Vice Chancellor for Graduate Education
 Stein Sture, Interim Provost and Executive Vice Chancellor for Academic Affairs
 Michael Warden, Associate Vice Chancellor for Strategic Communications

The re-accreditation self-study process was assisted by a **steering committee** comprised of more than 50 faculty, staff, students, and campus leaders. Established in early 2009, the steering committee contributed to the preparation of the self-study report by providing information, reading and critiquing drafts, and helping educate the campus community about the process. Members of the committee also will participate in the NCA site team visit in February 2010. The steering committee includes members of the planning committee and subject matter experts.

Members of the Chancellor's Executive Committee

Phil DiStefano, Chancellor
 Stein Sture, Interim Provost and Executive Vice Chancellor for Academic Affairs



Ric Porreca, Senior Vice Chancellor and Chief Financial Officer
Frank Bruno, Vice Chancellor for Administration
Sallye McKee, Vice Chancellor for Diversity, Equity, and Community Engagement
Russ Moore, Interim Vice Chancellor for Research
Julie Wong, Vice Chancellor for Student Affairs
David Getches, Dean, School of Law
Todd Gleeson, Dean, College of Arts and Sciences
Carolyn Whitehead, Vice President for Development, CU Foundation
John Sleeman, Managing Senior Associate University Counsel
Mary Jo White, Senior Advisor to the Chancellor
Deb Coffin, Associate Vice Chancellor for Student Affairs and Dean of Students
Steve McNally, Associate Vice Chancellor for Planning, Budget, and Analysis
Michael Warden, Associate Vice Chancellor for Strategic Communications
Candice Bowen, Executive Director of Human Resources
Ron Stump, Interim Executive Director of the CU-Boulder Alumni Association
Mike Bohn, Athletic Director
Bronson Hilliard, Spokesperson and Director of Media Relations
Joseph Rosse, Chair, Boulder Faculty Assembly
Donna Maes, Co-chair of Staff Council
Christine Thai, Tri-Executive, University of Colorado Student Union (UCSU)

Members of the Council of Deans

Dennis Ahlburg, Dean, Leeds School of Business
Rob Davis, Dean, College of Engineering and Applied Science
David Getches, Dean, School of Law
Todd Gleeson, Dean, College of Arts and Sciences
Anne Heinz, Dean, Continuing Education and Professional Studies, and Associate Vice Chancellor for Summer Session
Lorrie Shepard, Dean, School of Education
Dan Sher, Dean, College of Music
Paul Voakes, Dean, School of Journalism and Mass Communication
Jim Williams, Dean, University Libraries

Associate and Assistant Vice Chancellors

Gary Chadwick, Assistant Vice Chancellor for Health and Wellness and Director of Wardenberg Health Center
Jeff Cox, Associate Vice Chancellor for Faculty Affairs
Michael Grant, Associate Vice Chancellor for Undergraduate Education
Bill Kaempfer, Vice Provost and Associate Vice Chancellor for Budget and Planning, Academic Affairs
Alphonse Keasley, Assistant Vice Chancellor for Campus Climate and Community Engagement
Steve McNally, Associate Vice Chancellor for Planning, Budget, and Analysis

Gwen Pomper, Interim Assistant Vice Chancellor for Enrollment Management and Outreach
 Tricia Rankin, Associate Vice Chancellor for Faculty Diversity and Development
 John Stevenson, Interim Dean of the Graduate School and Associate Vice Chancellor for Graduate Education
 Gardiner Tucker, Assistant Dean of Students for Student Success and Retention
 Michael Warden, Associate Vice Chancellor for Strategic Communications

Directors

Larry Bell, Director, Office of International Education
 John Bennett, Institute Director, Alliance for Technology, Learning, and Society (ATLAS)
 Mike Bohn, Athletic Director
 Candice Bowen, Executive Director of Human Resources
 Bronson Hilliard, Spokesperson and Director of Media Relations
 Paul Leef, Director and Campus Architect, Department of Facilities Management
 Kevin MacLennan, Director, Office of Admissions
 Dennis Maloney, Chief Technology Officer, Information Technology Services
 Lou McClelland, Director of Institutional Analysis
 Joe Roy, Chief of Police and Director of Public Safety
 Marin Stanek, Assistant Director for IT Planning and Policy
 Ron Stump, Interim Executive Director of the CU-Boulder Alumni Association
 Gloria Timmons, Director, Employment Services
 Barbara Todd, Registrar

Flagship 2030 Implementation Task Force Chairs and Co-chairs

Uriel Nauenberg, Chair, Faculty Task Force; Professor, Physics
 Barbara “Babs” Buttenfield, Co-chair, Faculty Task Force; Professor, Geography
 Russ Moore, Chair, Research, Scholarship, and Creative Work Task Force; Interim Vice Chancellor for Research
 Fred Anderson, Co-chair, Research, Scholarship, and Creative Work Task Force; Professor, History
 John Stevenson, Chair, Graduate Education Task Force; Interim Dean of the Graduate School and Associate Vice Chancellor for Graduate Education
 Joseph Rosse, Co-chair, Graduate Education Task Force; Chair of the Boulder Faculty Assembly; Professor, Leeds School of Business
 Fred Pampel, Chair, Enrollment Task Force; Professor, Sociology
 Lou McClelland, Co-chair, Enrollment Task Force; Director of Institutional Analysis
 Michael Grant, Chair, Undergraduate Education Task Force; Associate Vice Chancellor for Undergraduate Education
 Bob Schulzinger, Co-chair, Undergraduate Education Task Force; Professor, International Affairs



Paul Leef, Chair, Facilities Task Force; Director and Campus Architect, Department of Facilities Management
Keith Maskus, Co-chair, Facilities Task Force; Associate Dean, College of Arts and Sciences, Professor, Economics
Steve McNally, Chair, Budget Task Force; Associate Vice Chancellor of Planning, Budget and Analysis
Paul Beale, Co-chair, Budget Task Force; Professor, Physics
Gloria Timmons, Chair, Staffing and Operations Task Force; Director, Employment Services
John Cumalat, Co-chair, Staffing and Operations Task Force; Professor, Physics
Anne Heinz, Chair, Outreach and Engagement Task Force; Dean, Continuing Education and Professional Studies, and Associate Vice Chancellor for Summer Session
Tom Riis, Co-chair, Outreach and Engagement Task Force; Professor, Music

Students

Dustin Farivar, Chair, University of Colorado Intercampus Student Forum (ICSF)
Thomas Higginbotham, Tri-Executive, UCSU
Daniel Ramos, Tri-Executive, UCSU
Christine Thai, Tri-Executive, UCSU
W. Andrew Lanius, Student Senator for the Leeds School of Business, UCSU
Kyle Haas, Student Senator for the School of Journalism and Mass Communication, UCSU
Allison Toltz, Student Senator for the College of Music, UCSU
Christopher J. Turner, Student Senator for the School of Law, UCSU
Ke'Ona Willis, Student Senator for the College of Arts and Sciences, UCSU
Thomas Benning, Student Senator for the College of Engineering and Applied Science, UCSU
Andrew Poppe, President, United Government of Graduate Students (UGGS)
Tanya Phillips, Student Senator for the Graduate School, University of Colorado Student Union, UCSU

Flagship 2030 Committees

Much of the analysis, discussion, and research for the self-study was conducted as part of the *Flagship 2030* strategic planning process. In particular, the self-study benefited from the work of the *Flagship 2030* steering committee, consisting of university and community representatives. The committee included:

| | |
|----------------------|-----------------|
| Boulder city leaders | Student leaders |
| Faculty and staff | Parents |
| Business leaders | Administrators |
| Deans | Donors |
| Alumni | |

In addition to those listed above, the university wishes to recognize the dedication and contributions of the *Flagship 2030* subcommittees and nine task forces, whose hard work helped shape the future of the university. In addition, several individual faculty members offered thoughtful commentaries on the strategic planning process. Structured interviews were conducted with thought-leaders in 16 Colorado communities by a faculty members Professor Margaret Moritz, School of Journalism and Mass Communication; Assistant Professor Elizabeth Skewes, School of Journalism and Mass Communication; Professor Kenneth Strzepek, College of Engineering and Applied Science; and Anne Heinz, dean of the Division of Continuing Education and Professional Studies. They sought opinions and feedback from leaders in the communities of:

| | |
|------------------|-------------------|
| Alamosa | La Junta |
| Aurora | Limon |
| Colorado Springs | Longmont |
| Denver | Pueblo |
| Durango | Steamboat Springs |
| Fort Collins | Vail |
| Grand Junction | Lamar |
| Greeley | Sterling |

The work of the Task Force on International Graduate Education influenced the emphasis on global perspectives and internationalization in both *Flagship 2030* and the self-study process. In addition, the self-study report publication and website could not have been produced without the expert contributions of the Office of University Communications, particularly the Marketing and Creative Services team. The work of the self-study planning group also was greatly assisted by Annie Thayer of the Office of Institutional Analysis in the Office of Planning, Budget, and Analysis, who helped check facts, gather information, and track the progress of the project, among many other responsibilities.

Finally, the university owes a debt of gratitude to former Chancellor G.P. “Bud” Peterson, whose leadership helped motivate and inspire the early development of *Flagship 2030* and the Re-Accreditation Self-Study Report. Broad-based campus and community participation helped ensure continued momentum as Chancellor Peterson pursued new opportunities as president of Georgia Institute of Technology.

To all who contributed to the re-accreditation self-study effort, the university extends its deep appreciation and gratitude.



CHAPTER 1

Introduction

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Introduction

University History

The University of Colorado at Boulder owes its existence, in large part, to the tenacity of Boulder pioneers who envisioned an institution of higher learning in the days of the Colorado Territory, long before statehood. Their determination was tested for nearly 15 years as the concept ebbed and flowed amid frontier politics and fiscal challenges.

In 1861, the Territorial Legislature voted to establish “a university at Boulder” in the face of strong interest by various other cities such as Denver, Pueblo, and Conejos. For nearly a decade, the university project was dormant, despite the efforts of a determined Boulder community. In 1870, Boulder’s selection as the university’s location was reaffirmed and the newly appointed Board of Trustees met for the first time. In January 1872, three Boulder citizens donated land for the university, and a permanent site was approved by the board. Two years later, on January 13, 1874, the trustees petitioned the Territorial Legislature for \$30,000 to begin construction. In response, the legislators offered to pay half (\$15,000) if the citizens of Boulder could raise the other half. Commitments in hand, the governor signed an act on February 6, 1874, approving construction of the university. Boulder citizens collected gifts, large and small, to meet the challenge and launch a university. In 1875, the cornerstone for Old Main, the first university building, was laid amidst great hope and jubilation.



Old Main, CU-Boulder’s first building, opened its doors on September 5, 1877.

Building the Flagship

Founded in 1876. The University of Colorado was officially established in 1876, the same year that Colorado became a state, although inaugural ceremonies were not held until September 5, 1877. In its first year of classes, CU had 44 students and three instructors. Situated on a “barren and windswept plain,” Old Main housed not only the first classrooms, but the president’s home, the library, and the janitor’s quarters. Oscar E. Jackson, a member of that first group of students, wrote in 1893 that “...as we look at it now, the opening of the University seemed to be an act of hardihood, not to say rashness,” according to *Glory Colorado!*, a history of the university between 1848 and 1963, by William E. Davis.¹

Early growth. In the early years, the university slowly grew in size, enrollment, and stature. In 1892, the School of Law was established—and, in the same year, the Department of Philosophy and Arts was renamed the College of Liberal Arts, which became the College of Arts and Sciences in 1920–22.² In 1893, the College of Engineering was organized, then called the School of Applied Science.³ The College of Education was organized in 1908 as a division of the College of Liberal Arts.⁴ In 1912, the Extension Division, a predecessor of the Division of Continuing Education, was established.⁵ Eight years later, the department of music became the College of Music, offering a degree of bachelor of music.⁶ The College of Business was organized in 1923, out of the former College of Commerce.⁷

Almost 4,000 students were enrolled at the university by 1940. A number of bureaus and cooperative research projects were established in the middle of the decade, setting the stage for a strong system of interdisciplinary institutes and centers. The end of World War II brought new enrollment growth, changes in curriculum, and expanded degree offerings. In 1959, the School of Education became a professional school, followed by the School of Journalism and Mass Communication in 1962.

The College of Environmental Design, originally a degree program in engineering, was reorganized as a separate school in 1962 and a college in 1970. In 1996, it merged with the College of Architecture and Planning at the University of Colorado Denver. Although the college is part of UC Denver, all undergraduate courses are taught on the Boulder campus, and the bachelor of environmental design degree is granted by CU-Boulder.

Creating the university system. In 1972, the university’s governance and organizational structure was substantially changed when Colorado citizens approved Amendment Four of the state’s constitution. The amendment expanded the elected CU Board of Regents from six to nine members and laid the groundwork for establishing a four-campus university system. A major

university reorganization in 1974 established separate campuses in downtown Denver, the Medical Center in Denver, and Colorado Springs, each of which had previously been extensions of the Boulder campus. Under the reorganization, a chancellor would administer each campus, reporting to the president of the university system.⁸ Thus, CU-Boulder's administrative structure has senior-level titles with the word "chancellor" (e.g., vice chancellor) and the system uses the word "president" in senior titles (e.g., vice president). Another major reorganization, in 2004, resulted in a three-campus university system after the merger of the University of Colorado at Denver and the University of Colorado Health Sciences Center, with two campus locations. Until recently, the president's offices were located on the Boulder campus; they were moved to downtown Denver in 2005.

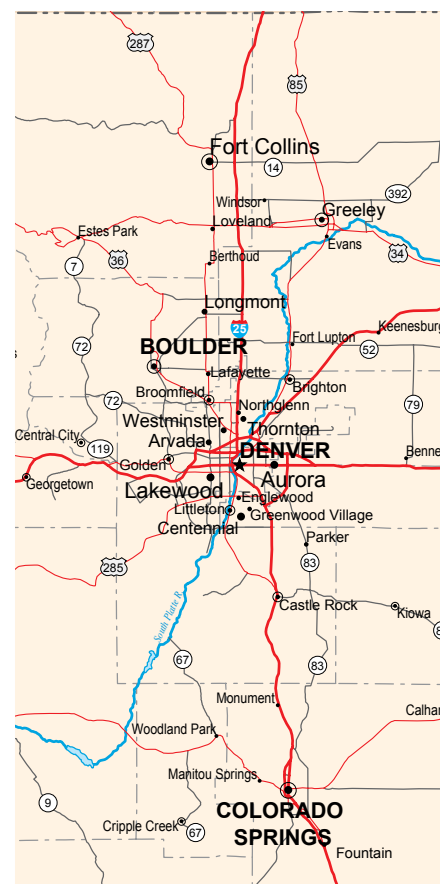
In this document, the word "university" is used in reference primarily to the Boulder campus. "System" is used to denote the current three-campus university system and its administration.

Gaining National Stature

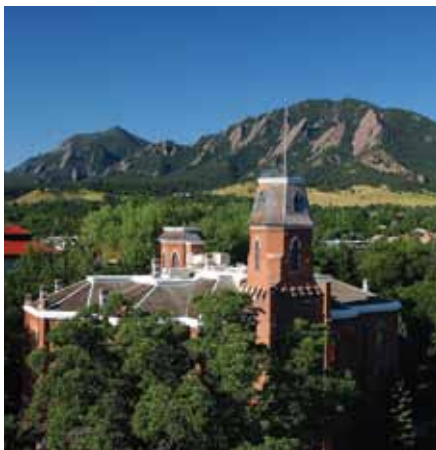
Academic milestones. In 1951, CU-Boulder established the first of eight research institutes that would propel the university to international recognition for excellence in research and interdisciplinary work. The institutes embrace research in arctic and alpine environments, social behavior, space sciences, the human mind, environmental sciences, renewable and sustainable energy, behavioral genetics, and the physical sciences.⁹

In 1989, CU-Boulder Professor Tom Cech won the Nobel Prize in chemistry, becoming the first of four Nobel laureates at the university. His achievement was followed by Carl Wieman and Eric Cornell of physics and JILA (2001) and John Hall of physics and JILA (2005). Wieman and Eric Cornell created a new state of matter called the Bose-Einstein Condensate in 1995, a discovery that had been predicted by Albert Einstein. Four CU-Boulder professors have received the National Medal of Science, the nation's highest scientific honor, and seven faculty members have received MacArthur Fellowships, known as the "genius grant." As of 2008, nearly 60 active or retired faculty were members of the various national academies.

AAU membership. The university was invited in 1967 to join the prestigious Association of American Universities (AAU), which includes the nation's leading research-oriented institutions of higher education. CU-Boulder is one of 34 U.S. public universities in the AAU. The university also was a founding member of the Association of Public and Land-grant Universities (formerly National Association of State Universities and Land-grant Colleges), and continues to participate in the association's activities. CU-Boulder routinely compares itself with AAU peers and aspires to be among the best of that group.



The University of Colorado is a three-campus system, located in Boulder, Denver, and Colorado Springs.



CU-Boulder Today

“Glorious!” is how early-day professor Mary Rippon described her first viewing of the university’s mountain backdrop in 1878. The Flatirons, a rock formation rising just west of campus, continue to inspire visitors and long-time residents alike. The physical beauty of the campus itself pays tribute to the splendid surroundings. Acclaimed for its architectural unity, the campus has about 200 buildings in the Tuscan vernacular style of Colorado sandstone topped by red-tiled roofs. The CU-Boulder properties include 759 acres on the Main Campus, East Campus, Williams Village, and the Mountain Research Station near Nederland, Colorado, in addition to the 308-acre South Campus, an undeveloped area in Boulder County.

The University Community

Students. In fall 2008, CU-Boulder enrolled more than 29,700 students, with approximately 6,000 living in 23 residence halls, many featuring unique Residential Academic Programs (RAPs) that provide focused small-group learning opportunities within the residence hall environment. Undergraduates comprised about 84 percent of total enrollment, and about 16 percent were graduate students. Approximately two-thirds were from Colorado and one-third were nonresidents. About 14 percent were members of ethnic minority groups. The average ACT composite score of entering freshmen was 26.0, and the average SAT total score was 1177; each of these measures was an all-time high.

Enrollment figures used in the self-study include students seeking CU-Boulder degrees and teacher licensure who are enrolled at fall census in Main Campus courses. This group of students contributes to general fund tuition revenue and is the target of enrollment management efforts. These data are reported in news releases and other public communications about enrollment.

Enrollment numbers reported to the federal Integrated Postsecondary Educational Data System of the U.S. Department of Education (IPEDS) include additional groups of students and totaled almost 32,500 in fall 2008. These additional 2,800 students include non-degree students, students taking part in CU-Boulder study abroad programs, faculty and staff enrolled on tuition waivers, students enrolled only in the CU-Boulder evening program or in correspondence courses, and students from other University of Colorado campuses taking courses at CU-Boulder. Most of these students pay tuition exclusively to self-funded units, primarily the Division of Continuing Education and Professional Studies and CU-Boulder study abroad; all were enrolled in credit-bearing courses.

Faculty. In fall 2008, CU-Boulder’s faculty included 1,101 tenure or tenure-track faculty, 1,182 research faculty (from research professors to professional research assistants), and 1,102 other instructional faculty (lecturers, instructors,

DISPLAY 1.1

CU-Boulder Campus Employees by Job Category, Fall 2008

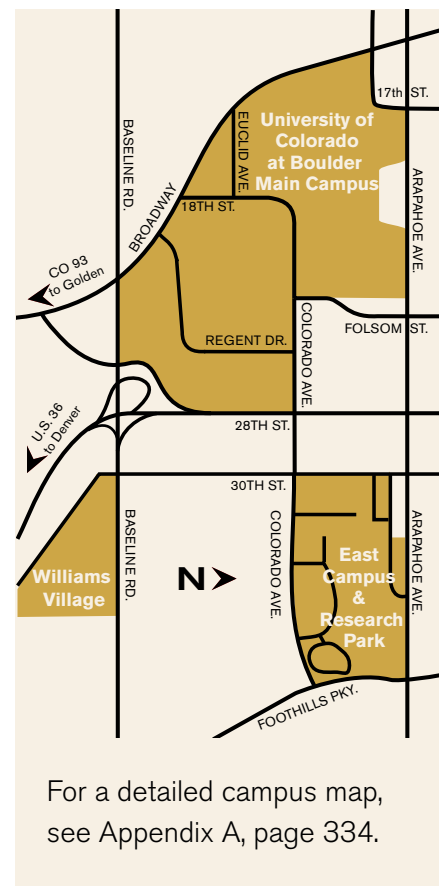
All with appointments in effect October 1, 2008

| | Staff without student employees | Student employees | Total |
|----------------------------------|---------------------------------------|----------------------|---------------|
| Officer | 24 | | 24 |
| Academic | | | |
| Tenured/tenure track (TTT) | 1,101 | | 1,101 |
| Instructional not TTT | | | |
| Instructors/ senior instructors | 407 | | 407 |
| Other instructional ¹ | 695 | | 695 |
| TA/GPTI/other ² | | 1,256 | 1,256 |
| Research not TTT | 1,182 | | 1,182 |
| Student RAs | | 993 | 993 |
| Other academic, not TTT | 76 | | 76 |
| Student assistants | | 354 | 354 |
| Professional exempt | 652 | | 652 |
| Classified staff | 2,513 | | 2,513 |
| Student hourly | | 4,111 | 4,111 |
| Total | 6,650 | 6,714 | 13,364 |

¹ Includes adjunct, adjoint, lecturers, honorarium, visiting and other supplemental instructors.

² Includes teaching assistants, graduate part-time instructors, and other student instructors.

Source: www.colorado.edu/pba/facstaff/fac20087.htm



For a detailed campus map, see Appendix A, page 334.

adjuncts, and others).¹⁰ About 98 percent of all tenured and tenure-track faculty and 91 percent of all instructional faculty members hold a doctorate or other terminal degree.

Staff. In 2008, there were 3,165 staff members employed at the university, including professional exempt staff and classified staff. Staff members support and advance the campus's teaching, research, and service mission through a wide range of positions, including directors of academic programs, managers of student services, administrative assistants, facilities directors, budget and finance managers, assistants, and many others.

Alumni. With more than 240,000 living alumni, CU-Boulder has developed an active alumni association that offers online networking, special events, career services, senior auditors, scholarship programs, travel, printed and electronic communication, library access, and recreation center access. There are more than 35 regional clubs of alumni in the United States and five international clubs, as well as eight constituent clubs and chapters.

“The university is not the buildings, not the faculties, not the students of any one time. The university consists of all who come into and go forth from her halls, who are touched by her influence and who carry on her spirit. Wherever you go, the university goes with you. Wherever you are at work, there is the university at work.”

—CU President
George Norlin,
1935

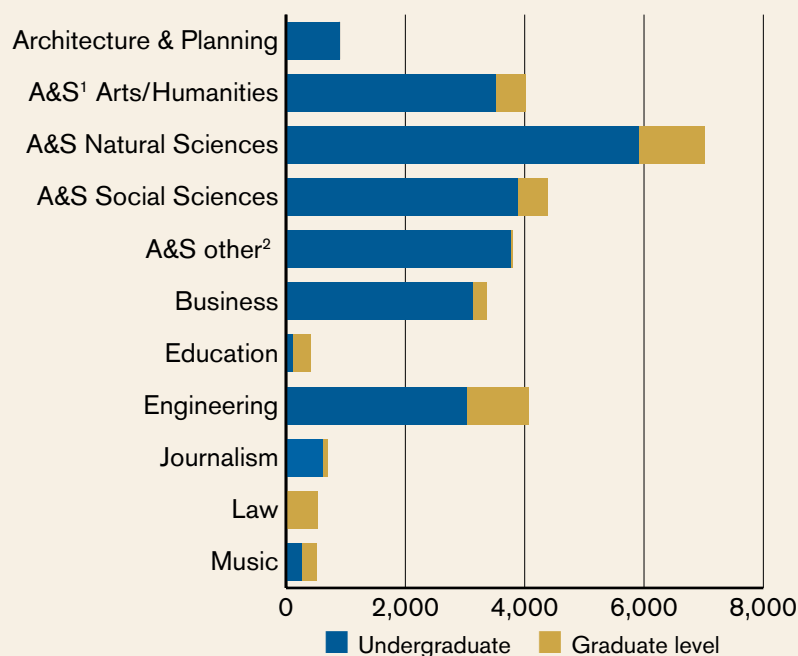
Academics Overview

Courses, majors, and degrees. About 3,400 courses are provided in more than 150 fields of study at CU-Boulder. The university offers about 80 majors in 60 degree programs¹¹ at the undergraduate level, about 70 majors in 50 degrees at the master’s level, a juris doctor degree program, and about 50 doctoral degree programs.

Schools and colleges. CU-Boulder includes nine schools and colleges: the College of Arts and Sciences, the Leeds School of Business, the School of Education, the College of Engineering and Applied Science, the Graduate School, the School of Journalism and Mass Communication, the School of Law, the College of Music, and the undergraduate program of the University of Colorado Denver’s College of Architecture and Planning. Following are brief overviews of the schools and colleges:

- *College of Arts and Sciences.* The largest of the university’s schools and colleges, the College of Arts and Sciences serves nearly 70 percent of the undergraduate student body. In fall 2008, the college enrolled more than 17,000 undergraduates and nearly 2,200 graduate students.¹² It offers a wide variety of fields of study, with nearly 50 undergraduate majors in the liberal arts. The college includes more than 40 departments and programs organized into three divisions: arts and humanities, social sciences, and natural sciences. More than 60 percent of undergraduate classes are small in size, with 25 or fewer students. Advanced degrees are offered by nearly every academic department in the college, and the PhD degree is offered in about 30 disciplines.
- *Leeds School of Business.* The Leeds School of Business awards four degrees: the bachelor of science in business administration, the master of science in business administration, the master of business administration (MBA), and the PhD in business administration. Fall 2008 enrollment included more than 3,100 undergraduates and 231 graduate students.¹³ High-tech classrooms in a newly renovated and expanded building offer advanced equipment for learning and teaching. Areas of emphasis include accounting, finance, systems, management, and marketing. Students also may complete an area of application, such as entrepreneurship and small business management, international business, and real estate.
- *School of Education.* The School of Education offers teacher licensure programs that include rigorous content preparation as well as field-based practicum experiences. Graduate programs emphasize research on educational policy and practice. The school collaborates with numerous departments on campus to improve student learning and teaching methods. There were 103 undergraduates and 309 graduate students in the School of Education in fall 2008.¹⁴ More than 200 additional undergraduates seeking bachelor’s degrees in other colleges were formally enrolled in teacher licensure programs at that time.

DISPLAY 1.2
Fall 2008 Enrollment by
School, College, and Arts & Sciences Division
Main campus degree-seeking students, fall census



¹ A&S is the College of Arts and Sciences.

² A&S other includes students who have not yet selected a major.

Source: Office of Planning, Budget, and Analysis

- *College of Engineering and Applied Science.* Twelve undergraduate degrees are offered by the college, ranging from aerospace engineering and chemical engineering to applied mathematics and engineering physics. Eight graduate degree programs are offered in such areas as chemical engineering, civil engineering, and interdisciplinary telecommunications. The college has six academic departments and several additional programs and opportunities. Signature programs include the Integrated Teaching and Learning Laboratory, the First-Year Engineering Projects Course, Engineering for Developing Communities, Discovery Learning Center, and K–12 Engineering Outreach. In fall 2008, the college enrolled more than 3,000 undergraduate students and more than 1,000 graduate students.¹⁵
- *Graduate School.* The Graduate School works to create and preserve knowledge; to prepare a new generation of scholars, professionals, and informed citizens; to promote interdisciplinary thinking and learning; and to encourage constructive engagement with the public. It oversees master's and

doctoral programs in other schools and colleges, with the exception of the juris doctor and MBA degrees. It also oversees dual degree arrangements, joint degrees, and concurrent bachelor's/master's programs, and graduate certificate programs. The Graduate School implements policies on graduate student appointments, grievances, and appointment to the graduate faculty, among other activities.

- *School of Journalism and Mass Communication.* The school enrolls about 600 undergraduates and nearly 100 graduate students in five sequences. Most students participate in a wide range of internships to obtain practical media experience. Journalism students usually complete their freshman year of undergraduate work in the College of Arts and Sciences before applying to the school. The school offers a bachelor of science degree in journalism from one of five sequences: advertising, broadcast news, broadcast production, media studies, and news-editorial. Journalism students may seek the master of arts with emphasis in newsgathering or mass communication research (enrollment about 75). The school also collaborates with the department of communication to offer the PhD degree (enrolling about 25).
- *School of Law.* With a student body of about 525, the law school offers a full-time three-year juris doctor (JD) degree program as well as certificate and dual-degree programs in conjunction with the JD. A new law building, constructed under "green" principles, provides a technologically advanced environment for teaching and learning. The school has developed a highly ranked environmental and natural resources law program, as well as 10 clinics and four centers that offer practical experience in specialty areas of law. Graduates report an employment rate of nearly 90 percent within nine months following graduation.
- *College of Music.* With about 550 students divided almost evenly between graduates and undergraduates, the College of Music offers bachelor's degrees (BA, BM, BME) through doctoral degrees (MM, DMA, PhD) in performance, composition, musicology, ethnomusicology, jazz studies, and music education. The college also is host to two centers: the Entrepreneurship Center for Music and the American Music Research Center. The College of Music contributes significantly to the cultural life of the campus, with more than 1,000 non-music majors taking music courses or participating in ensembles each semester. The college also enriches the campus and community cultural environment by hosting more than 350 concerts, recitals, and lectures each year, attended by 90,000 concertgoers from throughout the region.
- *College of Architecture and Planning.* On its two campuses, the College of Architecture and Planning prepares students for careers in architecture, urban and regional planning, landscape architecture, urban design, and other design and planning-related fields. Undergraduates at the Boulder campus work toward the bachelor of environmental design degree by

engaging in hands-on design projects and curriculum to prepare them for the real-world challenges of the designed environment. Graduate-level students are located at the Denver campus of the system. Undergraduates can engage in dual-degree programs with other colleges or schools at CU-Boulder, such as business, engineering, or various programs in the College of Arts and Sciences. Nearly 900 undergraduates were enrolled in the Boulder campus program in fall 2008.¹⁶

Division of Continuing Education and Professional Studies. CU-Boulder encourages lifelong learning with an active program in continuing education through the Division of Continuing Education and Professional Studies¹⁷ (CEPS). The self-funded division extends the university's resources in nontraditional ways, ranging from credit-bearing courses to professional development classes. Each year, about 750 continuing education students are admitted into degree programs at CU-Boulder. Continuing education offers programs supporting non-degree students, high school students, evening credit, graduate-level engineering courses for working professionals via distance learning, certificate programs in business and computer applications, customized courses for targeted audiences, independent learning via correspondence and online coursework, international English, outreach, and personal enrichment courses. CEPS also oversees the university's summer session program, which offers more than 500 courses and serves about 7,400 students through a three-week Maymester term and other five-, eight- and 10-week terms. Course offerings are enhanced by the "Featured Courses" program, which enables CU-Boulder faculty to offer special courses, and the Faculty-in-Residence for Summer Term (FIRST) program that brings prominent faculty from other universities to teach. Further, students can earn an academic minor in business through summer session. In addition, three online courses were piloted during summer 2009.

University Libraries. The University Libraries,¹⁸ the largest library system in the Rocky Mountain region, house more than 12 million books and other materials in Norlin Library and five branch libraries. The libraries rank 41st among the 125 largest North American research libraries. Special libraries are available, covering topics of art and architecture, East Asia, and science, as well as a collection of manuscripts dating from 2000 B.C.E. to the present. A rare-book collection features English and American literature. The Chinook web system offers online access to the university's collection and other holdings nationwide.

The Research Enterprise

Research, scholarship, and creative work. CU-Boulder faculty and students engage in scholarly activities that add to the world's body of knowledge in a wide range of fields. Based on a strong disciplinary foundation, the university has developed an international reputation for interdisciplinary work, bringing multiple perspectives to bear on important societal questions. Scholars in more than 90 research institutes, centers, and laboratories conduct leading-edge work



Norlin Library is home to the university's humanities, social sciences, and rare books collections, in addition to computer labs, study areas, and specialized academic programs. It recently opened the newly renovated Norlin Commons, providing multimedia workstations, group study rooms, and 24-hour study access for students.

CU-Boulder is the only research university in the world to have designed and built space instruments for NASA that have been launched to every planet in the solar system. CU-Boulder's Laboratory for Atmospheric and Space Physics (LASP) has operated more spacecraft than all other university-based organizations in the nation combined.

on subjects from environmental science and Asian studies to space sciences and the humanities and arts.

In 2008–09, CU-Boulder researchers were awarded about \$340 million in sponsored research awards, the highest in university history and an increase of 21 percent over the previous year. The university's research enterprise is distinctive in the diversified range of its major federal funding sources, including NASA (\$75 million), National Science Foundation (\$58 million), Health and Human Services (\$50 million), Department of Commerce (\$40 million), and Department of Defense (\$13 million). CU-Boulder sponsored research awards first exceeded \$200 million in 1999.¹⁹

The university also has developed strong cooperative relationships with a number of national laboratories located in the Boulder area, including the National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST), National Center for Atmospheric Research (NCAR), and the National Renewable Energy Laboratory (NREL) in Golden, Colorado. Collaborations with the national labs range from major joint institutes to smaller departmental research partnerships.

CU-Boulder scholars also have earned national and international recognition in the arts and humanities, social sciences, business, law, journalism, environmental design, and education. Faculty and students are involved in creative and scholarly works that enrich the human experience and broaden human understanding, ranging from the award-winning jazz studies program and studies of Native American languages to the acclaimed Colorado Shakespeare Festival and the Grammy-winning Takács Quartet. Scholars at CU-Boulder have a remarkable record for citations in professional journals and other publications, another indicator of the high quality of their work, as discussed in Chapter 7.

Academic Rankings

The university is ranked among the nation's top universities in a number of undergraduate and graduate programs. In 2008, the university was ranked 20th among public universities in federal research awards.²⁰ In addition, CU-Boulder was ranked 10th among U.S. public universities in a 2008 study by the Institute for Higher Education at Jiao Tong University in Shanghai, China.²¹ The institute's ranking criteria included Nobel Prizes, the number of highly cited researchers in several broad categories, number of articles published in *Nature* and *Science*, total number of research paper citations, and academic performance of faculty with respect to institution size.²²

Undergraduate rankings. *U.S. News & World Report* placed CU-Boulder among the nation's top 50 public national universities in its 2009 America's Best Colleges issue. Highly ranked undergraduate programs included business entrepreneurship (16th), aerospace engineering (16th), engineering (35th), and business (35th). Top graduate programs were environmental law (4th), physical

DISPLAY 1.3
Research Institutes

| | |
|---------|---|
| CIRES | Cooperative Institute for Research in Environmental Sciences, joint with NOAA (National Oceanic and Atmospheric Administration) |
| IBG | Institute for Behavioral Genetics |
| IBS | Institute of Behavioral Science |
| ICS | Institute of Cognitive Science |
| INSTAAR | Institute of Arctic and Alpine Research |
| JILA | Joint with NIST (National Institute of Standards and Technology) |
| LASP | Laboratory for Atmospheric and Space Physics |
| RASEI | The Renewable and Sustainable Energy Institute, joint with NREL (National Renewable Energy Laboratory) |

Source: www.colorado.edu/research/institutes

chemistry (10th), business entrepreneurship (13th), aerospace engineering (16th), geology (18th), chemical engineering (19th), environmental engineering (21st), and civil engineering (24th). CU-Boulder ranks in the top five universities in the nation, not including military academies, for astronaut alumni who have flown in space, with 17.²³

Overall, CU-Boulder was one of only 23 public institutions ranked as a “Best Buy” in the 2009 edition of the *The Fiske Guide to Colleges*. In the 2009 Guide’s profile of CU-Boulder, the university’s “strongest programs” are listed as physics, psychology, geography, applied mathematics, biology, integrative physiology, and music. In the preface of the guide, CU-Boulder is listed among 25 major universities strong in music and among 28 major universities strong in environmental studies.²⁴

The Princeton Review has designated CU-Boulder as one of the “Best Value Colleges for 2009.” The list features 50 public and 50 private colleges and universities and was featured in the January 8, 2009 edition of *USA Today*.²⁵ The institutions were selected based on surveys of administrators and students at more than 650 colleges and universities. The selection criteria covered more than 30 factors in three areas: academics, cost of attendance, and financial aid. The list is accessible [online](#).²⁶

Graduate education and research in the disciplines. In *U.S. News & World Report*’s 2010 Best Graduate Schools issue (released in 2009), five CU-Boulder graduate specialty programs were ranked in the top 10 nationally, including atomic/molecular/optical physics at number 1, quantum physics tied for number 4, environmental law at number 6, plasma physics at number 10, and physical chemistry at number 10. The physics department overall was ranked in a tie for 20th. The publication ranked the law school 11th among

DISPLAY 1.4
Selected Measures,
1999–2000 and 2008–09

| STUDENTS | 1999–2000 | 2008–2009 |
|--|-----------|-----------|
| Enrollment: Fall census, main campus, degree-seeking students (headcount) | 25,656 | 29,709 |
| Undergraduate | 21,203 | 25,080 |
| New freshmen | 4,566 | 5,833 |
| New transfers | 1,439 | 1,320 |
| Graduate (including Law) | 4,453 | 4,629 |
| Professional (Law) | 492 | 523 |
| Enrollment: Fall end-of-term total; includes non-degree, evening and correspondence, CU-Boulder study abroad (headcount) | 28,851 | 32,469 |
| Diversity (fall census, main campus degree-seeking students) | | |
| % Women | 48% | 47% |
| % Colorado residents | 68% | 66% |
| % Students of color | 13% | 14% |
| African American | 2% | 2% |
| Asian American | 5% | 6% |
| Hispanic | 5% | 6% |
| Native American | 1% | 1% |
| % International | 4% | 4% |
| Academic profile, new summer/fall freshmen | | |
| Average ACT composite | 25 | 26 |
| Average SAT combined | 1160 | 1177 |
| Cumulative % in top 10% of high school graduating class | 24% | 27% |
| Cumulative % in top 25% of high school graduating class | 57% | 61% |
| Retention to second fall, new summer/fall freshmen | | |
| Entry year | 1998 | 2007 |
| All new summer/fall freshmen | 84% | 84% |
| Students of color | 81% | 80% |
| African American | 82% | 82% |
| Asian American | 81% | 86% |
| Hispanic | 81% | 74% |
| Native American | 80% | 82% |
| Six-Year graduation rate, new summer/fall freshmen | | |
| Entry year | 1993 | 2002 |
| All new summer/fall freshmen | 64% | 67% |
| Students of color | 50% | 61% |
| African American | 46% | 53% |
| Asian American | 54% | 66% |
| Hispanic | 47% | 60% |
| Native American | 37% | 49% |
| Degrees awarded (fiscal year) | 1999–2000 | 2008–2009 |
| Bachelor's | 4,418 | 4,975 |
| Master's | 1,043 | 1,060 |
| Doctoral level | 266 | 290 |
| Professional (law) | 172 | 167 |

DISPLAY 1.4, *continued*
**Selected Measures,
1999–2000 and 2008–09**

| FACULTY AND STAFF | 2001–2002 | 2008–2009 |
|--|------------------|------------------|
| (as of October 1 of fiscal year; 2001–02 shown rather than 1999–2000 to ensure data comparability) | | |
| Total head count | 13,316 | 13,364 |
| Total without student employees | 6,577 | 6,650 |
| Officer (Executive/Director/Administrator) | 23 | 24 |
| Academic | 3,370 | 3,461 |
| Tenured/tenure track faculty (TTT) | 1,029 | 1,101 |
| Instructional faculty not TTT | 1,145 | 1,102 |
| Instructors/senior instructors | 368 | 407 |
| Other: adjunct, adjoint, lecturers, honorarium, visiting, and other supplemental instructors | 777 | 695 |
| Research not TTT | 1,125 | 1,182 |
| Other academic not TTT | 71 | 76 |
| Professional exempt | 406 | 652 |
| Classified staff | 2,778 | 2,513 |
| Student employees | 6,739 | 6,714 |
| Instructional (TA/GPTI/other) | 996 | 1,256 |
| Research (student RAs) | 845 | 993 |
| Instruction/research or administrative (student assistants) | 204 | 354 |
| Student hourly | 4,694 | 4,111 |

| FINANCIAL INFORMATION | 1999–2000 | 2008–2009 |
|--|------------------|------------------|
| Budgeted revenue, in millions | | |
| Unrestricted | | |
| State tax dollar funding | \$ 76 | \$ 86 |
| Tuition and course/program fees | \$ 167 | \$ 370 |
| Indirect cost reimbursement and other miscellaneous | \$ 35 | \$ 47 |
| Total unrestricted | \$ 278 | \$ 503 |
| Auxiliary | \$ 146 | \$ 239 |
| Restricted including sponsored research and gift-funded | \$ 202 | \$ 276 |
| <i>Total budget</i> | \$ 627 | \$ 1,018 |
| Undergraduate tuition and required fees, academic year | | |
| Resident | \$ 3,118 | \$ 7,278 |
| Nonresident | \$15,898 | \$26,756 |
| Endowment (as of June 30), in millions | \$ 207 | \$ 296 |

FACILITIES

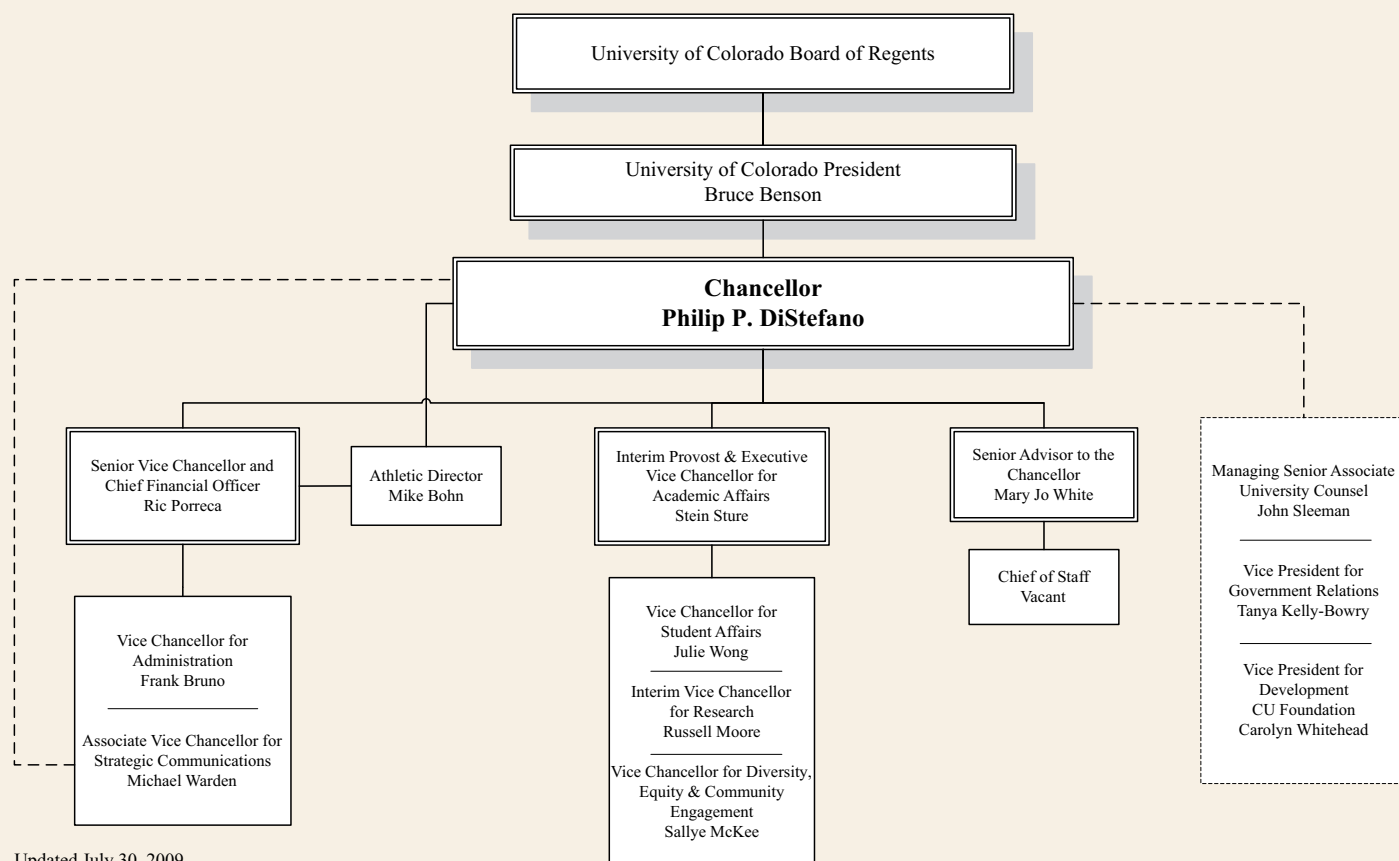
| | | |
|----------------------------------|---------|---------|
| Classroom space (in square feet) | 203,311 | 254,256 |
| Research space (in square feet) | 523,747 | 576,438 |

Notes:

Direct lending was removed from 1999–2000 budget to make comparable to 2008–09 accounting.

150 “other academic not TTT” and 400 research staff were removed from 2001–02 staff headcounts to make comparable to 2008–09 accounting.

Display 1.5
University of Colorado at Boulder Office of the Chancellor



publicly funded law schools and fourth among publicly funded law schools in the western United States.²⁷

Various CU-Boulder departments have been highly ranked in several publications. In the College of Arts and Sciences, for example, 14 graduate programs—in arts and humanities, natural sciences and social sciences—recently were nationally ranked in the top 20 in their disciplines. These rankings were reported in publications of organizations ranging from the National Research Council to the National Communication Association.

Major Administrative Areas

The administrative areas of the University of Colorado at Boulder have their foundations in functions that support the mission of the institution—through teaching, research, creative work, learning, student development, diversity, operations, and infrastructure. The chancellor is the chief executive officer of the University of Colorado at Boulder. The provost and executive vice chancellor for academic affairs leads the academic arena of the university; the senior vice chancellor and chief financial officer heads the financial and administrative side of operations. More details on the roles of the leadership team are provided in Chapter 4.

Academic affairs. The university's academic programs and policies are administered by the Division of Academic Affairs, which provides overall campus-wide leadership for achievements in teaching, research, scholarship, and creative work. The division includes all schools and colleges, as well as continuing education and the libraries.

Research. The Office of the Vice Chancellor for Research provides leadership for the university's endeavors in research and creative work, while upholding the highest standards in research integrity. The office also works closely with research institutes, graduate departments, and local and regional federal and state agencies to enhance interdisciplinary collaborations. Directors of the research institutes report directly to the vice chancellor for research.

Student affairs. The Division of Student Affairs provides a wide range of educational opportunities, resources, and support services to help ensure students' development as successful learners and citizens both inside and outside the traditional classroom. The division comprises more than 20 departments and services, such as Career Services, Housing & Dining Services, Wardenburg Health Center, orientation, recreation services, judicial affairs, and the University Memorial Center.

Diversity, equity, and community engagement. The Office of Diversity, Equity, and Community Engagement (ODECE, pronounced "odyssey") helps foster CU-Boulder's vision for a diverse and welcoming campus climate in support of inclusive excellence. The office and its units work closely with students, faculty, and staff to implement the university's diversity plan, Blueprint for Action. ODECE units include Disability Services, the Center for Multicultural Affairs, and Pre-College Services, as well as other committees and programs such as the CU Leadership, Excellence, Achievement, and Diversity (CU-LEAD) Alliance; Chancellor's Advisory Committee on Minority Affairs; Chancellor's Standing Committee on GLBT Issues; Chancellor's Program Accessibility Committee; Chancellor's Diversity Advisory Board; and Chancellor's Committee for Women.

Financial management, operations, and planning. The Office of the Senior Vice Chancellor and Chief Financial Officer provides leadership for several areas that support the work of the university community. Areas of responsibility include the administration division, information technology services, budget and finance, planning, admissions, financial aid, registrar, strategic communications, and institutional analysis. The financial and operational aspects of intercollegiate athletics are overseen by this office, while other aspects of athletics, such as the major sports programs, academic advising and support, public relations, and fundraising, report through the athletics director to the chancellor.

Administration. The Division of Administration is responsible for developing and maintaining the campus infrastructure in support of the university's mission in teaching, research and creative work, and service. Areas within the division

Chancellor's Cabinet

Phil DiStefano, Chancellor
Stein Sture, Interim Provost and Executive Vice Chancellor for Academic Affairs
Ric Porreca, Senior Vice Chancellor and Chief Financial Officer
Frank Bruno, Vice Chancellor for Administration
Sallye McKee, Vice Chancellor for Diversity, Equity, and Community Engagement
Russ Moore, Interim Vice Chancellor for Research
Julie Wong, Vice Chancellor for Student Affairs
Carolyn Whitehead, Vice President for Development, CU Foundation
John Sleeman, Managing Senior Associate University Counsel
Mary Jo White, Senior Advisor to the Chancellor
Michael Warden, Associate Vice Chancellor for Strategic Communications



More than 16,000 CU-Boulder students each year participate in 16 intramural sports leagues on campus.

include capital development and construction, facilities management, human resources, police and public safety, environmental health and safety, business services, and the campus bookstore.

Athletics and Recreation

Varsity and club sports. A member of the Big XII Conference in intercollegiate athletics, CU-Boulder fields varsity teams in men's and women's basketball, cross country, golf, track and field, and skiing, as well as women's soccer, tennis, and volleyball and men's football.²⁸ About 1,500 students participate in 34 club sports each year, competing with schools across Colorado and the nation in such sports as fencing, lacrosse, and water polo.²⁹

Recreation opportunities. Sixteen intramural sport leagues are available through the Student Recreation Center, ranging from dodgeball to ice hockey, with more than 16,000 participants each year. The Student Recreation Center, a student fee-funded facility open seven days a week, provides a wide variety of opportunities for exercise and relaxation. Facilities include an ice arena; three pools; a diving facility; two large general-purpose gyms with basketball courts; free weights and fitness-machine rooms; an indoor running track; a rock climbing gym; tennis courts; martial arts and dance studios; courts for handball, racquetball and squash; and many others.³⁰

State and Community Context

Higher education in Colorado is shaped fundamentally by geographic, demographic, and cultural factors that define the state. Clearly, CU-Boulder benefits from the appeal of the environment and active lifestyle offered by the Rocky Mountain West. Colorado and Boulder continue to attract outstanding faculty, students, and staff. The state's population is relatively low (ranking 24th among states in 2000) but is growing moderately.³¹ The population is concentrated centrally in the state along the Front Range—requiring significant travel time to reach Colorado's "four corners." Colorado is characterized by high levels of education (ranking fifth among states in percentage of population age 25 to 64 with a bachelor's degree or higher),³² with a high percentage of citizens who were educated outside the state. Income per household is relatively high, ranking 12th among the states.³³ The largest minority group is Hispanic, with a growing population rate and a lower high-school graduation rate than other groups.³⁴ The state is imbued with an almost indefinable "culture of the West," but many of its residents were born elsewhere. These factors are important to the future of CU-Boulder and are considered in the university's planning activities.

CU-Boulder cultural and educational impacts. The university's impact is felt throughout the Boulder community, the state of Colorado, and beyond. By producing thousands of educated graduates each year, the university contributes to the leadership and intellectual environment of their communities. Area residents also benefit from a wide array of non-credit courses and educational

programs available at CU-Boulder. Research discoveries by university scholars help improve the quality of life for many and add to the world's knowledge in numerous fields, as outlined in Chapter 7. Outreach and engagement efforts, described in more detail in Chapter 8, benefit communities around the state in a number of ways. For example, residents and visitors have access to numerous artistic exhibits at the CU Art Museum, whose permanent collection is the only public resource of its kind for the state of Colorado and the only public art collection in Boulder.³⁵ Public concerts presented by the College of Music and plays produced by the theatre and dance department draw audiences from throughout the Boulder/Denver area, exposing them to a high level of cultural awareness and appreciation. University athletic events attract thousands of spectators every year for a wide range of sporting competitions. Also, public access to CU-Boulder's system of libraries offers an invaluable service to area citizens and professionals who use this impressive collection of printed and electronic resources.

CU-Boulder economic impacts. In addition to enriching the community and state with cultural and educational programs, CU-Boulder contributes to their economies as well. In fiscal year 2007, student spending in Boulder was estimated to be about \$273 million, resulting in an estimated economic impact to the state of more than \$518 million. Out-of-state visitors related to the university spent nearly \$58 million in Boulder with an estimated economic impact of more than \$109 million. Research activity alone accounts for a considerable impact on the state's economy. In a 2007–08 study by the University of Colorado System, data show that CU-Boulder is particularly successful in leveraging state funding to attract federal research dollars. For each \$1 in state support during that fiscal year, CU-Boulder expended more than \$3 on federally funded research.³⁶

A Decade of Change: Key Developments

Since 2000, when CU-Boulder was last reaccredited by the North Central Association of Colleges and Schools (NCA), the university has experienced remarkable changes in the life and the face of the campus. There have been significant developments in planning, organization, facilities, technology, and finances. Faculty and students achieved major milestones in classrooms, laboratories, performance and artistic spaces, and in the community. Throughout this decade of change, the university moved forward, aligned with its mission and committed to excellence.

Strategic Planning

Campus master plan. In 2001, the university completed a master plan for the capital development of the Boulder campus. Reflecting three years of study and evaluation, the plan aimed to transform emerging institutional needs into a capital development program that would meet those needs through the next

decade. The plan was closely tied to university planning goals, assumptions about growth, and the unique characteristics of the campus setting. The document also assessed facilities needs for a changing university community, land-use issues, environmental management, transportation, utilities infrastructure, and a host of other complex considerations. Now, the university has turned its attention to creating a facilities master plan for the next 10 years, as described in Chapter 5, with *Flagship 2030* as the master plan's driving force.

Quality for Colorado. In 2003, the university developed an ambitious strategic plan, called *Quality for Colorado*, in partnership with the state of Colorado, students, and their parents. To fund its initiatives, the plan called for special tuition increases phased in over four years. New revenues were invested in innovative learning opportunities, increased financial aid, and expanded faculty recruitment. With its focus on quality rather than quantity, the plan emphasized stabilizing enrollment growth and raising the bar on student academic preparation. Programmatic results included enhanced undergraduate research opportunities, improved advising, and expanded residential academic programs, among many others. Full implementation was not supported by the state, but the university remained committed to the priorities outlined in the plan.

Flagship 2030. Beginning in 2006, the institution engaged in a wide-ranging strategic planning endeavor that focused new energy on reaffirming CU-Boulder's primary identity as a comprehensive research university, initiated by then Chancellor G.P. "Bud" Peterson. The new strategic plan, called *Flagship 2030: Serving Colorado, Engaged in the World*, was approved by the CU Board of Regents in 2007. In the second phase beginning in 2008, nine task forces prepared implementation scenarios for the plan's major initiatives. In 2009, the third phase of the plan has included administrative review of the reports, feasibility assessments of the recommendations, and prioritization of action items.

With *Flagship 2030*, the Boulder campus has set its course for becoming a leading model for the "new flagship university" of the 21st century. The plan calls for investing in near-term needs to sustain quality and remain competitive, as well as aggressive Flagship Initiatives for transforming the university over the long term. *Flagship 2030* pervades planning activities at every level of the university, as described in greater detail in Chapter 3 and referenced throughout the self-study report.

A Changing Landscape in Colorado Higher Education

Changes in the state's role in higher education. The last 10 years have seen numerous changes in Colorado laws, regulations, and practices regarding higher education in general, and in funding in particular. However, especially with the recession of 2009, the net effect of the changes would be characterized by many onlookers as limited: higher education started and ends the decade with too little state financial support and too many state regulations.

The *Flagship 2030 Budget Task Force*³⁷ outlined the changes and dilemmas. In brief, “enterprise authority” for all state of Colorado public higher education was granted as part of Colorado Senate Bill 04-189, in 2004. Passage of this bill effectively removed tuition revenues from the state constitutional amendment known as TABOR (Taxpayer Bill of Rights), which set strict limits on the growth of government and tax spending. The bill also split state tax-dollar funding into the Colorado Opportunity Fund (COF, paid at a per-credit-hour rate for resident undergraduates) and a fee-for-service portion. In addition, the bill specified that schools must negotiate performance contracts with the state Department of Higher Education to be eligible for COF funding.

The new funding model established by Colorado Senate Bill 04-189 has shown mixed results. The resource flexibility that was to accompany enterprise status has not materialized to the extent hoped. State limitations on tuition increases continue, coupled with regulations specifying use of tuition revenue for financial aid. However, the state has opted in the last two years to impose less stringent tuition limitations on research universities—a welcome sign to the university.

At the same time, the state has extended protections or relief from funding restrictions to other major sectors of the state budget, particularly transportation and K–12 schools. Temporary relief (for all sectors) from TABOR limitations, resulting from passage of Referendum C in 2005, is due to expire at the end of fiscal year 2009–10. In July 2009, the University of Denver’s Center for Colorado’s Economic Future called for a comprehensive examination of Colorado’s state and local revenue system, stating that a “structural flaw” in the system means that “the long-term fiscal stability of state government is at stake.” The center’s issue brief is titled “Colorado’s State Budget Tsunami.”³⁸

State funding for higher education remains low, with inflation-adjusted funding declining by \$69 million since 2002, putting Colorado 48th of 50 states in funding for higher education by some measures. A *March 2009 CU Board of Regents resolution*³⁹ summarizes the facts. For CU-Boulder, calculations by the Colorado Commission on Higher Education (CCHE) showed that in fiscal year 2009 CU-Boulder had per-student state support of \$3,306, compared with \$10,255 for its peers, as determined by CCHE (AAU U.S. publics without medical schools). For these calculations, CCHE used *methods developed by the National Center for Higher Education Management Systems (NCHEMS)*⁴⁰ to help allocate state funding distributions among institutions.

Performance contracts negotiated under Senate Bill 04-189 must specify the performance goals for each institution. *The University of Colorado performance contract*⁴¹ focuses on access, quality and success, efficiency, and addressing state needs. While the contract’s goals include enhanced academic rigor and student achievement on national standardized tests, outcomes assessment is not specifically addressed.



The performance contracts replaced the former Quality Indicator System (QIS) of the CCHE, which was implemented in 1998. The Quality Indicator System originally included indicators and plans in advising, graduation rates, and instructional expenses, as well as outcomes assessment and other measures.⁴² By 2000, QIS was reduced to strictly quantitative measures, such as course availability, retention rates, and credits required for bachelor's degrees, with no requirements for or mention of outcomes assessment. Histories and reports for both QIS and the University of Colorado performance contract are available on the Office of Planning, Budget, and Analysis⁴³ website.

Changes in the University of Colorado System. The past 10 years also have seen significant changes in the University of Colorado System. In 2004, the University of Colorado underwent the first major change in system structure since the 1970s. The system's Denver campus and Health Sciences Center were consolidated administratively, creating a single urban research institution as a major presence in Denver. The 2005 move of the president's office and most of the system personnel from the Boulder campus to metropolitan Denver brought them closer to the state capital and legislature and helped clarify the respective roles of the president and the chancellors of the university's campuses. Since then, the CU Board of Regents has granted greater autonomy to the chancellors of the system campuses, including delegating much of the board's authority over personnel matters within each campus, such as appointment of campus officers and exempt professionals. However, the regents retain their authority for the award of tenure to faculty and the appointment and dismissal of tenured faculty throughout the university system.

Managing Growth and Financial Challenges

Despite state funding cuts early in the decade, CU-Boulder's resource base has grown significantly since the last NCA evaluation. The university has seen increases in tuition rates, enrollment, research activity, student and state funding of capital construction, auxiliary enterprise activity, and private fundraising.

Since fiscal year 1999–2000, CU-Boulder's annual **operating budget** has increased by 62 percent, from \$627 million to \$1.018 billion, a 30 percent increase after inflation. Growth can be seen in all the primary resource types, including the unrestricted (general), auxiliary, and restricted funds—despite some serious reductions in state funding. Between fiscal year 2001 and 2005, CU-Boulder lost about \$23 million in tax support due to state revenue shortfalls. To manage this funding reduction, the university eliminated about 50 existing staff positions, 70 vacant faculty positions, and 60 vacant staff positions. Operating expenses were trimmed in such areas as the libraries, technology replacement, and student and faculty recruitment.

In the latter part of the decade, before the 2009 recession, some progress was made toward restoring state funding to the pre-cut levels, as the state was able to

increase allocations to higher education. State funding for CU-Boulder remains short of previous levels, however, when adjusted for inflation and enrollment growth. The university became more dependent on tuition revenues than ever before, with tuition representing a larger share of university operating revenues. In 1999–2000, tuition plus course and program fees were 60 percent and state funding was 27 percent of general fund revenue. In 2008–09, tuition and fees were 73 percent and state funding was 17 percent of general fund revenue. More information about financial issues is provided in Chapter 5.

In recent years, students have played a major role in the **capital development** of the campus. In the face of scarce state funds, the CU-Boulder student government voted in 2004 to assess a \$400-a-year student capital construction fee to enable construction of several new buildings on campus as well as enhancements to the university's information technology infrastructure. The unprecedented action was the first in Colorado higher education history and perhaps the nation's. With the help of the student capital construction fee and external donations, the university was able to build three new facilities: the Wolf Law Building, the Alliance for Technology, Learning, and Society (ATLAS) building, and the Koelbel Business addition and renovation. A Visual Arts Complex, also supported by the fee, will be open in spring 2010. The student capital construction fee was phased in, with payment scheduled only after the buildings open. Funds from the capital fee also allowed the university to install up-to-date wiring and network system infrastructure throughout the campus.

Since the last NCA review, **private fundraising** has increased, with remarkable progress in the latter part of the decade. The system successfully completed a \$1 billion campaign, of which \$353 million was raised by CU-Boulder. Between 2006 and 2008, private fundraising increased by nearly 80 percent (from \$32 million to about \$57 million). CU-Boulder's endowment grew from \$170 million in 1998–99 to \$296.4 million in 2008–09, an increase of more than 74 percent. The number of endowed chairs rose from nine in 1998–99 to 26 in 2007–08.

Tuition revenues have increased substantially due to raises in rates as well as steady enrollment growth, with continued high proportions of nonresident students who pay substantially higher rates. Between 1999–00 and 2008–09, the undergraduate resident tuition and required fee rate rose by 133 percent, from \$3,118 to \$7,278; however, this rate remains below the average of peer institutions. The undergraduate nonresident tuition and fee rate increased by 61 percent, from \$16,562 to \$26,756, and remains above the peer average. In 2008, CU-Boulder's undergraduate resident tuition and fee rate was 88 percent of the average of public AAU universities, while the nonresident rate was 116 percent.⁴⁴ Total enrollment increased by 14 percent in this period.

Changes in University Administration

In the past decade, the university experienced several **changes in leadership** both at the campus and system levels. Between 2000 and 2009, there were five different system presidents and three CU-Boulder chancellors. Chancellor Richard L. Byyny resigned in 2004 after eight years at the campus helm to take a position within the UC Denver Anschutz Medical Campus. Then-provost Phil DiStefano was named interim chancellor, serving until July 2006, when Chancellor G.P. “Bud” Peterson was appointed to the permanent position. Effective April 1, 2009, Chancellor Peterson resigned to become president of the Georgia Institute of Technology, and Provost DiStefano was again named interim chancellor before being appointed to the permanent position in May 2009. Stein Sture, vice chancellor for research and dean of the Graduate School, was named to serve as interim provost.

In June 2000, University of Colorado System President John Buechner resigned his position, and Alexander “Sandy” Bracken was appointed to serve while a national search was conducted. Elizabeth “Betsy” Hoffman was named president in September 2000, serving until her resignation in 2005. Former U.S. Senator Hank Brown succeeded Hoffman as president, serving until he resigned in 2008. CU alumnus and business leader Bruce Benson was named to the position in March 2008.

Despite the shifts in administrative positions, CU-Boulder’s leadership team is characterized by stability and considerable experience in key positions. For example, Chancellor DiStefano and Senior Vice Chancellor Ric Porreca have dedicated the entirety of their administrative careers to the university. Many of the deans have extensive experience both as faculty and administrators at CU-Boulder, including Dan Sher, dean of the College of Music since 1993; engineering dean Rob Davis, who joined the CU-Boulder faculty in 1983 before being named dean in 2002; and Dean Todd Gleeson of the College of Arts and Sciences, who joined the faculty in 1981 and was appointed associate vice chancellor in 1997 and dean in 2001. Members of the Chancellor’s Cabinet also are characterized by extensive experience and seasoned leadership.

CU-Boulder’s **administrative structure** also has changed significantly in 10 years. In 2001, then-chancellor Byyny announced a fundamental change in the university’s organization—the first such move in more than 20 years. The new structure, consistent with recommendations by the 2000 NCA evaluating team, was intended to help meet current challenges and cope with a changing environment. It created renewed focus on the educational and research mission, further integrated student development into the learning process, an emphasis on strategic planning and resource management, and bolstered attention to campus infrastructure. The new structure modified existing positions and redrew reporting lines for increased efficiency, with such changes as:

- Elevating the position of vice chancellor for academic affairs to provost and executive vice chancellor for academic affairs, serving as second-in-command to the chancellor.
- Elevating the existing position of associate vice chancellor for research to become vice chancellor for research and dean of the Graduate School, reporting to the provost. In 2009, the position was divided, when an interim vice chancellor for research and an interim dean of the Graduate School were named.
- Establishing a reporting line from the vice chancellor for student affairs to the provost.
- Elevating the position of vice chancellor for budget and finance to senior vice chancellor and chief financial officer to work closely with the chancellor and provost on strategic planning, resource management, and institutional effectiveness, as well as general oversight of university operations.
- Establishing a reporting line from the vice chancellor for administration to the senior vice chancellor and chief financial officer, with direct responsibilities for non-academic support services.
- Limiting direct reporting lines to the chancellor, allowing the chancellor to focus more time and effort on moving the university's agenda forward, including developing campus leadership, expanding private fundraising, and enhancing public, business, and governmental relations.

In 2007, a new vice chancellor position was created to bring greater vision and leadership to enhancing diversity and creating a more welcoming campus climate. The new **vice chancellor for diversity, equity, and community engagement**, named after a national search, participates in policy discussions as a member of the Chancellor's Cabinet, provides leadership for initiatives and programs that support inclusive excellence, and engages the university community in diversity planning and community engagement.

Also in 2007, oversight of the CU-Boulder **Alumni Association** was transferred back to the Boulder campus and rostered within the Division of Student Affairs, after 11 years with the CU Foundation. The move was intended to strengthen ties between CU-Boulder and its alumni, a key constituency group, and to engage alumni more fully in the life of the campus. In fall 2009, a search for a new executive director will begin.

In order to enhance **strategic communications** at CU-Boulder, the Office of University Communications was reorganized and a new associate vice chancellor for strategic communications position was created in 2006. Also, the university created the position of vice provost for **academic and campus technology** in 2003, providing high-level leadership for strategic technology initiatives as well



as for the Information Technology Services department. In 2009, the university moved this position under the senior vice chancellor for budget and finance with a title of chief information officer (CIO) and associate vice chancellor for academic and campus technology to better align the technology organization with the operations of the campus.

In 2004, significant changes were made in the organization of **intercollegiate athletics** in order to integrate athletics more fully into the academic community. A new athletics director was hired in 2005 with reporting responsibilities to the chancellor, while working closely with the provost on academic and other matters and the senior vice chancellor and chief financial officer on financial and operational matters. The athletics director also was invited to serve as a member of the chancellor's senior management team. By 2007, the department had undergone additional personnel changes, improved policies, and strengthened faculty involvement through a new CU Athletics Board (CU-BAB).

Improving the Physical Infrastructure

Several buildings have been added to the campus landscape over the past 10 years, adding new space for classrooms, performances, libraries, offices, laboratories, and other learning environments. Perhaps the most significant development is that *any* new general fund buildings were added, given the state's fiscal difficulties during the decade. Student leaders stepped forward, passing a new student fee to help the university move forward on a backlog of building and information technology projects, in combination with significant private gifts from CU-Boulder donors.

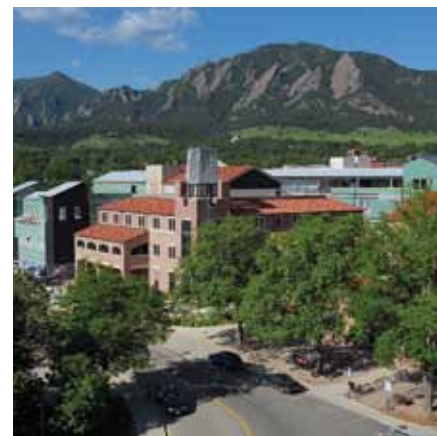
Another remarkable development is the strong emphasis on “green” construction principles and campus sustainability. Echoing a major academic initiative in energy renewal and sustainability, the university strives to model those principles on the physical campus itself. For more than 40 years, CU-Boulder has played a leadership role in campus sustainability, beginning with the nation's first student-run environmental program (1970) and the first campus-wide recycling program (1976). Since that time, a student and employee bus pass program was established, a recycling processing facility was built on campus, and the first annual Campus Earth Summit was held. Over the past decade, a number of initiatives have led to a greener campus and national leadership in the field. Sustainability provisions are incorporated into the campus master plan, with the newer buildings achieving LEED (Leadership in Energy and Environmental Design) certification.

In 2007, the Chancellor's Committee on Energy, Environment, and Sustainability was formed to serve as the steering committee for implementing university-wide environmental strategies and programs. In the same year, recycling collection exceeded 2,000 tons and plans were developed to relocate or expand the university's recycling facility. In 2008, steps were taken to eliminate waste from food and dining events as well as football games—the first zero-waste program

ever undertaken by a National Collegiate Athletic Association (NCAA) Bowl Championship Series™ university.

Building projects have added many thousands of square feet to the Boulder campus over the past decade. The first four listed below were made possible with the assistance of the student facilities fee, along with private gifts.

- The **Alliance for Technology, Learning, and Society (ATLAS) Institute building**, located near the heart of campus, was the first of four facilities built or renovated to meet stringent LEED standards for sustainable architecture. ATLAS is a \$31 million, 66,000-square-foot facility that integrates information technology with multidisciplinary curricular programs. The building, which opened in 2006, encourages students and faculty from many disciplines—from arts and humanities, to computer sciences, to journalism, to film studies—to come together in a lively atmosphere for learning.
- Completed in 2006, the 180,000-square-foot **Wolf Law Building** allows the law school to grow, recruit outstanding faculty, and promote its highly regarded law centers, clinics, and journals. Highlights include state-of-the-art classrooms and learning spaces with wireless networking, videoconferencing for distance learning, and state-of-the-art audio/visual equipment. The five-story building has two high-tech courtrooms, a leading-edge law library, and digital information kiosks throughout.⁴⁵
- In fall 2007, Leeds School of Business students, faculty, and staff moved into a newly expanded and renovated facility called the **Koelbel Building**. They settled into new classrooms, research labs, team rooms, and an information commons, as well as expanded areas for advising, career counseling, and diversity affairs. Distance learning technology was added to facilitate future curriculum development of international programs in business. The environmentally sound expansion added 65,000 square feet to the existing school of business facility.
- The **Visual Arts Complex**, scheduled to open in spring 2010, creates a new cultural gateway for CU-Boulder with state-of-the-art teaching and exhibition facilities.⁴⁶ The 170,000-square-foot center will offer expanded space for the CU Art Museum and the Department of Art and Art History. One building wing will feature new gallery spaces for permanent and changing collections, a museum gift shop, and areas for art preparation and fabrication. In the other wing will be studio areas for art and art history students, offering better lighting and access to a digital image database, as well as room for ceramics and outdoor kilns, sculpture, printmaking, and painting.
- Construction of a new 50,000-square-foot building to house the **Institute of Behavioral Science** (IBS) is expected to be completed in 2010, bringing under one roof programs that have long been housed in eight small



The innovative Alliance for Technology, Learning, and Society (ATLAS) building (front) and Visual Arts Complex (under construction) at the center of campus.

residential-style buildings. Located in the Grandview Terrace area just north of the Main Campus, the \$15.7 million facility will offer space for the institute's landmark work on such societal issues as natural hazards, the study and prevention of violence, teenage behaviors impacting health, and topics related to aging populations.

- Construction of a new student services/dining facility called the **Center for Community** is now under way, with completion scheduled for fall 2010. The facility will include about 252,000 gross square feet (130,000 for parking decks, 72,000 for dining services, and 50,000 for student services).⁴⁷ The center is designed to enhance the student experience by offering opportunities for interaction at the dining table and in student services offices such as the Office of International Education and Career Services. By combining student services, dining, and parking in one building, the project also offers increased efficiency and reduced land usage.
- Improving and expanding student housing has been a high priority throughout the past 10 years. In 2003, an innovative apartment-style complex opened at **Bear Creek Apartments** on campus, offering a mix of private and shared bedroom accommodations, academic support services, a business center, social lounges, and study areas. The new facility, constructed under a public/private partnership, added nearly 1,000 beds to the student housing inventory. In fall 2008, the university also began a **residence hall remodeling program** in support of *Flagship 2030's* "residential colleges" initiative. When completed, the remodeled halls will support an expanded residential college experience for undergraduates.
- Also in 2003, the CU-Boulder athletics department completed construction of a 125,000-square-foot **addition to the east side of Folsom Stadium** that included 1,903 new club seats and 41 private suites. Cost of the addition was \$41.1 million.⁴⁸ The project also included improved stadium lighting, concession services, and restroom facilities. The construction project was self-financed by the university, supported by private gifts and revenues from leasing the seats and suites.⁴⁹
- In 2002, CU-Boulder completed an innovative engineering facility designed to make research more accessible to undergraduates and the K–12 community. The 45,000-square-foot **Discovery Learning Center** created spaces for research collaboration among undergraduates, graduate students, faculty, industry, government sponsors, as well as outreach to the general public, K–12 students, and their teachers.
- A corporate facility near the East Campus was purchased in 2002, adding more than 90,000 gross square feet of space for campus use. The **Center for Innovation and Creativity** is home to a wide range of programs in the sciences, arts, business, student affairs, and others.

- The **University Memorial Center** (UMC), sometimes described as the Boulder campus “living room,” was transformed when a \$27 million expansion and renovation project was completed in 2002. A 51,000-square-foot wing was added and the existing 212,000-square-foot building, built in 1953, was renovated. Today, the LEED-certified UMC features a five-story atrium and houses about 90 student groups, restaurants, lounges, the CU Book Store, a travel agency, computer lab, and many more gathering places.
- Earlier in the decade, a new **humanities building** was dedicated on the Boulder campus, named for donors Woody and Leslie Eaton. Opened in 2000, the building features high-tech “smart” classrooms and lecture halls, and houses the departments of French and Italian, classics, religious studies, and Asian languages and civilizations. Costing about \$10.8 million, the four-story building has roughly 59,000 square feet.⁵⁰

Issues and Controversy in the Academic Community

Controversy is no stranger to university campuses, including the University of Colorado at Boulder. In the past decade, CU-Boulder has grappled with serious issues related to athletics, student behavior, alcohol abuse, research misconduct, and academic freedom. At times, the university found itself the unwilling topic of talk shows and media coverage around the nation and world, and members of the university community often felt demoralized in the face of intense public debate. In the midst of controversy, however, the university continued to meet its mission as it addressed the issues.

Intercollegiate athletics. Public debate was sparked in 2004 by a Title IX lawsuit filed against the university regarding the culture and recruiting practices within the Department of Intercollegiate Athletics. The lawsuit, which was settled in 2007, led to significant reforms and institutional changes. New standards for recruitment practices were established, creating one of the most stringent recruiting programs among NCAA Division I universities. The university’s reporting structure was revised to integrate athletics more fully into the academic community, and changes were made in athletic leadership, including the head football coach and athletics director positions. In addition, Nancy Hogshead-Makar, an expert on Title IX, was employed to work with university leaders in reviewing policies and practices and recommending improvements. More information on developments in athletics oversight can be found in former Chancellor Peterson’s “white paper”⁵¹ on “Aligning Athletics and Academics.”

Academic freedom. In 2005, another issue swept the university when members of the national media reported on an essay written by ethnic studies Professor Ward Churchill, which referred negatively to victims of the September 11, 2001 attacks on the World Trade Center and Pentagon. Issues of academic freedom, professorial responsibility, and research misconduct swirled on a national stage. The controversy distracted public attention from the high-quality work of the institution and required substantial investments of time and effort



CU-Boulder’s intercollegiate athletics teams compete in the Big XII Conference.

by CU-Boulder faculty, staff, and administration. University leaders defended the principles of academic freedom and free speech, as well as the obligation to investigate charges of research misconduct that emerged during the controversy. The university determined that the essay itself was protected by the First Amendment but that other allegations of plagiarism, misuse of others' work, and fabrication required investigation to determine whether research misconduct had occurred. Subsequent investigations by three faculty committees found that Professor Churchill's scholarly work contained falsification, fabrication, and plagiarism. In 2007, Churchill was dismissed by the CU Board of Regents "for conduct that fell below the minimum standards of professional integrity." In 2006, Churchill filed a civil lawsuit against the university and, in April 2009, a jury concluded that he had been wrongfully terminated. In July 2009, the Denver district judge in the case vacated the jury's finding and ruled that the CU Board of Regents had acted in a quasi-judicial capacity and was protected from being sued. The university stands by the work of the campus committees' findings—and is committed to balancing protection of academic freedom against requiring accountability for research misconduct.

Alcohol abuse. Alcohol abuse is a major national issue that has had tragic consequences for many university communities. In 2004, the death of freshman Gordie Bailey at an off-campus fraternity house in Boulder brought heightened attention to the dangers of excessive alcohol use among students. Sanctions for alcohol violations were strengthened, and alcohol-related education programming and research were expanded. The university worked with Greek organizations to set expectations, ensure sanctions, develop awareness programs, and defer rush to the spring semester. These actions were part of a broad educational and awareness program developed by the university over more than a decade. In 1997, CU-Boulder launched the "A Matter of Degree" program, funded by a five-year grant from the R.W. Johnson Foundation. Following expiration of the grant, the university moved toward self-funding of a wide range of alcohol-related programs.

CU-Boulder has dealt with a number of tough issues over the past decade, and likely will do so in the future. What is important, however, is that the sustained work of the university—teaching, learning, scholarship, and service—proceeds apace while the issues are addressed fairly and openly. Throughout the past controversies, students continued to study and learn, faculty continued to excel as teachers and scholars, and staff worked to support the university's mission. Indeed, some of CU-Boulder's most significant accomplishments occurred during this period—evidence of a clear focus on its institutional mission and goals. Today, the university is continuing to move forward to accomplish its goals as a leading institution of higher learning. Most would agree that CU-Boulder now has entered an era of optimism and vitality, with a renewed focus on the future envisioned by *Flagship 2030*.

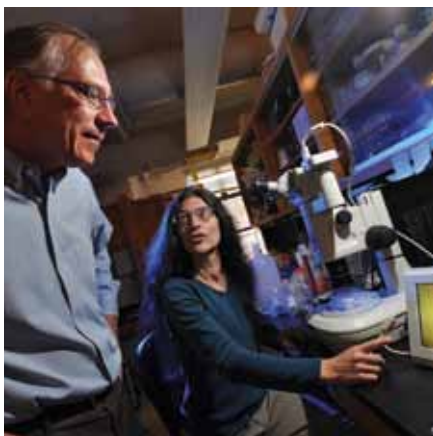
Changes in the Academic Environment

Recent developments in undergraduate and graduate education are discussed in further detail in Chapters 6 and 7, but following are a few highlights from the last decade:

- Major changes were made in academic advising provided by the College of Arts and Sciences, the university's largest college. In response to a campus-wide review in 1998, the college implemented **a new advising structure and organization** called the Academic Advising Center.⁵² The center serves about 19,000 undergraduates, including declared and undeclared majors, utilizing enhanced electronic support and an expanded cadre of professional advisors. Advising is discussed in greater detail in Chapters 2 and 6.
- Two major **science education** initiatives were launched to improve the way science is taught to undergraduates. The Colorado Science, Technology, Engineering, and Mathematics (STEM) program and the Science Education Initiative incorporate innovative research-based teaching practices to enhance learning. More information on these programs is provided in Chapter 6.
- In 2007, the university's **academic program review process** was significantly reformed—with a renewed focus on collective strategic planning as well as accountability. Renamed Academic Review and Planning, the process now includes reviews of similar academic units during the same year. It also articulates expectations for assessment, university-wide input, and ties to budget decision-making.
- CU-Boulder's system of popular **Residential Academic Programs** (RAPs) has been expanded to broaden the opportunities available for interested students. The university now offers seven residential academic programs and six living and learning communities for first-year students, which create thematic educational environments where students take selected classes in small-group settings in their residence halls.
- The university is beginning to see results from its efforts to **enhance diversity** in the learning environment. Between 1999–2000 and 2007–08, a number of student diversity improvements were made in Campus Performance Measures,⁵³ including degrees awarded, graduation rates, and participation in multicultural academic programs. Total enrollment of main campus degree-seeking students of color rose between 1999–2000 and 2008–09, from 3,341 to 4,233 (a 27 percent increase), although enrollment of graduate students of color remained about the same. Students of color as a percentage of total enrollment increased from 13 percent to 14.2 percent during that period.⁵⁴ Over time, there has been a steady increase in tenured and tenure-track faculty of color and in female tenured and tenure-track faculty. In 1999–2000, there were approximately 133 (14 percent) tenured



Global Jam, a celebration of food and culture from around the world, welcomes incoming CU-Boulder students at the beginning of each academic year.



Nobel laureate Tom Cech (left), distinguished professor of chemistry and biochemistry, in his laboratory with a member of his research team. Cech shared the 1989 Nobel Prize in chemistry for his discovery that RNA in living cells is not only a molecule of heredity but also can function as a catalyst.

and tenure-track faculty of color, compared to 172 (17 percent) in 2008–09. In the same time span, the number and percentage of female tenured and tenure-track faculty rose from 269 (26 percent) to 342 (32 percent).⁵⁵ Beyond ethnicity and gender, progress also was seen for other elements of diversity such as regional; cultural; economic; first-generation students; international students; disabilities; sexual orientation; age; and many other student, staff, and faculty populations—as discussed in Chapters 2 and 4.

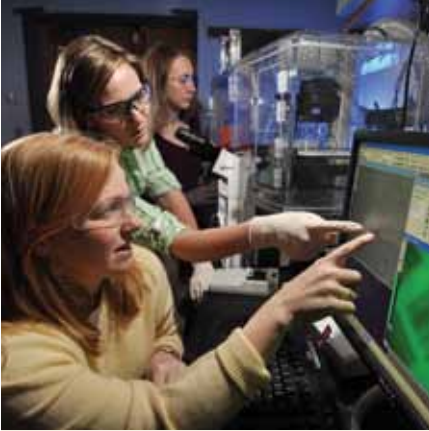
- From 1999 to 2001, CU-Boulder restructured its university-wide **writing program** to align it more effectively with the collegiate experience, with academic writing and thinking practices across the disciplines, and with the national field of rhetoric and composition. The Program for Writing and Rhetoric⁵⁶ (PWR) was created to house all required and elective writing courses at CU-Boulder and to develop ancillary writing instruction through a writing center. A complex of assessment mechanisms has been developed to track student success, critical thinking, and retention and persistence. Further refinements may be considered in 2009 as a result of the writing program's academic program review.
- Nine degree programs were added between fall 1998 and fall 2008, including a new bachelor's degree in chemical and biological engineering and graduate degrees in cognitive science; neuroscience; environmental studies; audiology; technology, media, and society; and biochemistry. Five low-demand degree programs were closed during the same period, including Central and East European studies, Latin American studies, individual structured major (bachelor's), American studies, and mathematical physics.⁵⁷

Faculty and Student Achievements

In the past 10 years, CU-Boulder's **faculty** members have received national and international recognition for accomplishments in research and creative work, as well as their commitment to teaching. Following are a few examples:

- Three faculty members won the Nobel Prize in the past decade, joining 1989 winner Tom Cech of chemistry and biochemistry, for a total of four from CU-Boulder. Carl Wieman and Eric Cornell of JILA and physics won the 2001 Nobel Prize in physics. John Hall of JILA and physics won the 2005 Nobel Prize in physics.
- Distinguished Professor Marvin Caruthers of chemistry and biochemistry (2006) and the late Professor Gilbert White of geography (2000) won the National Medal of Science, the nation's highest scientific honor, bringing the number of CU winners to four. They joined Nobel laureate and Distinguished Professor Tom Cech of chemistry and biochemistry (1995) and the late Professor Keith Porter of molecular, cellular, and developmental biology (1976) in receiving the honor.

- CU-Boulder faculty members continued their strong record of success in research and creative work. Sponsored research awards increased by 67 percent between fiscal years 1999 and 2009, from \$204 million to \$340 million. Faculty research resulted in such landmark findings as the discovery of a new state of matter, greater understanding of the planets and outer space, increased knowledge of the Arctic Ocean's rate of ice melt, innovative techniques leading to more effective medical imaging, and new ways to improve teacher education in math and science, among many others.
- Arts and humanities faculty members have earned national and international recognition, with such honors as a 2003 Grammy Award for the College of Music's Takács Quartet, a national prize for fiction writing, worldwide screenings of original works by film studies faculty, numerous prizes for scholarly work by history faculty, three philosophy faculty winners of the American Philosophical Association's Book Prize, two winners of the American Academy in Rome Prize, and top-tier rankings for the graduate ceramics program, to name a few.
- In 2007, researchers in the National Snow and Ice Data Center (NSIDC) shared in the Nobel Peace Prize won by former Vice President Al Gore for their contributions to a groundbreaking report by the Intergovernmental Panel on Climate Change on climate change, covering such topics as changes in snow, ice, and frozen ground, as well as climate models and their evaluation. At that time, NSIDC was led by Professor Roger Barry of geography.
- The system's Technology Transfer Office saw increased activity in commercializing knowledge gained from CU-Boulder research. The total number of annual campus-based invention disclosures increased from 42 in fiscal year 2000 to 101 in fiscal year 2008. Licenses and options executed increased from 11 to 31 in the same time frame. Revenues jumped from little more than a half-million dollars in fiscal year 2000 to \$2.1 million in fiscal year 2008. In addition, the number of U.S. patents filed increased from 37 per year in fiscal year 2000 to 89 in fiscal year 2008. Between fiscal years 2002 and 2008, three to seven startup companies per year were launched, based on CU-Boulder technologies. In 2007, the University of Colorado System was ranked among the top 10 universities for creating start-up companies by the Association of University Technology Managers (including several by CU-Boulder).
- CU-Boulder's Colorado Shakespeare Festival (CSF) is the nation's second-oldest and draws the eighth-highest attendance and revenue of outdoor Shakespeare theatres in the country. CSF remains one of the few theatres in the world to have produced the entire canon of Shakespeare's plays. Annually, about 40,000 people attend its productions, most of which are staged in the Mary Rippon Theater, its outdoor venue (a Works Progress Administration project completed in 1939).



Distinguished Professor Kristi Anseth (foreground) of the chemical and biological engineering department is nationally recognized for her work in innovative materials science research, including the creation of new biomaterials for medical applications. She leads a team of faculty and students that is developing degradable scaffolds, or frameworks, to stimulate the growth of new human tissues to replace those lost through injury and disease.

- The past decade has seen a significant rise in the number of faculty members in the national academies, including six new members of the National Academy of Sciences, five new members of the National Academy of Engineering, six new members of the American Academy of Arts and Sciences, and one new member of the National Academy of Education.⁵⁸
- In 2008, *Popular Science* magazine named Distinguished Professor Kristi Anseth of chemical and biological engineering as one of its “Brilliant 10” for the year, honoring her as one of the nation’s top young scientists.⁵⁹
- Two faculty members earned the prestigious National Science Foundation Director’s Award for Distinguished Teaching Scholars, the foundation’s highest honor for excellence in both teaching and research. In addition, three engineering faculty members received the National Academy of Engineering’s top educational honor, the \$500,000 Bernard M. Gordon Prize, which recognizes innovation in engineering and technology education.
- CU-Boulder’s nationally recognized Department of Economics program in international trade includes three faculty members ranked among the top professional economists in terms of citation and impact; two are members of the prestigious National Bureau of Economic Research.
- Numerous faculty members have been named Fulbright Scholars, bringing CU-Boulder’s total to nearly 100 since 1982. In the arts and humanities, several have received Guggenheim Fellowships, American Council of Learned Societies Fellowships, National Endowment for the Arts awards, Humboldt Fellowships, National Endowment for the Humanities awards, and Rockefeller Foundation Fellowships.
- In 2004, CU-Boulder Nobel laureate Carl Wieman was named Professor of the Year among all doctoral and research universities in the United States by The Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education. He has won numerous other national honors for his leadership in the promotion of effective teaching.
- CU-Boulder faculty members are highly cited in professional journals and other literature, including 28 faculty members named as “highly cited researchers” by ISI Highly Cited.com of Thomson Reuters.⁶⁰
- Geography Professor Babs Buttenfield was named the GIScience Educator of the Year in 2001 by the University Consortium for Geographic Information Science (UCGIS). Professor Buttenfield was the first person to receive this national honor, which now is awarded annually. UCGIS includes more than 70 universities in North America where geographic information systems, remote sensing, and mapping sciences are taught in more than one department.

- Four faculty members received MacArthur Fellowships (called the “genius grants”), including Margaret Murnane of physics (2000); Norman Pace of molecular, cellular and developmental biology (2001); Daniel Jurafsky of speech, language, and hearing sciences (2002); and Deborah Jin of physics (2003). They join three earlier winners: David Hawkins of philosophy (1981), Charles Archambeau of physics (1988), and Patricia Limerick of history (1995).⁶¹

Many CU-Boulder **students** have been recognized for their academic achievements and contributions to society. Some examples are:

- Throughout the decade, CU-Boulder students have earned many prestigious national and international scholarships, including the British Marshall (two), the Goldwater (20), the Truman (nine), the Udall (five), the National Security Education Program (25), the Jack Kent Cooke Foundation (two), and the Churchill (one).
- Since 1977, there have been 105 Fulbright student scholars from CU-Boulder, including three announced in July 2009. The recent recipients plan to conduct research in Paraguay, China, and Germany, respectively, on such topics as genetically modified soy, renewable energy, and heart health.
- Four CU-Boulder students have won the Fannie and John Hertz Fellowship, which provides financial support for up to five years of graduate-level studies at the university of their choice. The fellowship is valued at more than \$250,000.
- Two CU-Boulder graduate students won the \$10,000 first-place prize at Purdue University’s national Idea-to-Product competition for social entrepreneurship in 2009. The prize money will be used to help design, install, and operate water purification systems, biogas generators, and high-efficiency cooking stoves for people in remote villages in Rwanda.⁶²
- In 2009, CU-Boulder ranks second among the nation’s colleges and universities in the number of alumni currently serving in the Peace Corps, with more than 100. Since the Corps’ inception in 1961, nearly 2,200 CU-Boulder alumni have served, making it the fifth-ranked all-time producer of volunteers.
- CU-Boulder received the 2007 Presidential Award for Community Service, one of only three universities so honored, recognizing the nearly 17,000 students participating in community service or academic service learning.
- Students from CU-Boulder twice won first-place trophies in the international Solar Decathlon competition sponsored by the U.S. Department of Energy, which challenges students to design, build, and operate the most attractive, efficient, and comfortable solar home.



Launched by CU-Boulder Professor Bernard Amadei with fellow faculty members, professionals, and students in 2000, Engineers Without Borders–USA (EWB–USA) helps bring water, electricity, and sanitation to poverty-stricken areas of the world. Since its founding, EWB–USA has grown to 200 chapters working on over 170 projects in 41 countries—with 16 chapters in Colorado alone.

- In 2008, a three-member team of MBA students from the Leeds School of Business won the International MBA Case Competition held in Germany. Eighty MBA teams from around the world took part in the competition.

Advances in Integrating Information Technology

Innovation in the study and use of technology is a pervasive thread running throughout university life. Technology touches all aspects of the community as its members engage in teaching, learning, research, creative work, campus operations, and communication. Support for all those activities is the primary driver for technology deployment at the university. Students can learn about leading-edge applications of technology to multiple areas of study, faculty researchers take advantage of high-tech teaching and research tools, and staff utilize secure and efficient IT systems to accomplish their work. As discussed further in Chapter 5, examples of key developments in the past decade include:

- In 2003, the first vice provost for academic and campus technology was appointed to provide leadership and focus for this critical aspect of the university's infrastructure.
- CU-Boulder's student government voted in 2004 to approve a student capital construction fee dedicated to major information technology upgrades as well as several new buildings. The capital construction fee allowed the university to accelerate and update its Information Technology Strategic Plan described below.
- Implementation of CU-Boulder's Information Technology Strategic Plan has resulted in significant enhancements to the IT infrastructure, such as expanding high-speed internet connections throughout the campus. All wired buildings were rewired, resulting in a significant jump in connection speed. The plan also included replacement of the most critical components of network electronics and installation of 100-megabit-per-second networking broadly across campus. In response to a high demand for wireless internet access, the university has provided wireless connectivity to all classrooms, academic buildings, and administrative buildings. In addition, all residence hall rooms have wireless access and ethernet connections. The wireless network, which covers more than eight million square feet, offers a balanced approach to security and access.
- "Smart classrooms" have become increasingly pervasive, with 106 of these technology-dense classrooms located across campus. All are equipped with ethernet jacks, projectors, smartboards, televisions, and other tools for learning and teaching. The university has set a goal of creating 205 smart classrooms within the next five years.
- Since opening in 2006, the ATLAS building has become a bustling hub of interdisciplinary collaboration. The ATLAS Institute was launched in 1997

to help integrate technology into all areas of study, particularly the arts and humanities. Today, the building's classroom, performance, study, and broadcast production space hosts more than 50 classes each semester and serves about 5,000 students in 50 fields of study.

- CUCConnect, a secure web portal, was launched in 2003, giving students, faculty, and staff a central online space to access a wide variety of university resources, announcements, news, events calendars, class rosters, e-mail, registration, schedule planning, and grade viewing, among others.
- Support for high-performance networking continues to enhance the university's academic research initiatives and cutting-edge applications, with participation in national research networks such as Internet2 and National LambdaRail.
- In 2000, the university launched WebCT, an online learning management system later named CULearn. Currently, CULearn provides an online presence for nearly all CU-Boulder courses. In addition, new tools in academic technology were instituted to enhance teaching effectiveness, including the use of "clickers"—handheld polling devices—for students to provide immediate feedback on their understanding of lecture material to their instructors in larger classroom settings.
- In 2000, all University of Colorado campuses moved from home-grown, legacy human resources and finance systems to more complex and comprehensive PeopleSoft (now Oracle) enterprise software systems for such functions as payroll, applicant tracking, recruiting, and leave management.
- Currently, CU-Boulder is participating in a major system transition in the management of the student information system. This ambitious project, entitled MetamorphoSIS, includes replacing a 20-year-old student information system with a state-of-the-art Oracle Campus Solutions system and auxiliary components, together known as the Integrated Student Information System (ISIS). ISIS is expected to play a prominent role in improving student services, recruiting, advising, and self-service access. The more flexible system, which will be fully operational by late 2010, includes a new degree audit program and student recruitment software. More information on these system transitions is provided in later chapters.
- The university also has invested in a new human resources learning management program called Skillport, which is available to all staff and allows for continuous learning opportunities and professional development. Tools in the online platform provide access to online training programs, certification programs, books (including textbooks and professional journals), and software tutorials.



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CHAPTER 2

2000 North Central Association Review: Progress Report

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2000 North Central Association Review: Progress Report

“We aspire to be more than we have been in the past—to provide better educational opportunities, focus on research that will do more to improve the lives of all people, and better serve the people of Colorado.”

—Phil DiStefano, Chancellor

The North Central Association (NCA) re-accreditation process offers universities the opportunity to share ideas with and learn from the evaluating team, whose expertise constitutes a valuable resource for the institution undergoing review. During the 2010 team visit to CU-Boulder, the university plans to engage in focused discussions with the team members regarding the challenges and opportunities it faces in the implementation of *Flagship 2030*. Their input will inform important considerations as the university moves forward with the strategic plan.

Accreditation History

The University of Colorado at Boulder is accredited as an institution by the NCA Higher Learning Commission. The university first received NCA accreditation in 1913.¹ Numerous CU-Boulder schools, colleges, and other entities also are accredited by a wide range of accrediting agencies, as outlined in Appendix D. CU-Boulder was last evaluated for re-accreditation by the NCA’s then-Commission on Institutions of Higher Education in April 2000. The university received full accreditation. In the evaluating team’s report, it noted a number of institutional strengths while providing three suggestions for improvement. The team also identified four concerns, recommending a three-year progress report on one of those concerns.

In the years since the review, the university has made solid progress on the team’s recommendations. Following is a summary of the university’s responses to the team’s comments in 2000.

NCA Suggestions

Reorganize Administration

The NCA team suggested realignment of senior-level administrative duties and responsibilities and consideration of the addition of two positions.

Since the 2000 visit, CU-Boulder has restructured its administration in alignment with the visiting team's suggestions. The administration has been reorganized to allow more effective working relationships, to enhance the abilities of university leadership to accomplish its goals, and to nurture greater collaboration at all levels of the university.

First, the position of vice chancellor for academic affairs was modified and expanded to become provost and executive vice chancellor for academic affairs. As the chief academic officer, the provost is responsible for the academic agenda for the university, in addition to research and graduate education, diversity, and student affairs.

Secondly, the position of senior vice chancellor and chief financial officer was modified to provide leadership for administration and strategic communications, as well as to work closely with intercollegiate athletics on financial and operational issues.

Third, a new senior-level position was created to lead the enhancement of CU-Boulder's diversity programs. The vice chancellor for diversity, equity, and community engagement position was filled in 2007.

Fourth, in 2003, the university took steps to underscore the importance of meeting academic and information technology needs. The position of associate vice chancellor for academic and campus technology was elevated to vice provost and associate vice chancellor for academic and campus technology. In 2007, when the position was vacated, the senior vice chancellor and chief financial officer assumed the technology leadership responsibilities on a temporary basis. In 2009, a national search for the permanent position was launched, with the expectation of naming a new associate vice chancellor and chief information officer by fall 2009.

As a result of these administrative changes, the chancellor is better able to focus attention on a critical set of priorities: advocacy for the university, fundraising initiatives, collaboration with the community, support for diversity, and other leadership roles.



Improve Student Advising and Auditing System

The team urged the university to develop a plan and provide resources for accurate and reliable degree audit programs as well as enhancements to the student information system.

The university has made significant improvements to its academic advising and degree audit systems since the last visit of the NCA evaluation team. At CU-Boulder, each school and college organizes and oversees academic advising for its own students. The College of Arts and Sciences, due to its size and complexity, has faced unique challenges in providing effective student advising. In the 1990s, the college's students were underserved by a decentralized and understaffed advising program. There were 10 staff advisors housed in the college administrative offices who provided advising on general education and overall degree requirements. Students received advising on major and minor requirements from designated faculty in their respective departments and/or from office staff (administrative assistants or office managers). Little training was provided for departmental faculty or staff assigned to advise students in their major areas. Advising for undeclared majors and preprofessional students was provided by small units outside the college.

In response to a university-wide review of academic advising in 1998, the college began a complete restructuring and reorganization of its advising program. An Academic Advising Center (AAC) was established, with an emphasis on helping students formulate and achieve their academic goals. A director, who also carries the title of assistant dean, was employed to provide leadership for the new center.

AAC includes advisors, faculty, staff, and administrators who work collaboratively to enhance the student learning experience. Over the past decade, significant investments have been made to expand the cadre of professional advisors; provide training and professional development for all advisors in the college; offer support for undeclared majors and preprofessional students; and assess the advising program's effectiveness. Now, the College of Arts and Sciences employs about 50 full-time equivalent advisors, most of whom hold a master's degree and many with doctoral degrees in the discipline in which they advise. These advisors are placed in 38 departments across three divisions to provide academic orientation, academic advising, and graduation certification for undergraduates in the College of Arts and Sciences. An associate director oversees each division. Also, in the open option program, eight professional academic advisors offer information on major and career exploration for about 4,000 students who have not yet chosen a major. This unit, headed by an associate director, serves students pursuing admission to all colleges and schools on the Boulder campus.

Advisors also educate students about opportunities to enhance their learning through participation in the Honors Program, undergraduate research, study abroad, internships, leadership opportunities, and other enrichment programs. They connect with students through individual appointments, group meetings,

telephone conversations, and e-mail. They provide information and recommendations about researching and preparing for careers and graduate programs while helping students monitor their completion of academic requirements.

The AAC uses technology wherever possible to help manage the high demand for academic advising and the resulting heavy caseloads. The center's information technology unit designs and implements computer applications, web systems, and database systems, such as a web-based advising appointment system that allows students to see their assigned advisor's available appointments, schedule appointments online, and receive e-mail reminders for their appointments. Other tools include a term-by-term academic record database, as well as web-based systems for reporting, recording, and notifying graduation applicants of any problems with requirements. The new student orientation website provides incoming students with helpful information and tools ranging from confirmation of college and major, registration for orientation sessions, and online assessment instruments for mathematics, writing, and language testing.

Since 2001, College of Arts and Sciences seniors have rated their satisfaction with "advising in your college or school" higher than in the years 1990 through 1998, with the highest-ever ratings in 2008. Ratings for the college are now close to those from seniors in other schools and colleges.²

Beyond the College of Arts and Sciences, academic advising also is a priority for CU-Boulder's other schools and colleges. For example, the Leeds School of Business strategic plan includes a commitment to "significantly increase support services in advising." The College of Engineering and Applied Science has hired a "first-year experience coordinator to oversee retention efforts and open-option advising of first-year students." The College of Music assigns every undergraduate student to a faculty advisor. Significant advising, mentoring, and career planning services are provided to all music students by the offices of associate deans for undergraduate studies and graduate studies, as well as the Entrepreneurship Center for Music. In the School of Education, each student is assisted by two types of advisors: an education/student advisor and a faculty advisor. Education/student advisors help students navigate through the teacher licensure program to completion, and the faculty advisor assists students with "big picture" issues like professional-level guidance on careers, goals, and intellectual growth as teachers.

In 2009, the university implemented the new Degree Audit Reporting System (DARS), which is expected to help reduce technical demands on advisors and create more time for mentoring, developmental, and career advising opportunities. This system provides a comprehensive and flexible program for degree audit, as well as expanded capabilities for transfer evaluation and articulation. DARS is designed to use information from the student information system (SIS)—first from the current SIS and later from components of the new Integrated Student Information System (ISIS)—to compare a student's academic work with the requirements for a particular academic program. Students will

Since 2001, College of Arts and Sciences seniors have rated their satisfaction with "advising in your college or school" higher than in the years 1990 through 1998, with the highest-ever ratings in 2008. Ratings for the college are now close to those from seniors in other schools and colleges.²

have access through the student portal to new advising tools to help plan their degree program, and advisors and colleges will be able to use this system to automate the graduation checkout process. The system's various tools will provide:

- Access to a concise degree audit report via a portal for students, faculty, and staff
- Ability to report articulated courses by institution through development of transfer tables
- Full processing of academic exception (waivers, substitutions, and others)
- Combined major and core audit
- Calculation of grade point averages all the way down to the sub-requirement level
- Ability for students and advisors to perform "what if?" audits
- Greater flexibility for college differences and academic requirements

DARS audits are expected to produce a more accurate report of students' progress toward their degrees and thus minimize the need for some tedious manual processes. In the future, DARS also can be used as a reporting and planning tool capable of answering questions about academic requirements.

Degree audit and advising are just two university processes being transformed by the project now under way to replace the 21-year-old SIS. The new ISIS project, powered by Oracle Campus Solutions, is designed to significantly improve functionality, access to information, and services to the university community. When fully implemented by late 2010, the system will manage all core student data, including recruiting, admissions, student records, billing, and financial aid. The project also includes document management, data warehousing, portals, classroom scheduling, and web-based staff training packages. More information on these systems is included in Chapter 5.

De-couple Capital Campaign for Boulder Campus from System-wide Campaign

The team recommended that CU-Boulder's capital campaign be separated from the system-wide campaign.

While CU-Boulder capital campaigns remain part of system-wide campaigns, fundraising goals and planning are campus-oriented. Priorities for private fundraising are set by the school and college deans, the provost, and the chancellor. The vice president for development for CU-Boulder works with fundraising colleagues across campus and in the CU Foundation to formulate strategic and tactical plans for executing fundraising goals for the campus priorities. The vice president, who serves as a member of the Chancellor's Cabinet, maintains close working relationships with the deans and development directors for each school, college, or other primary unit.

Planning for the CU-Boulder part of the next campaign is closely tied to the vision and goals of *Flagship 2030*. Final goals and timelines for the next campaign, tentatively entitled “Creating Futures,” are to be determined in 2009–10, although the “quiet phase” has already begun. In fiscal year 2007–08, CU-Boulder fundraising reached an all-time record, posting a 43 percent one-year increase. Even with the economic downturn in 2008–09, CU-Boulder received about \$52.5 million in private giving, down only by \$4 million from the previous record-setting year. Nearly 45,000 donors contributed during the fiscal year.

NCA Concerns and Recommendations

Enhance Diversity Planning

The team noted that CU-Boulder needed to address diversity issues related to responsibility, diversity in leadership positions, the role of the equity and diversity office, mentoring, retention of minority undergraduates, and community climate.

The University of Colorado at Boulder embraces diversity as a core value that is critical to the achievement of excellence and inclusion within the campus and community climates. At CU-Boulder, diversity is defined broadly to ensure the inclusion of a wide variety of human experiences and identities. The university recognizes and celebrates a diverse campus community to include people from many backgrounds—ethnic, regional and national origins, cultural heritage, intellectual, economic, religious, international—as well as first-generation students, people with disabilities, students who are parents, people of different sexual and gender orientations, people of different ages, and many others.

Strategic planning and deliberate actions are necessary to achieve and support a diverse campus community, and CU-Boulder engages in both. Since 1999, CU-Boulder’s diversity strategies have been guided by a comprehensive diversity plan, called *Blueprint for Action*,³ which serves as an umbrella for unit diversity plans across the divisions and faculty diversity action plans across the colleges, schools, institutes, and centers. Through the years, the university has monitored progress on reaching its diversity goals and continues to update the plan, which has been recognized as a national model. The College Board included *Blueprint for Action* in its materials on developing a lawful yet ambitious diversity and inclusion plan. Moreover, the initial process for developing the institutional diversity plan, which included a campus-wide approach, is touted as an example of creating a climate of diversity and inclusion. More detailed information on the plan is provided in Chapter 4.

Leadership for the university’s diversity efforts is provided by the vice chancellor for diversity, equity, and community engagement. The vice chancellor participates on the Chancellor’s Cabinet and other senior leadership teams, providing her perspectives on budgetary, academic, and administrative matters. She works

“Coloradoans of all backgrounds can take heart that our flagship university is making real strides toward representing the ethnic and cultural diversity of Colorado.”

—Sallye McKee, Vice
Chancellor for Diversity,
Equity, and Community
Engagement

with all areas of the campus to find new ways to increase diversity that will enhance inclusion and excellence for the faculty, staff, students, and community constituencies. The goal is to build a welcoming climate for all. In addition, the vice chancellor has placed a high priority on community engagement with diverse communities in Boulder, Denver, and throughout Colorado. A website developed by the vice chancellor's Office of Diversity, Equity, and Community Engagement (OCECE)⁴ provides focus and visibility for the university's institutional vision, planning, policies, recognition, education, resources, and recent newsworthy events. Equally important is the recognition that diversity training is incorporated into the life of the university, with multiple opportunities for dialogue, reflection, practice, and education.

Campus climate. The university works to build a supportive, safe, and welcoming climate both on the campus and critical areas surrounding the campus. As noted in the Blueprint for Action diversity plan, "the quality of learning is enhanced by a campus climate of inclusion, understanding, and appreciation of the full range of human experience." A number of programs have been launched and committees have been established to support, develop, and enhance a safe and welcoming campus climate. Examples include:

- Four chancellor's advisory committees have been established: Chancellor's Committee on Women (CCW); Chancellor's Advisory Committee on Minority Affairs (CACMA); Program Accessibility Committee (PAC); and Chancellor's Committee on Gay, Lesbian, Bisexual, Transgender, and Questioning (GLBTQ) Affairs. These committees are composed of faculty, staff, students, and community representatives, and their charge is to address campus climate challenges related to gender, gender orientation and identity, race and ethnicity, disability, and accessibility.
- Through the Office of Discrimination and Harassment,⁵ the university has established a set of mandatory discrimination and harassment workshops for employees.
- The prevention of bias-motivated behaviors is handled through several committees who meet regularly to discuss best practices related to prevention of negative bystander and micro-aggressive behaviors.
- Several schools and colleges have established standing committees to enhance the campus climate in relation to human diversity. For example, the College of Arts and Sciences Council, a major part of the shared governance structure in CU-Boulder's largest college, has developed a standing Committee on Academic Community and Diversity (CACD).⁶ CACD identifies, prioritizes, and addresses issues of academic community and campus climate. The committee advocates for diversity at all levels and in all activities of the college, makes recommendations to the dean about college diversity programs, and maintains and updates the college's diversity plan.

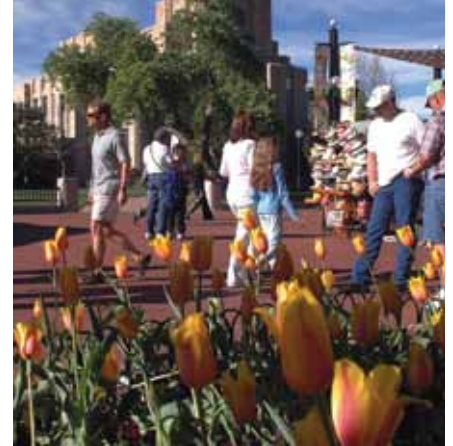
OCECE also has worked with the university's senior leadership to develop a new assistant vice chancellor position and appointed a seasoned administrator to focus on the continual development of best practices related to campus climate

and community engagement. This position works closely with the various advisory committees, provides follow-up as needed, and works to ensure a more coordinated and effective approach to building inclusive excellence through diversity.

CU-Boulder faculty, staff, and students work to improve the campus climate for diversity in both curricular and cocurricular activities and programs. For example, in the classroom each semester, students are asked to rate their instructors and courses by completing a Faculty Course Questionnaire (FCQ). In fall 2006, the university instituted a revised questionnaire that included, among other changes, a question rating the instructor's "respect for and professional treatment of all students regardless of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status." The Chancellor's FCQ Advisory Committee, which recommended the revisions, spent considerable time and attention on diversity, seeking a comprehensive every-term, every-course approach.

Community engagement. CU-Boulder is making strides in the development of collaborative relationships with the city of Boulder and other communities in the state, with a focus on diversity and outreach efforts. CU-Boulder administrators and faculty serve on Boulder community diversity committees and participate in culturally specific chambers of commerce activities in the Denver metropolitan area. Specifically, members of the Boulder City Council are spearheading a collaborative relationship with university and community leaders to develop targeted strategies and new approaches to enhance social sustainability for traditionally marginalized communities. CU-Boulder also is collaborating with the city of Boulder's [Bias Incident Hotline](#),⁷ which provides support and advocacy for survivors and witnesses of hate-motivated incidents. Positive relationships emerging from these partnerships provide a solid basis for jointly promoting inclusiveness and addressing negative and unwanted behaviors on both the campus and within the surrounding community.

As noted on the website for the [Office of Diversity, Equity, and Community Engagement](#),⁸ CU-Boulder envisions a place where pervasive respect for diversity creates a supportive climate for student success, and the entire campus benefits from the richness of a multicultural community. Nevertheless, the campus continues to face serious challenges in building a more diverse university community and remains vigilant in working to improve the campus climate for diverse groups. While progress has been made, sustained and concentrated effort is necessary to reach the goals set at all levels of planning. The university's affirmative action plan for faculty and staff is updated annually to help identify and implement recruiting efforts to achieve a more diverse workforce. Implementation of CU-Boulder's equal opportunity programs and affirmative action compliance is assigned to the Department of Human Resources (DHR). Additionally, DHR continues to work with campus units to help them use diverse recruiting sources to improve the representational diversity for staff and faculty. Equally important is the development of high-quality and diverse applicant pools. Clearly, the university's strategic actions, decisions and investments are aimed at realizing a





Students, faculty, and staff enjoy the annual multicultural welcome gathering on the north lawn of Regent Hall.

campus vision imbued with diversity that helps build multicultural competencies for all faculty, staff and students. More information about CU-Boulder's diversity initiatives is provided in Chapter 4.

Student diversity. Several academic programs and student support services at CU-Boulder help promote excellence through diversity among the student body. For example, the CU Leadership, Excellence, Achievement, and Diversity (CU-LEAD) Alliance was established in 2000 as a means of connecting students of color and first-generation students through a network of programs that promote inclusive excellence. As discussed in Chapter 4, the alliance works to increase recruitment, retention, and graduation rates for its target populations; to build a sense of community; to provide participation grants; and to strengthen coordination among existing and emerging programs.

Several units and programs in the Division of Student Affairs work to enhance diversity and advance social justice throughout the campus. They support student retention and success through programs, engagement, and mentoring. Examples include the Women's Resource Center; the Student Outreach Retention Center for Equity (SORCE); the Gay, Lesbian, Bisexual, Transgender (GLBT) Resource Center; and the Interactive Theatre Program (ITP). Through the ITP, for example, students become engaged with educational theater with an emphasis on diversity and social justice. In addition, diverse living and learning communities provide opportunities for faculty and students to focus on key issues in diversity in both residential and academic contexts.

In 2008, ODECE established a new Department of Pre-College Services to coordinate, enhance, and expand recruitment and engagement strategies developed in partnership with the Office of Admissions and selected K–12 districts throughout the state and nation.⁵ For example, ODECE staff worked with faculty from the College of Engineering and Applied Science in partnership with the University of Alaska to secure a National Science Foundation (NSF) award to support the Indigenous Alliance. This program reaches out to pre-college members of local Native American communities. CU-Boulder also is working in partnership with the Aurora and Denver Public Schools to bring more students from diverse backgrounds to visit the Boulder campus. The new Department of Pre-College Services has expanded the successful Roaring Fork Pre-Collegiate program to include a new site in Summit County. These projects work collaboratively with local school districts and community foundations to provide pre-college programming for students in the rural isolated areas of the state. In addition, through the university's Summer Session program, scholarships are offered to high school students attending the Denver School of Science and Technology.

CU-Boulder students themselves continue to initiate programs that help to develop a supportive campus climate. For example, in 2000, a group of students interested in creating a diverse student body formed the Student Outreach Retention Center for Equity (SORCE).⁹ SORCE members reach out to K–12

and community college students from underrepresented groups, offering help in developing a plan for meeting their educational goals. Also, the University of Colorado Student Union (UCSU)—CU-Boulder’s student government—passed legislation to help ensure accessibility for all students who use automatic teller machines (ATMs) on campus. The legislation mandates that all ATMs under contract with the University Memorial Center will include audio-enabling software to assist visually impaired students.

Students, both undergraduate and graduate, were surveyed about campus climate¹⁰ in 2001 and 2006. The results were reported for racial/ethnic groups; men and women; students with disabilities; international students; and gay, lesbian, bisexual, and transgender students. They have been used by campus academic and support units to plan and monitor activities. The survey, a joint effort of the Office of Institutional Analysis and ODECE, is scheduled again for fall 2010.

In 2008, the university was one of 12 Division 1 National Collegiate Athletic Association (NCAA) institutions to win the prestigious Overall Excellence in Diversity in Athletics Award, honoring the athletics department in seven specific categories related to diversity. The awards program is coordinated by the NCAA in conjunction with the Laboratory for Diversity in Sport at Texas A&M University. More than 300 universities participate in intercollegiate athletics at the Division 1 level.¹¹

CU-Boulder has made steady progress in increasing student diversity, as demonstrated in enrollment overviews¹² and diversity progress reports,¹³ as well as the April 2009 Report on Diversity.¹⁴ Among new freshmen in 2008, for example, 931 were students of color, an all-time high. Students of color made up 16 percent of freshmen, the highest level of ethnic diversity ever.

At CU-Boulder, as at most major public universities, the demographics of enrolled students are heavily influenced by the demographics of high school graduates in the state. In fall 2006, nine percent of CU-Boulder’s total enrollment was underrepresented minorities (Hispanic, African American, and Native American). While this is lower than the percentage at many Association of American Universities (AAU) public universities, it is in line with percentages at universities in states with populations similar to Colorado.¹⁵

Other indicators of progress at CU-Boulder include:

- Fall 2008 showed the highest-ever number of ethnic minority students, with the percentage of minority students stable at 11 percent for graduate students and 15 percent for undergraduates.
- In fiscal year 2008, 747 bachelor’s degrees were awarded to minorities, with an all-time high of 325 to Hispanic/Latino students. Graduate degrees included 121 master’s, 27 doctoral, and 36 law degrees to minority students.

- About 61 percent of minority freshmen (first-time, full-time summer/fall enrollees) graduate from CU-Boulder within six years, compared with two-thirds of all freshmen.
- Freshman retention studies show that 80 percent of minority freshmen enroll their second fall. About 84 percent of all first-time full-time summer/fall freshmen continue into the second fall.
- About 21 percent of resident undergraduates and 9 percent of nonresidents were first-generation students in fall 2008. A total of 4,328 first-generation undergraduates were enrolled.
- More than 1,400 CU-Boulder students were registered and active with CU-Boulder's Disability Services program in 2008, including 85 percent with non-visible disabilities (ADD/ADHD, learning disability, psychiatric/psychological, and/or traumatic brain injury).

Faculty diversity. CU-Boulder's vice chancellor for diversity, equity, and community engagement has created a new position with a special focus on faculty diversity and development. This position provides leadership for programs and program development for graduate students, post-doctoral fellows/researcher, faculty, and administrators.¹⁶ Examples of faculty diversity initiatives include:

- Developing and implementing plans to increase recruitment and retention of a more diverse faculty, including improving departmental climates, strengthening departmental mentoring programs, and clarifying the roles and responsibilities of department chairs in ensuring inclusive excellence
- Creating stronger networks with other area institutions to provide broader support for faculty of color
- Using the new Academic Review and Planning (formerly Program Review) process to explore new ways of thinking about diversity
- Providing support for ongoing grant programs that encourage more diverse outlooks among faculty: the Big XII Faculty Fellowship exchange program and the Implementation of Multicultural Perspectives and Approaches in Research and Teaching (IMPART) grant program¹⁷

Over the past few years, the university has seen steady progress in its efforts to recruit and retain a diverse faculty. For example, in fall 2008, the university hired 94 new tenure and tenure-track faculty, including 39 percent female, 21 percent faculty of color, and 17 percent international. In addition, the number of faculty of color in tenure and tenure-track positions has more than doubled over the last 19 years, from 70 in 1990 to 168 in 2008–09. The percentage of women among tenure and tenure-track faculty was 31 percent in 2008–09, increasing steadily over the past 10 years, from about one-fourth of these positions held by women to almost one-third.

Staff diversity. The university also has seen a steady long-term rise in female and racial/ethnic minority representation among administrators and among classified staff in selected job classes. For example, the April 2009 Report on Diversity notes that:

- The number of university administrators (officers and professional exempt) who are people of color has more than doubled over the last 13 years, from 56 in 1995 to 121 in 2008.
- The number of female administrators has reached 343 and now represents 54 percent of all administrators.
- Females represent 52 percent of classified staff outside food service and custodial positions. People of color hold 17 percent of these positions, up from 15 percent in 2007.

Programs and services aimed at enhancing diversity among staff members include English-language courses for employees for whom English is a second language, formal and informal diversity programs, and the availability of 108 simultaneous translation receivers for employees with limited English abilities.

Mitigate the Effects of Restrictions on State Funding to Retain and Energize Top Faculty

The team suggested that the campus continue to be vigilant and employ skillful management to maintain an adequate financial base and resources for faculty retention.

In the past 10 years, the university has worked hard to address constraints on the resources needed to remain competitive with its peer institutions. In particular, CU-Boulder has targeted funds for more competitive faculty salaries and salary increases according to merit. Between 1999 and 2008, faculty salaries over all ranks moved from five percent under the AAU public peer average to even with that average.¹⁸ In addition, 80 percent of individuals who were tenured and age 55 or younger in 2001 remained on the faculty in 2008, a turnover rate of only three percent per year. There is no evidence of a higher turnover rate for highly productive faculty. The university is committed to continuing its efforts to improve faculty retention and provide more competitive compensation.

Over the past decade, system leadership joined with other stakeholders in education, business and government to build more public support for higher education. In 2005, the citizens of Colorado passed Referendum C, an initiative that allowed a five-year respite from some of the negative impacts of Colorado's 1992 Tax Payers Bill of Rights (TABOR). Effective communication with legislators and other public policy leaders was enhanced through the addition of a new position in state government relations.

CU-Boulder has developed a broad array of strategies for diversifying its resource base. Private fundraising has become a high priority, with a capital campaign in the planning stages that focuses on the initiatives of *Flagship 2030*. The university's contractual relationship with the CU Foundation has been strengthened with performance-driven goals, and all of the deans now partner with assigned CU Foundation development professionals to establish goals and ensure success. Consistent with targets in the *Quality for Colorado* strategic plan early in



NIST physicist, JILA Fellow, and CU-Boulder Adjoint Associate Professor Deborah Jin and her research team observed the first example of fermionic condensate, a new form of matter, in 2004. Professor Jin is a MacArthur Fellow and a member of the American Academy of Arts and Sciences and National Academy of Sciences.

the decade, resident tuition has been increased to a level closer to the national average of CU-Boulder's peers. Internally, a new system of revenue sharing with schools and colleges has created greater incentives for entrepreneurial activities.

Relationships with state leaders, such as the governor and legislators, have been enhanced with better communication and support for higher education as an economic and cultural engine for Colorado. In addition, the university has continued to strengthen its partnerships with federal agencies and laboratories, which help support research institutes and other units and bring additional resources into the institution.

The university has enhanced its communication strategies by reorganizing and re-energizing its Office of University Communications. Emphasis is placed on the mutual benefits of engagement between the university and its constituencies in the community and state, as well as the economic impact of a major research university such as CU-Boulder.

Nevertheless, maintaining state funding and an adequate financial base has remained a continuing concern both before and during the national financial downturn of 2008–09. This issue is discussed further in Chapter 5.

Expand Physical Plant; Improve City/University Relations

The team recommended continued attention to and discussion about a number of physical growth and development issues with the local Boulder community.

Since the last NCA evaluation, a number of new buildings and renovation projects have been completed, as described in Chapter 1. With help from a student capital construction fee and generous donors, the university was able to build new facilities for the Alliance for Technology, Learning, and Society (ATLAS) Institute; the law school; and the Leeds School of Business, as well as the Visual Arts Complex scheduled to open in 2010. Other new construction includes the Center for Community (set to open in 2010), the Institute for Behavioral Science (IBS) building (opening in 2010), the Eaton Humanities Building (opened in 2000), and the College of Engineering and Applied Science's Discovery Learning Center (opened in 2002). The University Memorial Center was significantly expanded in 2002.

Also in 2002, the university purchased a corporate building near the East Campus, which added more than 90,000 gross square feet to the campus. Now named the Center for Innovation and Creativity, the building houses some activities of atmospheric and oceanic science, music, biochemistry, architecture and planning, psychology, engineering, business, and student affairs. In 2003–04, Bear Creek Apartments opened at the intersection of Baseline Road and 30th Street. The two buildings accommodate about 500 students each with fully furnished units, common areas, and a recreation center.

CU-Boulder has made solid progress on its “Residential Campus Vision 2020” facilities strategic plan designed to transform the living and learning experience for students. In conjunction with the plan to better integrate academics into the residential environment, the university has implemented a multi-year schedule of systematic renovations of residence halls. The renovated halls are designed to accommodate the *Flagship 2030* initiative to expand and enhance the residential academic experience, with such features as a community great room and traditional classrooms, as well as “smart” technology-enhanced classrooms, faculty offices, and other amenities.

Considerable progress also has been made in improving university relationships with the local Boulder community in the past decade. CU-Boulder has engaged in community meetings on such growth issues as expansion of the Bear Creek student housing project and the construction of the IBS building. In particular, development of the 10-year campus master plan has presented opportunities for collaboration and cooperation. In March 2009, CU-Boulder administrators presented a briefing for the Boulder City Council on *Flagship 2030* and the campus master plan processes, which was favorably received. Discussion covered such topics as how the city and university could work together to integrate the campus plan with the Boulder Comprehensive Plan. Improving the city–university relationship is a high priority for Frank Bruno, vice chancellor for administration, who served as the Boulder City Manager before joining CU-Boulder in 2008.

Land-use issues have been mitigated in part by the university’s strategy for construction of research and classroom space on the East Campus. This initiative, part of *Flagship 2030*, provides significant relief to the university’s space needs and offers expanded opportunities for its research and academic enterprise. At the March 2009 briefing with city leaders and others, CU-Boulder provided an overview of the build-out plan and sought feedback on such issues as transportation, density, and traffic congestion, among others. As part of the campus master plan, CU-Boulder also intends to address possible uses of underutilized property on its existing main campus. In April 2009, concerns arose over the university’s plans to construct the new IBS building—a four-story, 65-foot-tall building in the Grandview Terrace area on the northern end of the campus. CU-Boulder has worked with the city government to address these concerns, and construction began in July 2009.

Relationships with the community and state have been aided by greater clarity on the respective roles of campus and system leadership. In 2005, the University of Colorado’s central administration moved its offices to Denver, leading to a better understanding of university and system functions. Offices opened up by the move also provided some relief for the university’s space demands.

CU-Boulder’s working relationship with the Colorado Commission on Higher Education (CCHE) has become more effective and supportive, especially regarding the physical development of the campus. CCHE officials recognize the



Each fall, University of Colorado at Boulder administrators and students conduct goodwill walkabouts on University Hill and in two other neighborhoods near the Boulder campus to educate students about safe and responsible off-campus living and celebrating.

university's campus master plan, which articulates institutional priorities for developing the physical campus, as the primary document for addressing such issues.

The university continues to deal with significant deferred maintenance on the physical plant, but has taken important steps to stem the growth of the problem. A continuing institutional fund has been established to address the most serious issues in deferred maintenance. As new buildings are planned, deferred maintenance is included as part of the funding plans. University leaders persuaded state officials to create a new category in capital construction for major deferred maintenance needs; these needs now can be included on the list of capital construction priorities for state funding.

The lengthy state process for implementing capital improvements continues to be a concern. However, the process has been streamlined somewhat by a change in law to reduce the bureaucracy involved in approving building projects. The university continues to seek release from restrictive state regulation of building projects that are entirely cash-funded.

Assessment

The team recommended that CU-Boulder “institutionalize assessment” to “benefit the university,” with assessment serving as a tool for “institutional improvement” and improvement in “undergraduate and graduate student learning.”

As illustrated in the section below, CU-Boulder engages in a wide range of activities as part of its commitment to ongoing assessment and improved student learning. These activities are described more fully in later chapters for Criteria 2, 3, and 4.

The 2000 NCA evaluating team asked that the university prepare a three-year progress report on assessment initiatives to serve as a stimulant and summary of its efforts. Early efforts were described in the 2003 “Report of the Assessment Oversight Committee”¹⁹ and submitted to the NCA Higher Learning Commission as the progress report. They included:

- Formation of the Assessment Oversight Committee (AOC), 2001, chaired by the associate vice chancellor for undergraduate education. The AOC’s charge²⁰ was issued by the provost; members include representatives of schools and colleges, the Boulder Faculty Assembly, the Division of Student Affairs, and the Office of Institutional Analysis.
- Visits by AOC members and staff to nearly all campus units offering courses or degrees, focusing on assessment of the undergraduate learning goals already published in the CU-Boulder catalog and on assessment of graduate-level programs.

- AOC administration of monies provided by the provost for assessment, generally awarded to units for purchase of national subject matter exams, travel expenses for outside consultants or evaluators, and administrative costs.
- Establishment of a formal role for assessment and the AOC in CU-Boulder's well-established academic review mechanism, then called the Program Review Panel, now called Academic Review and Planning. Under this process, academic departments and units are reviewed thoroughly and extensively every seven years.

Since 2003, assessment activity and improvements in courses, general education, degree programs, and cocurricular activities—for undergraduates and graduate-level students alike—have indeed benefited the university in myriad ways. The activities described below demonstrate clear progress in meeting the concerns of the 2000 NCA visiting team. Both longstanding activities and many new initiatives since 2003 are included. Most are further documented on the [outcomes assessment website](#).²¹

General education. The College of Arts and Sciences [core curriculum](#),²² adopted in whole or in part by all other undergraduate colleges, was established in 1988. In 2000, the faculty rejected a proposed simplification of core requirements. Since 2000, the College of Arts and Sciences [curriculum committee](#)²³ has initiated a multi-year systematic review of the more than 500 courses meeting any core requirement for any student to ensure that content and instructional methods—and student learning—are congruent with the core's aims and goals. The review has prompted revision of dozens of courses. The committee also has proposed realignments of two core knowledge areas based on recommendations from the college diversity planning process. Two-thirds of lower-division enrollments and one-third of upper-division enrollments are in core courses, making core curriculum review a critical piece of campus assessment and improvement efforts.

Instruction in two skill acquisition areas of the core curriculum has been completely redesigned to improve student learning in [writing](#)²⁴ and [quantitative reasoning](#).²⁵ The university, through the AOC, also participated in NSF-funded development by Tennessee Tech University of the [Critical Thinking Assessment Test \(CAT\)](#),²⁶ a third skills acquisition area. In 2009, the [Teagle Foundation](#)²⁷ funded a proposal submitted jointly by CU-Boulder and Colorado College to carry out an experimental analysis using the CAT in a before/after design in three types of courses. This four-year project is expected to strengthen assessment of students' gains in critical thinking skills.

As part of CU-Boulder's strategic planning process, a [Flagship 2030 subcommittee](#)²⁸ focused on the question "What will our graduating students need to know and be able to do in the year 2030?" The subcommittee's work will inform ongoing AOC efforts to articulate learning goals for all CU-Boulder undergraduates.



“The Colorado Challenge was meant to stimulate an ongoing conversation at the department and program level about the quality of our undergraduate education.”

—Dean Todd Gleason,
College of Arts and
Sciences

Undergraduate education as a whole. In 2004, Dean Todd Gleeson of the College of Arts and Sciences issued “[A Colorado Challenge](#)”²⁹ to faculty as “custodians of liberal arts education” at CU-Boulder, calling for their involvement in improving the quality of undergraduate education. The effort was underscored by memos from the dean, visits by the dean to all departments, actions of the College of Arts and Sciences Council, and the actions of individual faculty and departments. The challenge has created a better learning environment by heightening attention to curricular integration; course syllabi, assignments, and assessments; consistency in multi-section courses; student feedback; pedagogy; orientation of new and short-term instructional faculty; and other outcomes. In Gleeson’s words (2006), “The Colorado Challenge was meant to stimulate an ongoing conversation at the department and program level about the quality of our undergraduate education.” The challenge has been embraced by faculty despite, or perhaps because of, a lack of requirements, reporting, financial incentives, or uniformity across departments. Departments typically pursue discipline-specific assessment. Examples include film studies’ external review of student papers and films; senior essays in French presented to classmates, the instructor, and an outside faculty member; and applied math’s use and testing of pre-examination [oral assessments in teaching calculus](#).³⁰

Other undergraduate education initiatives have crossed departmental and college boundaries, emphasizing improved instruction and assessment methods and involving more than individual courses but not full-degree programs. Examples include the [Science Education Initiative](#),³¹ a “five-year, five-department, five-million-dollar project to improve how we teach science to all undergraduate students”; [CU-Teach](#),³² to prepare secondary school math and science teachers (with the School of Education); and the [physics education research](#)³³ group (PER@C), with over a dozen faculty, staff, and graduate students from the Department of Physics and the School of Education. PER@C develops and studies uses of technology in physics education, assessments (conceptual, epistemological, and belief-oriented), theoretical models of students learning physics, examination of successful educational reforms and replication studies of such reforms, and student problem-solving in physics. The related [Physics Education Technology](#)³⁴ project (PhET) has developed over 50 physics simulations, free to all users, designed to be “highly interactive, engaging, and open learning environments.”

In CU-Boulder’s seven professional schools and colleges, specialized accreditations emphasize assessment, student learning, and improvement of educational programs. For example, the [College of Engineering and Applied Science website](#)³⁵ outlines a comprehensive set of assessment and learning improvement activities. Other colleges and schools devote significant resources to assessment and accreditation; data and analyses from the Office of Institutional Analysis are also used. Most specialized accreditations cover both graduate and undergraduate education.³⁶

The Office of Institutional Analysis website³⁷ publishes graduation and retention rate analyses, course outcomes, survey results, and special studies, often with a focus on undergraduate education in general or by program. These data are used by schools, colleges, programs, and departments to understand and improve undergraduate education.

The CU-Boulder catalog³⁸ continues to list skill and knowledge goals for undergraduate degree programs. These are checked by departments each year as the catalog is revised. In spring 2009, the AOC contacted departments about a handful of programs without listed goals.

Changes and improvements in individual degree programs are ongoing, usually under the purview of appointed curriculum committees or other department and college groups. They are presented to a campus-wide audience as part of the academic review process. At this point, the AOC works with units to clarify and improve their assessment processes, share findings across units, and make selected assessment findings public. Prompted by assessments ranging from standardized tests to external reviews of student portfolios, units have added courses, added faculty in needed areas, refined degree requirements, refined their published skill and knowledge goals, added capstone courses and assessment methods based on them, reviewed and revised syllabi and instructional methods, and other actions. These changes have improved both undergraduate and graduate education, but with 84 percent of CU-Boulder students at the undergraduate level, there has been a greater emphasis on undergraduate education.

The College of Arts and Sciences Academic Advising Center,³⁹ upgraded in the late 1990s, continues to refine and oversee systems for advising, placement, and diagnosis of student preparedness for particular courses throughout the college. Center staff members offer insights and work with faculty groups on student learning, student needs, and student success. A powerful new degree audit system,⁴⁰ with initial use in 2009, will enhance advising in all colleges.

Cocurricular activities complement general education and degree requirements to enhance student learning. Activity in the last decade includes the growth of formal undergraduate research opportunities,⁴¹ now with more than 600 participants annually, ongoing study abroad⁴² programs in which over 25 percent of bachelor's recipients participate, and Residential Academic Programs (RAPs)⁴³ that have doubled in size in a decade and are a focus of *Flagship 2030* plans. Other changes include an increased emphasis on service learning, including the establishment of a service learning office⁴⁴ and the Institute for Ethical and Civic Engagement.⁴⁵ The university also has built an active honors program,⁴⁶ developed and tested a "CU 101" course aimed at "providing students with the knowledge and understanding of this university, and their place in it," and supported the Division of Student Affairs' emphasis on goals for and assessment of student development.⁴⁷



PhD candidate Valentina Iturbe-LaGrave teaches a Spanish class. CU-Boulder's Graduate Teacher Program is one of the earliest programs developed to help graduate students become better teachers and has become a model program of its kind, drawing visiting faculty and administrators from around the country to learn from its success. The program received the highly prestigious Theodore M. Hesburgh Award from the American Council on Education in 2006.

Graduate-level students. The Graduate School⁴⁸ and the Office of Institutional Analysis⁴⁹ have collaborated and worked through the AAU data exchange and the AAU task force on graduate education data⁵⁰ to develop department or discipline-specific data—comparable over time, across departments, and across institutions—for the management and improvement of graduate education. These data encompass graduation rates, time to degree, an exit survey, placement, financial support, and more; all are published on the Office of Institutional Analysis website. In a related endeavor, CU-Boulder also participated fully in data collection by the National Research Council (NRC) study of the research doctorate,⁵¹ developing centralized and ongoing data sources. The graduate exit survey⁵² process was centralized and the instrument revised, based in part on AOC visits to graduate chairs, with surveys conducted in 2003, 2005, and 2009.

New degree programs⁵³ have been established to meet student needs, primarily (but not solely) at the graduate level. These include the bachelor's degree in chemical and biological engineering, the doctor of audiology delivering professional training and joint PhD programs in both cognitive science and neuroscience, as well as PhD programs in environmental studies (also master's); technology, media, and society; and biochemistry. Reconfiguration and renaming resulted in MS/PhD degrees in atmospheric and oceanic sciences and in astrophysical and planetary sciences, as well as bachelor's and master's degrees in art history and studio arts. In addition, formal concurrent bachelor's/master's degrees⁵⁴ in over 30 fields, initiated in 1998, are now awarded to more than 100 students per year. As noted above, changes and improvements in individual graduate degree programs are ongoing and are presented to an audience of campus representatives in the academic review process. By practice and Graduate School rules, the assessment of individual students by comprehensive exams and thesis and dissertation committees draws upon qualified faculty outside the student's own instructors. Assessment of programs relies on comparisons to similar disciplines at peer institutions—the goal of the university's AAU and AAU data exchange work.

Learning environments and teaching. Technological advancements to instruction, particularly “clickers”⁵⁵ and the CULearn⁵⁶ web facility for students and instructors, have dramatically increased instructors' ability to assess student understanding frequently and to deliver feedback to students quickly, even several times per class session. These tools have been the subject of study by faculty and the Faculty Teaching Excellence Program; they are now used in courses comprising over half of undergraduate enrollments. The tools also allow instructors to collect periodic student feedback on components of instruction that work or do not work well for them. The strategic planning process of Information Technology Services⁵⁷ guides implementation of all these aids to the learning environment.

Student learning and teaching are also enhanced by innovative environments including the Integrated Teaching and Learning Program,⁵⁸ with an interactive classroom-laboratory shared by all six engineering departments; a Visual Arts

Complex⁵⁹ set to open in spring 2010; the Anderson Language Technology Center (ALTEC),⁶⁰ supporting all foreign language students and teachers; and the ATLAS Institute,⁶¹ which creates and facilitates educational and research programs in which information and communication technology is an enabling force. Another tool for instructional improvement, student evaluations of courses and instructors,⁶² was revised⁶³ by a faculty–student committee drawing upon inputs from faculty and student governments and from the national literature on course evaluations.

The Faculty Teaching Excellence Program (FTEP)⁶⁴ and the Graduate Teacher Program (GTP)⁶⁵ assist instructors at all levels, which in turn improves courses and student learning. Especially notable is the GTP Lead Graduate Teacher Network.⁶⁶ This award-winning program enhances learning of lead teachers, the graduate student teaching assistants who work with and learn from them, and the undergraduates in their classes.

CU-Boulder supports the participation of student teams in national competitions, which provide strong external assessments of the application of disciplinary knowledge and skills. Teams have turned in winning performances over the last five years in solar home⁶⁷ design and construction, nanosatellite design,⁶⁸ aeronautics and astronautics,⁶⁹ social entrepreneurship,⁷⁰ business plans⁷¹ for solar technologies for Africa, print advertising,⁷² and urban design.⁷³ In addition, CU-Boulder undergraduates in applied mathematics have excelled at the prestigious international Mathematical Contest in Modeling, placing among the top winners in 2006 for the third year in a row.

Student surveys. The cycle of student surveys⁷⁴ administered by the Office of Institutional Analysis has evolved to emphasize program-level data and comparisons; comparisons to other institutions wherever possible; and student reflection on learning, on behaviors associated with learning, and on other campus goals. The cycle includes regular senior, graduate, campus climate for diversity, and alumni surveys, plus participation in the National Survey of Student Engagement (NSSE). All regular surveys are reported publicly with results by CU-Boulder school and college, arts and sciences division, and department. In addition, listings of comments by students are sent to or made available to department and program heads.

The Office of Institutional Analysis is the national coordinator for the exchange of NSSE response-level data among AAU schools,⁷⁵ a program that greatly enhances the utility of local NSSE data. Many colleges administer their own more focused surveys. For example, engineering⁷⁶ surveys freshmen, seniors, graduate students, alumni, and all students who held summer internships. Student survey results are particularly useful when describing student behaviors associated with learning, student needs, and student dissatisfactions and suggestions—particularly when coupled with student records data. As such, they inform general education, undergraduate education, graduate programs, courses, and teaching.

Programs, faculty, and scholarly activity. An extensive review⁷⁷ of the academic program review process itself was followed by a significant revision designed to streamline reviews, increase collaboration and sharing across units, and increase the utility of the process for both program and institutional improvement. The formal roles for assessment and the AOC in the review process continue.

The revised academic review process now generates a “unit profile”⁷⁸ annually for all units in any review cycle. The profiles assemble data on faculty, staff, students, degrees, academic offerings, course offerings, student evaluations of courses, research and scholarly activity, and student survey results. A unit is compared to all others at CU-Boulder and to others in its review cycle, on most measures, to facilitate unit assessments of their own performance.

CU-Boulder also assesses faculty, teaching, and research. Departments are required to use multiple means of evaluating teaching⁷⁹ (for example, student evaluations and a teaching portfolio). Faculty annually submit records of their publications and scholarly activity, as well as service and other professional activities, in a system⁸⁰ that allows departments and the university to reuse and recombine these data for various purposes. The tenure system itself has been thoroughly reviewed,⁸¹ and a *Flagship 2030* task force has assessed the campus infrastructure for research.⁸²

Departments eagerly place themselves in comparative national spotlights such as the NRC study. The Office of Institutional Analysis is one of a handful of institutional research offices nationally working with a private firm, Academic Analytics,⁸³ to develop reliable and valid data on faculty publications, citations, books, research funding, and honors and awards—all of which may be compared among institutions.

Accountability. The state of Colorado’s accountability program has evolved from detailed descriptions of every aspect of campus life with a required assessment component (in the 1990s⁸⁴), to the purely quantitative Quality Indicator System (early 2000s⁸⁵), to a performance contract⁸⁶ with sections on standardized tests, graduation and retention rates, academic rigor, teacher education, and more (2004 through present).

The university also makes available a College Portrait⁸⁷ in a format specified by the Voluntary System of Accountability (VSA).⁸⁸ The portrait provides brief summaries, written for students and parents, of CU-Boulder programs to assess and improve undergraduate student learning and outcomes⁸⁹ and to evaluate the experiences of undergraduate students.⁹⁰ As part of both VSA and an October 2008 CU Board of Regents resolution, CU-Boulder will administer the Collegiate Learning Assessment (CLA)⁹¹ of the Council for Aid to Education to freshmen and seniors starting in fall 2009. Administration will be coordinated by the AOC.

Broad assessments of CU-Boulder's success in meeting campus goals can be found in two annual publications: campus indicators⁹² and an update on statistical goals related to diversity and equity.⁹³ The Office of Institutional Analysis website⁹⁴ also makes publicly available the Common Dataset of information requested by college guide publications; submissions to the U.S. Department of Education Integrated Postsecondary Data System (IPEDS) and the IPEDS annual Data Feedback Report with peer comparisons, numerous additional peer comparisons; and a broad range of data on admissions, financial aid, enrollments, graduation rates, courses and teaching, faculty and staff, and survey results.

Organization. An endeavor as all-encompassing as the improvement of student learning naturally involves many players: the College of Arts and Sciences and its Arts and Sciences Council,⁹⁵ other schools and colleges, specialized accrediting agencies, the Graduate School, the Office of Institutional Analysis, several support units in academic affairs, and the AOC.

Founded in 2001, the AOC continues its work, with meetings, minutes, and development of assessment expertise and awareness. Members of the group have attended national workshops, developed a library of source materials, and scanned peer institutions for best practices. The AOC also has spearheaded CU-Boulder's participation in the Critical Thinking Assessment Test and planned for testing to begin in fall 2009 to meet accountability requirements. In 2007, an "assessment coordinator" position was added in the Office of the Associate Vice Chancellor for Undergraduate Education and Chair of the AOC. The coordinator staffs AOC and works with units; the position also serves as a top scholarships advisor to students in all schools and colleges who seek prestigious national and international scholarships, fellowships, and grants.

The AOC's primary activity since 2003 has been integrating assessment of degree programs into the academic review process and using that process to improve both student learning and assessment. The interruption of the review process disrupted AOC work as well, and mature, clearly useful procedures involving the revised review process have not yet emerged, but are the goal of continuing AOC efforts.

In 2009, the Graduate School's⁹⁶ Executive Advisory Council will be asked to accept responsibility for assessment of graduate school programs from the AOC. This, too, will involve close integration with academic program review. The advisory council is a long-standing group with responsibility for reviewing new, revised, and discontinued degree and certificate programs, concurrent bachelor's/master's programs, appointments to the research faculty, and graduate school rules. The council meets monthly during the academic year.

The Assessment Oversight Committee strives to compile, monitor, synthesize, and publicize the myriad activities discussed in this section. The AOC is committed to learning from them, disseminating lessons from them, raising

awareness of them, and encouraging collaboration and sharing within and across departments and colleges. It also has pursued development of the useful and productive integration of assessment into the academic review process. The committee is positioned to articulate and publicize learning goals for all undergraduates, drawing from arts and sciences statements, a *Flagship 2030* subcommittee's work on qualities of CU-Boulder graduates, and models used by peer institutions.

In summary, the substantial amount of activity outlined here illustrates CU-Boulder's commitment to ongoing assessment and improved student learning, and it shows clear progress in meeting the concerns of the 2000 NCA visiting team.

Endnotes

- ¹ www.ncahlc.org/index.php?option=com_directory&Itemid=192&Action=ShowBasic&instid=1038
- ² Office of Planning, Budget, and Analysis compilation from all senior surveys; senior survey results are available from www.colorado.edu/pba/surveys.
- ³ www.colorado.edu/cu-diversity/blueprint
- ⁴ www.colorado.edu/cu-diversity
- ⁵ www.colorado.edu/odh
- ⁶ www.colorado.edu/ArtsSciences/ASCOUNCIL/committees.html
- ⁷ www.biasincidenthotline.org
- ⁸ www.colorado.edu/cu-diversity
- ⁹ www.colorado.edu/SORCE
- ¹⁰ www.colorado.edu/pba/surveys/climate/06
- ¹¹ www.cubuffs.com/ViewArticle.dbml?&DB_OEM_ID=600&ATCLID=1470367&SPID=274&SPSID=4457
- ¹² www.colorado.edu/pba/records/snap/087077
- ¹³ www.colorado.edu/pba/div/divplanprogress.htm
- ¹⁴ www.colorado.edu/pba/div/regdivrpt09.pdf
- ¹⁵ www.colorado.edu/pba/peer/2008PeerEnrlByRaceEthnic.xls
- ¹⁶ www.colorado.edu/pba/div/regdivrpt09.pdf
- ¹⁷ www.colorado.edu/pba/div/regdivrpt09.pdf
- ¹⁸ www.colorado.edu/pba/facstaff/facsal/time
- ¹⁹ www.colorado.edu/accreditation/downloads/ncareport0304.pdf
- ²⁰ www.colorado.edu/pba/outcomes/aoc/charge.htm
- ²¹ www.colorado.edu/pba/outcomes
- ²² www.colorado.edu/ArtsSciences/students/undergraduate/core.html
- ²³ www.colorado.edu/ArtsSciences/ASCOUNCIL/committees.html#curriculum
- ²⁴ www.colorado.edu/pwr
- ²⁵ www.colorado.edu/ArtsSciences/students/undergraduate/as_core.qrms.html
- ²⁶ www.tntech.edu/cat
- ²⁷ www.teaglefoundation.org
- ²⁸ www.colorado.edu/flagship2030/downloads/GraduatesReport_030407.pdf
- ²⁹ www.colorado.edu/ArtsSciences/facultystaff/administration/coloradochallenge_m1.html
- ³⁰ www.colorado.edu/news/r/40c92d874183314e002226645b96db37.html
- ³¹ www.colorado.edu/sei
- ³² stem.colorado.edu/cu-teach
- ³³ www.colorado.edu/physics/EducationIssues
- ³⁴ phet.colorado.edu/about



³⁵ engineering.colorado.edu/collegeassessment

³⁶ Until spring 2008 ABET (engineering) allowed only one of graduate and undergraduate accreditation within a single program, such as mechanical engineering. CU-Boulder has elected to accredit undergraduate programs, where in several disciplines professional engineering licensure requires graduation from an accredited program. No programs are as yet seeking accreditation at the graduate level as well.

³⁷ www.colorado.edu/pba/ia

³⁸ www.colorado.edu/catalog. Skill and knowledge goals have been listed in the catalog since 1990.

³⁹ www.colorado.edu/aac

⁴⁰ registrar.colorado.edu/Students/degree_audit.html

⁴¹ www.colorado.edu/UROP

⁴² studyabroad.colorado.edu

⁴³ www.colorado.edu/prospective/freshman/academics/residential.html

⁴⁴ www.colorado.edu/servicelearning

⁴⁵ www.colorado.edu/iece

⁴⁶ www.colorado.edu/honors

⁴⁷ www.colorado.edu/studentaffairs/studentdevelopment

⁴⁸ www.colorado.edu/GraduateSchool

⁴⁹ www.colorado.edu/pba/ia

⁵⁰ www.colorado.edu/pba/nrc/nrc_national.htm

⁵¹ www.colorado.edu/pba/nrc

⁵² www.colorado.edu/pba/surveys/grad/05

⁵³ www.colorado.edu/pba/degrees/10YearOverview.htm

⁵⁴ www.colorado.edu/pba/concepts/BAMAdegs.htm

⁵⁵ www.colorado.edu/its/cuclickers

⁵⁶ www.colorado.edu/its/culearn

⁵⁷ www.colorado.edu/vpact/itsp

⁵⁸ itll.colorado.edu/ITLL

⁵⁹ www.colorado.edu/arts/VisualArtsComplex

⁶⁰ altec.colorado.edu

⁶¹ www.colorado.edu/atlas

⁶² www.colorado.edu/pba/fcq

⁶³ www.colorado.edu/pba/fcq/fall06changes.html

⁶⁴ www.colorado.edu/ftep

⁶⁵ www.colorado.edu/gtp/lead

⁶⁶ www.colorado.edu/gtp/lead

⁶⁷ www.colorado.edu/news/releases/2007/284.html

⁶⁸ www.colorado.edu/news/r/accfc213b634dbb0f9b8cfe061b15773.html

- ⁶⁹ www.colorado.edu/aerospace
- ⁷⁰ www.colorado.edu/news/r/667304650318486875475d978f3ab845.html
- ⁷¹ www.colorado.edu/news/releases/2007/469.html
- ⁷² www.colorado.edu/news/r/0aa772c75281c1da05e42296ef4e06f2.html
- ⁷³ www.colorado.edu/news/releases/2005/145.html
- ⁷⁴ www.colorado.edu/pba/surveys
- ⁷⁵ www.colorado.edu/pba/surveys/nsse-aaude
- ⁷⁶ engineering.colorado.edu/collegeassessment/surveys.htm
- ⁷⁷ www.colorado.edu/facultyaffairs/WebPost_PRP_Taskforce_Recommendations.pdf
- ⁷⁸ www.colorado.edu/pba/depts/arp
- ⁷⁹ www.cu.edu/policies/policies/HR_TeachingEvaluation.html
- ⁸⁰ www.colorado.edu/facultyaffairs/deskref/part4facultyreport.htm
- ⁸¹ www.cu.edu/policies/policies/A_Tenure-Accountability.html
- ⁸² www.colorado.edu/flagship2030/downloads/implementation/TaskForceResearch.pdf
- ⁸³ www.academicanalytics.com
- ⁸⁴ www.colorado.edu/pba/qis/98
- ⁸⁵ www.colorado.edu/pba/qis
- ⁸⁶ www.colorado.edu/pba/perfmeas/PerformanceContractAnnualReportDecember2008.pdf
- ⁸⁷ www.collegeportraits.org/CO/CU-Boulder
- ⁸⁸ www.voluntarysystem.org
- ⁸⁹ www.colorado.edu/pba/perfmeas/OvvStudentLearning.htm
- ⁹⁰ www.colorado.edu/pba/perfmeas/OvvStudentExperiences.htm
- ⁹¹ www.collegiatelearningassessment.org
- ⁹² www.colorado.edu/pba/perfmeas/indicators.htm
- ⁹³ www.colorado.edu/pba/div/dplanstat/goal40tab.htm
- ⁹⁴ www.colorado.edu/pba/ia
- ⁹⁵ www.colorado.edu/ArtsSciences/ASCOUNCIL
- ⁹⁶ www.colorado.edu/GraduateSchool



CHAPTER 3

*Flagship 2030: Serving Colorado,
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CHAPTER 3

Flagship 2030: Serving Colorado, Engaged in the World

“At the University of Colorado at Boulder, we accept both the public role and responsibility of a flagship, including the expectations of leadership, excellence in all we do, and commitment to the highest academic core values. We strive to promote the confluence of superb teaching, research, scholarship, creative works, and service that distinguishes a flagship university. In creating the following strategic plan, we have focused on our primary role as a national comprehensive research university. It is from this core identity that *Flagship 2030* has evolved.”

—Flagship 2030

When early Boulder settlers took up a collection to create a university on a lonely hill overlooking the mining town, they could not have known what was to come. Even these visionary pioneers could not have foreseen the future of the University of Colorado at Boulder. And, yet, they moved forward—determined to transform a windswept plot of land into a flagship of learning for generations to come.

Now, the University of Colorado at Boulder stands at a crossroads, with the opportunity to transform this flagship and the determination to see it through.

Beginning in 2006, the university community came together to create a new plan—one that set a new course for the state’s leading flagship university over the next quarter-century. The plan calls for greater agility in a rapidly changing environment. It proposes an investment strategy today for shaping the decades ahead. It helps the university better serve the state and nation, with a global perspective.

The plan is *Flagship 2030: Serving Colorado, Engaged in the World*.¹ The name was chosen to reflect the university’s role and far-reaching vision. It expresses CU-Boulder’s commitment to the people of Colorado—and it proposes a global presence that is within reach even before 2030.

The process that resulted in *Flagship 2030* formed the foundation for the current NCA re-accreditation self-study. For the self-study, the university was able to build upon the analysis and self-examination activities that shaped the strategic plan through three phases of development. Most importantly, the work of the original steering committee in Phase 1 and the *Flagship 2030* implementation task forces in Phase 2 provided core support for this self-study. Their work made it possible to meld the two processes, as well as other efforts, into a continuum of planning aimed at improving the University of Colorado at Boulder and setting a new course for the future.

Mission and Vision

In the planning process, CU-Boulder remains true to its statutory mission of serving as “a comprehensive graduate research university.” This defining mission emphasizes the university’s role in offering a broad array of undergraduate, master’s, and doctoral degree programs.

Further, the university has developed a vision statement that reflects the spirit and intent of *Flagship 2030*:

“The University of Colorado at Boulder will become a leading model of the ‘new flagship’ of the 21st century—by redefining learning and discovery in a global context and setting new standards in education, research, scholarship, and creative work that will benefit Colorado and the world.”

During the vision process, six broad themes emerged for the new flagship university CU-Boulder aspires to become:

- The university environment will be intellectually inspiring, academically challenging, welcoming, supportive, and conducive to positive personal growth.
- CU-Boulder will become a dynamic global force for nurturing ideas and the uses of knowledge.
- The university will be a place that exemplifies diversity, intercultural understanding, and community engagement.
- CU-Boulder will help promote Colorado as a global crossroads of ideas and discovery.
- The university will provide students with a foundation of knowledge that will help them reach their full potential.
- CU-Boulder will be an agile organization supported by effective leadership, financial and operational models, and infrastructure.



The Planning Process

The genesis of *Flagship 2030* occurred in 2006 when newly appointed Chancellor G.P. “Bud” Peterson invited the university community to join in a comprehensive strategic planning process. He challenged faculty, students, and staff to look beyond immediate concerns to envision a new flagship university for the 21st century. The planning horizon was long—nearly 25 years—in order to encourage a degree of imagination not often found in short-term plans.

Flagship 2030 was crafted in **three distinct phases**, each drawing upon multiple viewpoints and perspectives. By design, the planning process was informed by the input of hundreds of people who care about the future of the institution. Governance groups were involved from the start; faculty, administrators, students and staff spent long hours on task forces and committees; and community and political leaders around the state had their say. The final *Flagship 2030* plan thus reflects the voices of CU-Boulder’s many stakeholders.

Phase 1. A 52-member steering committee was appointed in December 2006 to guide the first phase of the strategic planning process. The committee included faculty, staff, students, local community members, and other constituents. The group began by envisioning the characteristics of the leading comprehensive universities in 2030, and then proposed a vision for transforming CU-Boulder to become a new model for the 21st-century flagship university. A series of open forums encouraged campus conversations, a website shared thoughts and information, and focus group sessions were held with Colorado business leaders. Faculty and staff were invited to compose essays² reflecting their thoughts and assumptions about CU-Boulder and *Flagship 2030*. Ideas and viewpoints were sought in structured interviews with 80 civic and government

Central Flagship 2030 Questions

What will students need to know in 2030?

What will the state of Colorado need from the university in 2030?

To what needs will our research, scholarship, and creative work respond?

What should our relationship be with the Boulder community over this period?

What will the university community be like in 2030?

What financial and operational models will be necessary for success in 2030?

leaders across the state. These interviews were summarized in a presentation to the steering committee in August 2007.³

In this phase, subcommittees of the steering committee were appointed to consider and address a number of central questions about the challenges and opportunities facing CU-Boulder in 2030. The subcommittees conducted assessments of the university's current strengths and weaknesses and identified assumptions, barriers, and opportunities for CU-Boulder leading up to 2030.⁴ In May 2007, the work of the subcommittees was synthesized into a document that provided a draft vision statement and a set of "Emerging Themes and Issues for CU-Boulder in 2030."⁵ The document discussed such topics as:

- Skills and attributes needed by CU-Boulder graduates in 2030
- Mechanisms for enhancing interdisciplinarity
- Opportunities for internationalization of the university
- Creating a supportive campus environment and local community partnerships
- Building a diverse and representative campus
- Achieving operational flexibility
- Moving toward financial self-sufficiency

The summary of the subcommittee's findings formed the basis of discussion at the Chancellor's Open Forum in May 2007 and was offered for community review and input. In June 2007, the administration presented a draft strategic plan for further discussion by the steering committee and additional public review. By November 2007, the document was finalized and approved by the CU Board of Regents. The final document included eight Core Initiatives aimed at retaining competitiveness and quality and 10 transformational Flagship Initiatives.

Phase 2. The second phase was launched in February 2008 to develop implementation plans for the 18 initiatives in *Flagship 2030*. Nine task forces were named to craft more detailed recommendations for implementing the plan. In their work, they addressed the areas of undergraduate education, budget, enrollment, facilities, faculty, graduate education, outreach and engagement, research, and staffing and operations. In September 2008, the task forces presented their reports—including recommendations, action plans, timetables, and budget consideration—for discussion at a planning summit meeting that drew more than 100 members of the university community.⁶

Phase 3. Now in the plan's third phase, the campus leadership is engaged in reviewing the reports, assessing the feasibility of the recommendations, and setting priorities for implementation. *Flagship 2030* is built upon a set of action-oriented strategic initiatives, as described below, many of which require substantial investment. Some of the actions will need to be phased in, some may require further study, and others can be implemented immediately. A summary of next steps is provided at the conclusion of this chapter.

Strategic Initiatives

Early on in the process, it became clear that reshaping the flagship would require a two-pronged approach to decision-making and investment. *First*, the university needed to address near-term requirements for sustaining quality and staying competitive in core service areas. *Second*, it needed to launch aggressive, far-reaching Flagship Initiatives aimed at transforming and distinguishing the university among its peers.

In both cases, the availability of resources would play a crucial role. The *Flagship 2030* resource plan identifies strategies for highly targeted investments in the core areas and the Flagship Initiatives. By making strategic investments, CU-Boulder intends to position itself as a model among national comprehensive public universities by 2030.

The Core Initiatives. Over the last 132 years, CU-Boulder has grown and excelled far beyond its founders' dreams. The university has attained a world-wide reputation for disciplinary and interdisciplinary work, excellence in engineering and the sciences, and exceptional performance in the arts and humanities.

In the future, however, staying competitive will require investment in several core areas of the university. Eight priorities have been identified, as described below. Included under each initiative are examples of specific recommendations by *Flagship 2030* task forces, which are being considered for feasibility and prioritization.

1. *Enhancing Education and Scholarship.* The university plans to grow its faculty and enhance delivery of undergraduate education. In the next 10 years, its goal is to add at least 300 new tenure-track faculty members to improve education and research and enhance the diversity of the scholarly community. New positions will be distributed strategically among core disciplines, distinctive areas, and emerging interdisciplinary fields. The entire curriculum and teaching methodologies will be re-examined in light of a changing world.

Task Force Recommendations:

The Faculty Task Force recommended that the university develop a multi-year faculty hiring plan designed to improve the student–faculty ratio from 27 to 1 down to 24 to 1 or better. In addition, the group suggested establishing a cycle for cluster hiring that is synchronized with student enrollment and campus growth projections. The task force also recommended that the faculty infrastructure be strengthened by hiring additional staff, expanding available physical space, and developing a long-term resource plan for the libraries.

Core Initiatives

1. Enhancing education and scholarship
2. Fostering research excellence
3. Enhancing graduate education
4. Ensuring access
5. Supporting the mission
6. Investing in the tools for success
7. Learning for a diverse world
8. Serving Colorado, the community, and our graduates



2. *Fostering Research Excellence.* CU-Boulder will increase investments in research and creative work by 5 percent each year. The university also will provide targeted investments in high-performance computing facilities, facilities that promote interdisciplinary discovery across the university, and facilities for cutting-edge research enterprises, such as nanotechnology and biomedical advances. Fundamental to this endeavor will be the build-out of the East Campus and CU Research Park, which will be transformed into a vibrant extension of the Main Campus. The new research park will feature mixed uses, from research and teaching to residential spaces and recreation.

Task Force Recommendations:

The Research, Scholarship, and Creative Work Task Force called for changes in the organizational structure, administrative responsibilities, and level of financial support for the Office of the Vice Chancellor for Research. The task force said these changes are needed in order to increase research funding, enhance support for all research, increase the number and quality of graduate students, provide more opportunities for undergraduates to participate in research, increase funding from sponsored research, and develop stronger linkages with the Colorado economy.

3. *Enhancing Graduate Education.* The number of graduate students will be increased to represent 20 percent of the total student population. Currently at 15.6 percent, the university's graduate enrollment will be increased by strengthening recruiting efforts and enhancing graduate student incentives. Also, graduate degree programs will be re-examined in order to find ways of encouraging nontraditional and more effective approaches to graduate education.

Task Force Recommendations:

The Graduate Education Task Force recommended improving graduate student support by increasing the standard stipend rate and funds available for graduate fellowships. The campus will need to identify academic disciplines with both the demand and capacity for growth and then design programs—such as BA/MA programs, professional master's, new master's and PhD degree programs, interdisciplinary studies, accelerated PhD programs, and postdoc programs—to stimulate growth.

4. *Ensuring Access.* The university will enhance student financial support by doubling both merit and need-based financial aid within the next five years; a statewide dialogue will be engaged on how Colorado can expand access to higher education.

Task Force Recommendations:

The Enrollment Task Force recommended establishing enrollment goals to ensure a modest rate of growth overall and an appropriate mix of resident and nonresident students throughout academic year 2030. The campus

should develop a strategic plan for managing enrollment growth, revising financial aid policies, and expanding Residential Academic Programs (RAPs) to accommodate more of the undergraduate student population.

5. *Supporting the Mission.* The number of talented and creative staff members will be increased to provide the necessary support for achieving the university's educational and research mission. This priority also will require a continued focus on the retention of existing employees through initiatives such as professional development, succession planning, work-life balance, mentoring, competitive compensation, and recognition.

Task Force Recommendations:

The Staffing and Operations Task Force recommended a variety of programs and enhancements to improve the faculty–staff ratio and strengthen the “employer of choice” efforts already outlined in this initiative.

6. *Investing in the Tools for Success.* Investments will target new technologies, campus facilities, and library collections to support outstanding education and scholarship. CU-Boulder intends to be on the leading edge in the use and study of new technologies, opening up opportunities for learning and global discourse. The university also intends to invest in physical facilities, helping to renew and enhance the campus infrastructure. New facilities will be needed to accommodate existing and emerging university initiatives, as well as expected growth in enrollment and faculty numbers. In addition, the University Libraries strategic plan is setting the foundation for innovative new technologies and service models to meet the needs of the next generation of students and faculty.

Task Force Recommendations:

The Facilities Task Force recommended a number of actions to optimize space planning and strategic capital planning at the institutional level and to establish environmental sustainability as a central value of the university regarding facilities, transportation, and parking. The task force also recommended investing in needed infrastructure and technologies that enable research, creative work, learning, and making the build-out of the East Campus a special emphasis of the next 10-year campus master plan.

7. *Learning for a Diverse World.* CU-Boulder will develop, implement, and assess university strategies to improve the diversity of faculty, students, and staff, as well as to foster a supportive, more inclusive community for all. CU-Boulder aims to become a model for the nation in applying best practices in support of diversity and broadly inclusive excellence. Recognizing the challenges of enhancing climate and diversity, the university believes such change is fundamental to *Flagship 2030*—and to the core values of the university.



Task Force Recommendations:

The Staffing and Operations Task Force recommended specific actions to increase and enhance internal communication and intercultural understanding among faculty, staff, and students. The Office of the Vice Chancellor for Diversity, Equity, and Community Engagement has taken the lead in developing programs and overall strategies for promoting diversity on campus.

8. *Serving Colorado, the Community, and Our Graduates.* CU-Boulder will create a coordinated, targeted, and expanded outreach program that strengthens connections between the university and Colorado communities. Also, lifelong learning opportunities will be expanded as an extension of a CU-Boulder degree.

Task Force Recommendations:

The Outreach Task Force recommended the campus adopt a clear and robust definition of outreach and engagement, establish the appropriate infrastructure and oversight through an Office for Outreach and Engagement, and foster student involvement in outreach. The task force also suggested building and sustaining community partnerships, supporting P-12 outreach and engagement activities, and implementing an integrated communications plan about outreach (including a website, news releases, and survey data). It also recommended encouraging faculty participation and developing evaluation, recognition, and reward systems for faculty outreach.

The Flagship Initiatives. Beyond simply staying competitive, CU-Boulder has even higher aspirations for the next quarter-century. By investing in key Flagship Initiatives described below, the university intends to become a leading model of future flagship institutions. These initiatives are viewed as long-term and transformational; in fact, implementation of some may extend past 2030. The Flagship Initiatives include:

1. *Residential Colleges.* A multi-year residential academic experience will be offered for every entering student. For many years, residential learning programs have been a significant experience for many freshmen at CU-Boulder. These programs have become models for engaging students as active participants in living and learning environments that nurture diversity, a sense of community, and student development. Now the university plans to offer these programs to every student—and extend this experience beyond a single year.

Task Force Recommendations:

The Undergraduate Education Task Force has encouraged the development of RAPs in the residence halls. To date, there are seven RAPs serving the needs of almost 2,000⁷ freshman students and another three RAPs due to come online, after which the university expects to have over 50 percent of all freshman enrolled in RAPs by 2012. The task force noted that the campus will need to guide the development of academic partnerships and programmatic planning

for the RAPs; plan for the future renovation, financing and build out of the residence hall facilities; and develop the concept of “residential colleges” by offering a multi-year experience for every entering freshman.

2. *Customized Learning.* CU-Boulder proposes establishing a new education model featuring mentored, self-directed, and customized learning tracks. Aimed initially at the most academically accomplished undergraduates, this four-year academic program would help students acquire leadership skills through a customized learning approach. This program could serve as an “incubator” for innovation in curriculum, teaching, use of technology, and the personalization of education for the entire student body.

Task Force Recommendations:

The Undergraduate Education Task Force recommended piloting this initiative first by significantly expanding the existing Honors Program in order to accommodate all of the arts and sciences students who are already eligible to participate in the program. The Honors Program encourages customized learning by requiring students to prepare an honors thesis for Latin Honors (*cum laude*, *magna cum laude*, and *summa cum laude*). The task force noted that the next steps then would be to work with the other schools and colleges as part of a broad and more closely integrated and coordinated campus honors initiative.

3. *Experiential Learning.* Experiential learning opportunities will be incorporated more broadly into every student’s education. Students of the future will need more than the traditional college degree to succeed and lead; they will need to cultivate a broad range of personal attributes and global understanding. The university plans to establish an expectation that each student will engage in at least two semester-long experiences tailored to complement academic coursework and cocurricular activities. Examples include study abroad, honors thesis, senior project, creative work portfolio, entrepreneurial experience, community service project, and clinical experiences, among many other possibilities.

Task Force Recommendations:

The Undergraduate Education Task Force recommended a thorough review of the undergraduate core curriculum in order to include experiential education in every four-year degree program. The campus will need to determine the infrastructure, leadership, timetable and budget necessary to have an experiential education requirement (3 to 6 credit hours) in place for entering freshmen in the future.

4. *Colorado’s Research Diamond.* The university will initiate a “research diamond” enterprise, in collaboration with other regional universities, businesses, government, and federal laboratories, helping to advance the university’s research mission as well as the state’s economic future. This ambitious cooperative effort, building upon existing research strengths, will help form

Flagship Initiatives

1. Residential Colleges
2. Customized Learning
3. Experiential Learning
4. Colorado’s Research Diamond
5. Transcending Traditional Academic Boundaries
6. Building a Global Crossroads
7. Creating University Villages
8. Alternative Degree Tracks
9. Year-round Learning
10. Making Enterprise Work

statewide research partnerships that could create and keep future industries at home in Colorado. This initiative will engage area agencies in entrepreneurial collaborations in the development and transfer of technologies, patents, and intellectual properties to real-world applications. In addition, the “research diamond” is expected to attract the brightest graduate students from the state, nation, and around the world.

Task Force Recommendations:

Research, Scholarship, and Creative Work Task Force discussed CU-Boulder’s role in the structure and functioning of the proposed “research diamond” and suggested a timeline for implementing this initiative. The university is already seeing the concept embodied in its work with the Colorado Renewable Energy Collaboratory, its collaborations in molecular biology with the UC Denver Anschutz Medical Campus, and in early discussions with the University of Wyoming on collaborative work in the computational sciences.

5. *Transcending Traditional Academic Boundaries.* CU-Boulder will build high-level advocacy and incentives for promoting interdisciplinary teaching, learning, research, creative work, and scholarship. Interdisciplinary collaborations already are part of the university culture, based on decades of crossing academic boundaries to address complex questions facing society. Now, the university will build on that tradition by bringing renewed focus on finding solutions to human problems of the next century. An example is the Energy Initiative launched in 2006 (renamed the Renewable and Sustainable Energy Institute in June 2009), which brings together academic expertise from a broad range of disciplines to confront the crisis in energy and climate change. University initiatives will address issues in environmental studies, technology, entrepreneurship, and others. There will be a new framework for promoting interdisciplinary degree programs and rewarding successes in interdisciplinary teaching, research, and creative work.

Task Force Recommendations:

The Faculty Task Force recommended the campus review and revise as necessary its faculty merit evaluation processes and its guidelines for tenure and promotion in order to acknowledge and reward faculty participation in interdisciplinary research and teaching and experiential education.

6. *Building a Global Crossroads.* The university intends to bring the world to CU and CU to the world—through a new center for global studies and an expansion of student and faculty exchanges around the world. CU-Boulder plans to further internationalize CU and Colorado, by establishing the Colorado Center for Global Education, Research, and Advanced Studies. The center will offer the structure and opportunity for more interactions among students, faculty, and the world’s leading thinkers. Graduate students’ education will be enriched by new and expanded global partnerships and relationships.

Task Force Recommendations:

The Faculty Task Force recommended developing comprehensive partnership programs with non-U.S. universities that would include faculty exchanges, undergraduate and graduate student exchanges, joint research activities, and jointly approved curricular and degree programs. The Task Force on Research, Scholarship and Creative Work called for funding to create the critical infrastructure for supporting internationalization. The campus is currently preparing an inventory of the activities and resources now dedicated to internationalization. It expects to develop a strategic plan and budget proposal focused on increasing partnerships and exchange programs by the end of 2009.

7. *Creating University Villages.* A new concept for the build-out of university properties will be developed, emphasizing an education-related, mixed-use approach. The “university villages” concept is centered on a village square surrounded by spaces for student, faculty, and staff housing, as well as educational, retail, and service facilities. Village design is intended to help build diverse, welcoming, and successful living and learning communities. Construction will feature sustainable and environmentally sensitive materials and methods. Villages could include charter schools, community college satellites, healthcare facilities, and spaces dedicated to the arts and humanities.

Task Force Recommendations:

The Faculty Task Force recommended consideration of the concept of the university village, which would include options for faculty housing. The task force recommended developing a university village in conjunction with a hotel-conference center. As the campus proceeds with the development of the next 10-year campus master plan, it will consider how the development or redevelopment of sites such as the East Campus, Williams Village, and Grandview Terrace can be done in a way that is sensitive to environmental and transportation issues, comprehensive mixed-use opportunities and partnerships, and the needs of the surrounding community.

8. *Alternative Degree Tracks.* A wider range of options for earning CU-Boulder degrees is expected over the *Flagship 2030* timeframe. The university would expand the number of concurrent degree programs, in which students begin graduate work while completing undergraduate requirements. Other potential initiatives include an “advanced studies” program for students enrolling with advanced placement credits, master’s degree programs in law, and concurrent bachelor’s/doctoral degree programs in some disciplines.

Task Force Recommendations:

Most of the task forces reviewing this proposal indicated that the university should take a more long-term view of the initiative. According to the task force reports, CU-Boulder should first assess the demand and capacity for

growth in alternative degree programs such as professional master's programs. The next steps would be to prioritize needs, establish targets, and identify necessary resources before proceeding with this initiative.

9. *Year-round Learning.* CU-Boulder will engage the university community in examining the feasibility of creating a year-round campus with an academic calendar of three semesters. More effective ways of using the campus during the summer months will be sought, thus taking some of the pressure off the traditional academic year.

Task Force Recommendations:

Rather than changing the university's calendar to a three-semester, year-round schedule, the majority of the task forces recommended first expanding the curriculum offered during the summer session in order to increase enrollment and create opportunities for experiential learning, distance learning, and study abroad.

10. *Making Enterprise Work.* CU-Boulder will seek greater operating flexibility and expanded resources for meeting its role and mission. The combination of visionary plans and limited resources will require a more entrepreneurial relationship with the state of Colorado. In particular, the university must develop a relationship that emphasizes its public mission and accountability under a more self-reliant and market-driven financial model. CU-Boulder has been designated by the state as an "enterprise," and that designation offers opportunities for building a stronger relationship. This entrepreneurial emphasis would be applied to internal operations as well, seeking new financial and management models with greater incentives and accountability for schools and colleges. A new "board of visitors" would be created, made up of business and community leaders to provide advice on developing these models. Stronger relationships would be fostered with the University of Colorado Foundation, system, state government, nonprofit organizations, donors, parents, alumni, and other stakeholders. *Flagship 2030* provides direction and focus for the university's next capital campaign and other private giving initiatives.

Task Force Recommendations:

The Budget Task Force recommended the campus adopt a more decentralized budget model that is multi-year based and increases autonomy and flexibility. The task force also suggested the university strive to expand enterprise authority through new state legislation. Other recommendations included ensuring access by adopting a high tuition/high financial aid model and enhancing public and alumni relations and fundraising. The university will continue to seek legislation to provide more operating flexibility as an enterprise and give the university more control in setting tuition and increasing financial aid.

Flagship 2030: Next Steps in a Challenging Economy

In 2008–09, the national and worldwide economic downturn raised many concerns about *Flagship 2030*'s feasibility and the financial future of the university. Such concerns are understandable. However, the strategic plan's long planning horizon allows the university to weather temporary fiscal storms while implementing the plan on a flexible schedule. The university clearly is not immune from economic volatility, but prior steps were taken to ensure the financial health and well-being of the university during the economic crisis, such as heightened attention to efficiencies, support for financial aid, review of hiring decisions, postponement of major equipment purchases, and reevaluation of capital construction plans.

As part of the fiscal year 2008–09 budget, the CU Board of Regents approved a 1.5 percent strategic investment to advance the *Flagship 2030* strategic plan. That year, the university invested in the Core Initiatives aimed at retaining competitiveness and quality. These included investments in faculty, graduate student and staff salaries, information technology infrastructure, instructional and staff resources targeted to support enrollment growth, and financial aid.

As the national and state economies declined during the 2008–09 fiscal year, the university began a cautious and judicious slowdown of *Flagship 2030* investments. For fiscal year 2009–10, CU-Boulder planned to maintain momentum toward strategic goals within the context of current economic conditions. Proposed investments were expected to be more focused and modest, resulting in fewer initiatives being supported and with a slower implementation of the overall plan. Particular attention would be given to those initiatives that can be implemented with a minimal investment, to those investments that may have the greatest potential for returns, and those investments necessary to build the foundation for the long-term vision.

Despite the financial challenges, the university has begun implementing 13 of the 18 initiatives in *Flagship 2030*. The feasibility of the remaining initiatives—customized learning, experiential learning, alternative degree tracks, university villages, and year-round learning—will be examined further by the university's leadership team in concert with faculty, staff, and students. Chancellor DiStefano has identified all eight of the Core Initiatives as high priorities for implementation in the near term:

- Enhancing education and scholarship, including the reduction of the ratio of students to tenure-track faculty
- Fostering research excellence with continued commitment to key research initiatives and building projects
- Enhancing graduate education, including increasing graduate enrollment to 20 percent of total enrollment

“There is a strategic role for each person invested in the future of the University of Colorado at Boulder. To achieve our vision, we will need the active support of faculty, staff, students, alumni, donors, parents, state political leaders, university leadership, and business partners.”

—*Flagship 2030*

- Ensuring access, including pursuing tuition flexibility and increased need-based financial aid
- Supporting the mission, including funding at least a small number of new staff in critical areas
- Investing in the tools for success, such as libraries, the new Visual Arts Complex, and the Center for Community
- Learning for a diverse world, with an emphasis on enrolling greater numbers of underrepresented students
- Serving Colorado, the community, and graduates, including enhanced faculty outreach to Colorado communities

Among the 10 transformational Flagship Initiatives, Chancellor DiStefano identified five as areas of focus over the three years from 2009 through 2012. They include:

- “Residential colleges,” including expanding the living and learning experience for freshmen and sophomores
- Creating a Colorado “research diamond,” focusing first on forming a conceptual framework for multi-institution partnerships
- Building a global crossroads, including expanding enrollment of international students and faculty exchanges
- Transcending traditional academic boundaries, building upon an excellent record of interdisciplinary research and creative work
- Making enterprise work, seeking greater operating flexibility and expanded resources

Clearly, the timing of strategies outlined in *Flagship 2030* has been affected by the state’s economy and resulting budget reductions. In May 2009, the chancellor announced that CU-Boulder would be required to take a \$12.9 million budget cut effective July 1, 2009. About half of the reduction (\$6.1 million) was identified at the central campus level and the balance (\$6.8 million) was targeted at the unit level. For example, the chancellor said 33 full-time equivalent faculty positions and 42 full-time equivalent staff positions would be eliminated, reducing expenses by about \$6.5 million. He noted that prior steps taken to slow the hiring processes and leave positions vacant wherever possible helped the campus reduce its budget with a minimal number of layoffs. Among other reductions, the chancellor said planned investments in *Flagship 2030* would be trimmed by \$330,000, but he emphasized the need to move forward on phased-in implementation plans.

The fiscal crisis is only one national issue that has significant impact on the future of higher education, including CU-Boulder’s strategic plan. In January 2009, the American Association of State Colleges and Universities (AASCU) issued a policy brief that listed the “top 10 state policy issues for higher education in 2009.” CU-Boulder is affected by all 10, including number one, the states’ fiscal crises. The brief also listed, in order: tuition prices and policies, state

student grant aid programs, enrollment capacity, implementation of the Higher Education Opportunity Act, changes in national leadership, college readiness, veterans' education, undocumented students, and sustainability. The university community is aware of and prepared to plan for these and other policy issues affecting the future of the institution.

Parts of the AASCU brief held an ominous tone, but a silver lining was noted: fiscal necessities would help “drive greater innovation through new policies and actions at all levels—state, system and institutional.” CU-Boulder intends to build on a tradition of innovation and agility to respond to the challenges and opportunities of the next two decades as the university moves forward with the strategic plan.

Flagship 2030 allows room for flexibility and stresses agility. The plan is not viewed as an exhaustive list of everything the university will strive to accomplish over the next quarter-century, but it serves as an overarching model for the new flagship university CU-Boulder intends to become. Strategies will be refined and amended over time as circumstances evolve. Depending on available resources, priorities will be set for phasing in the plan's initiatives. In the end, however, the university is determined to achieve the core objectives of *Flagship 2030*: to excel in the performance of its role and mission, to support the people of Colorado, and to engage with the global community.

Endnotes

¹ www.colorado.edu/flagship

² www.colorado.edu/flagship2030/resources.html

³ www.colorado.edu/flagship2030/downloads/LEAPpptPresentation081007.pdf

⁴ www.colorado.edu/flagship2030/downloads/allReports_050107.pdf

⁵ www.colorado.edu/flagship2030/downloads/flagshipSummary_050107.pdf

⁶ www.colorado.edu/flagship2030/implementation.html

⁷ The task force cited 2,060 freshmen; this overestimate was based on an error in counts provided by the Office of Planning, Budget, and Analysis, since corrected.





CHAPTER 4

Mission and Integrity

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CHAPTER 4

Mission and Integrity

CRITERION 1:

The organization operates with integrity to ensure the fulfillment of its mission through structures and processes that involve the board, administration, faculty, staff, and students.

The goals and aspirations of the University of Colorado at Boulder are grounded firmly on the institution's mission and core values, as demonstrated by its plans, decision-making, and actions. Indeed, all planning derives from an understanding of the university's vision for meeting its mission with integrity in a diverse world of rapid social change. As a comprehensive research university, CU-Boulder strives for excellence in teaching, research, creative works, and service, guided by effective leadership and shared governance. The university works also to build a campus community characterized by respect for others and commitment to diversity. This chapter provides an overview of the university's actions and decision-making that demonstrates an alignment with its mission, commitment to integrity and values, promotion of collaborative leadership, and a vision for inclusive excellence.

Mission and Vision: From Territorial Days to a New Millennium

Core Component 1A. The organization's mission documents are clear and articulate publicly the organization's commitments.

Core Component 1C. Understanding of and support for the mission pervade the organization.

The mission of the University of Colorado at Boulder is clearly stated in numerous documents, dating from its earliest foundations. The language of the



university's mission and vision statements has been tweaked on occasions, but the central themes have remained consistent. As a result, CU-Boulder's mission as a comprehensive graduate research university is clearly understood and pervades the institution.

The university's statutory mission is defined succinctly in the Colorado Revised Statutes (C.R.S. 23-30-101a):

“The Boulder campus of the University of Colorado shall be a **comprehensive graduate research university** with selective admission standards... (offering) a comprehensive array of undergraduate, master's, and doctoral degree programs... (as well as) exclusive authority to offer graduate programs in law.”

The statutory mission statement is included in the university [catalog](#),¹ along with this additional language that further amplifies CU-Boulder's role as a research university:

“CU-Boulder recognizes the exceptional opportunities associated with its role as a **research university**, and values the unique strength and character research achievements bring to undergraduate education. It is keenly aware of its responsibility for educating the next generation of citizens and leaders and for fostering the spirit of discovery through research. Indeed, CU-Boulder believes that its students, both graduate and undergraduate, benefit from the comprehensive mix of programs and research excellence that characterize a flagship university. Thus, CU-Boulder's statutory mission is relevant today and will remain relevant tomorrow.”

In 2006, when the university community engaged in the strategic planning process that became *Flagship 2030*, a shared vision for the campus emerged—one that expressed its determination to further its position as one of the nation's leading public research universities of the future. With support from the CU Board of Regents, the university's vision statement recognizes the **centrality of the statutory mission**, while setting its sights on becoming a new kind of flagship university within the next quarter-century. That vision is further reflected in the full title and tagline of the strategic plan: *Flagship 2030: Serving Colorado, Engaged in the World*.

“The University of Colorado at Boulder will become a leading model of the ‘new flagship’ of the 21st century—by redefining learning and discovery in a global context and setting new standards in education, research, scholarship, and creative work that will benefit Colorado and the world.”

Even as it looks ahead to 2030, CU-Boulder remains aligned with its mission as “a comprehensive graduate research university.” Strategic plans and vision statements have evolved over time, but this self-study demonstrates that the University of Colorado at Boulder has not strayed from its statutory mission.

Meeting the Mission with Integrity

Core Component 1E. The organization upholds and protects its integrity.

Much is expected of a flagship university, from excellence in teaching and groundbreaking research to serving as an economic and cultural engine for the community. Above all, the university is expected to act always with integrity and honor. As can be seen in the following pages, the University of Colorado at Boulder accepts—and values—that responsibility.

A broad range of policies and procedures help assure that all internal and external constituencies are treated with respect, honesty, and fairness. These policies cover such areas as:

- Academic freedom
- Commitment to equity
- Student conduct
- Campus safety
- Grievance procedures
- Transparency and public disclosure
- Academic honesty
- Compliance with local, state, and federal regulations
- Internal and external audits
- University Fiscal Code of Ethics
- Intercollegiate athletics

Expectations for institutional practices are described in handbooks and websites for faculty² and classified staff,³ the Laws of the Regents⁴ and administrative policy statements,⁵ state personnel rules; and school catalogs and handbooks, such as websites for the “College of Arts and Sciences Policies”⁶ and the College of Engineering and Applied Science “College Rules, Policies, and Procedures.”⁷ Also, the campus community is guided by its affiliation agreements, faculty governance rules, state and federal regulations, and student conduct “rights and responsibilities” guidelines.

Academic freedom. CU-Boulder is deeply committed to the principle of academic freedom—a core value that defines and distinguishes a university community. This important principle is defined and described in Article 5.D of the University of Colorado’s Laws of the Regents,⁸ which states that the educational aims of the university “can be achieved only in that atmosphere of free inquiry and discussion, which has become a tradition of universities and is called ‘academic freedom.’” The article further defines the principle as the “freedom to inquire, discover, publish, and teach truth as the faculty member sees it, subject to no control or authority save the control and authority of the rational methods by which truth is established.” The same article of the laws notes that “the fullest exposure to conflicting opinions is the best insurance against error,” and

calls on all members of the academic community to help “protect the university as a forum for the free expression of ideas.” Also included in the article is a discussion of the responsibilities that come with academic freedom: maintaining competence, intellectual excellence, accuracy, respect for others’ opinions, and integrity. In addition, according to the Laws of the Regents, academic freedom is not solely the purview of faculty, that “students likewise must have freedom of study and discussion.”

Commitment to equity. CU-Boulder works to create an equitable environment for all members of the academic community. Advisory groups provide guidance to campus leadership on issues affecting people of color; women; disabled individuals; and the gay, lesbian, bisexual, and transgendered community. The university adheres to nondiscrimination policies with regard to race, color, religion, sex, age, national origin, physical ability, or veteran status. [Article 10](#)⁹ of the Laws of the Regents outlines the university’s policies of nondiscrimination:

“The University of Colorado does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status in admission and access to, and treatment and employment in, its educational programs and activities. The university takes action to increase ethnic, cultural, and gender diversity, to employ qualified disabled individuals, and to provide equal opportunity to all students and employees.”

Article 10 of the regents’ laws addresses discrimination as follows:

“All students shall have the same fundamental rights to equal respect, due process, and judgment of them based solely on factors demonstrably related to performance and expectations as students. All students share equally the obligations to perform their duties and exercise judgments of others in accordance with the basic standards of fairness, equity, and inquiry that should always guide education.”

The university also seeks to address inequities that arise in the status, salary, and support for individual employment groups, such as lecturers and instructors, who are not on the tenure track. In 2007, the provost appointed a task force to examine the important roles played by lecturers and instructors in helping the university meet its teaching mission. The task force proposed a number of recommendations that address instructor status and letters of offer, salaries, career development, and professional needs. Many of the recommendations were implemented in 2008, including such changes as revised appointment guidelines, salary minimums for rostered instructors, and the provision of professional development support.

Student conduct. At CU-Boulder, the student conduct process is viewed as a learning experience that results in growth and personal understanding of the responsibilities and privileges of living in the campus community and the larger

community. To that end, the university's Student Conduct Code¹⁰ outlines expectations for maintaining a campus community where people treat one another with respect and courtesy.

Administered by the Office of Judicial Affairs, the Student Conduct Code takes a holistic approach to establishing an “ethic of care” through preventive, behavioral, and accountability practices. The primary interaction between judicial affairs and students can best be described as an educational conversation. All sanctions imposed for conduct violations focus on broadening student learning. They provide a forum for the student’s reflection on problem behavior and offer strategic interventions when appropriate. The values held by the Office of Judicial Affairs, consistent with those of the university, include civic responsibility and student involvement; education and development of all students; respect, dignity and equity; a socially just community; responsibility, accountability, and critical thinking; and fairness, honesty, and integrity. CU-Boulder also has established student classroom and course-related behavior policies that describe the responsibility of students for helping maintain an appropriate learning environment. The policies also outline procedures for addressing disruptive behavior.¹¹

During academic year 2008–09, the Office of Judicial Affairs conducted 968 hearings; 80 students were suspended from the university in that period. In the vast majority of cases, the violations resulted in sanctions that allowed students to remain engaged in their academic pursuits while addressing personal issues. This result was achieved largely due to the myriad of services and interventions available on campus, ranging from alcohol and drug education and treatment to the Restorative Justice Program, in which student violators make amends with injured parties while avoiding court.¹²

In addition to the Student Conduct Code, students themselves developed the Colorado Creed as a statement of social responsibility in 2004. The creed includes seven principles for community behavior: act, honor, integrity, accountability, respect, accept, and contribute. Plaques and flagstones draw attention to the creed at key locations on campus. A number of activities are organized by students to promote awareness of the principles expressed by the creed.¹³

Campus safety. The safety of all members of the campus community is of paramount importance to the university. The CU-Boulder Police Department works to ensure safety by providing protection of people and property against criminal acts. The department enforces state laws, municipal ordinances, and university rules and regulations. Uniformed officers patrol on foot, by bicycle, and in marked police vehicles. Officers are fully commissioned by the state and the city of Boulder and are authorized to carry firearms. The department implements a number of crime prevention and awareness programs, including sexual assault awareness, victim assistance information, emergency telephones, laptop computer registration, Crime Stoppers initiatives, background checks, Neighborhood Watch, and others. The CU-Boulder Police Department issues crime reports and statistics on a regular basis, with almost daily web postings of

Colorado Creed

As a member of the Boulder community and the University of Colorado, I agree to:

Act with honor, integrity and accountability in my interactions with students, faculty, staff and neighbors.

Respect the rights of others and accept our differences.

Contribute to the greater good of this community.

I will strive to uphold these principles in all aspects of my collegiate experience and beyond.

a police blotter, frequent news releases, standing reports of Part 1 offenses, crime reports, and Uniform Crime Reports, among other reports.¹⁴

Addressing grievances. The university provides a number of services to support its students, faculty, and staff and to resolve issues so that grievance procedures are not necessary. Informal dispute resolution services are offered through the Ombuds Office, which provides impartial and confidential assistance with interpersonal misunderstandings or disputes, as well as those with concerns about academic or administrative issues. The office operates independently as a supplement to existing administrative or formal grievance procedures and has no formal decision-making authority.¹⁵

The Ombuds Office typically handles about 700 contacts annually. Many of these contacts would not be classified as complaints, but represent efforts to gain information and understanding. Students comprise about 30 percent of the total number of contacts annually. The three most common areas of inquiry from students include issues related to performance evaluation and academic environment, such as grade disputes and teaching effectiveness; campus policies, procedures, and ethical issues, such as the Student Conduct Code and Honor Code; and campus services and administrative concerns, such as hiring processes and quality of housing and other services. The majority of contacts received individual consultation and assistance; others were referred to other relevant resources.

In addition to informal dispute resolution, the university offers formalized methods of addressing grievances for students, faculty, and staff. For example, students may choose to work with the Office of Undergraduate Education, which helps guide students through the process of lodging a complaint or an appeal. The office has established an online guide for student appeals, complaints and grievances;¹⁶ it also distributes an e-memo to all faculty three times per year, asking them to include information about appeals and complaints in their syllabi. Also, all students, staff, and faculty have access to an external and anonymous “ethics hotline”¹⁷ via telephone or online.

In its online guide for student appeals, complaints, and grievances,¹⁸ the Office of Undergraduate Education emphasizes students’ rights with regard to complaints in the following statement:

“It is an express Boulder campus policy that all students at all times have the right to lodge a complaint or grievance which they deem important without fear of retaliation of any sort or any other adverse consequence as a result of doing so.”

The online guide describes general strategies students may wish to pursue in order to have their case heard in the proper venue. It notes that the campus directory, online and in paper form, offers contact information for all the campus units from which a student can determine where to lodge a grievance.

Other advice is provided on addressing specific issues, such as academic advising, grades, absences, faculty performance or behavior, course content, academic probation, academic integrity, Honor Code, residence hall life, and many others. The Office of Undergraduate Education handles about 60 student complaints annually, ranging from appeals of academic suspension to nonresident classification. Many other issues are resolved at the dean or departmental levels.

Faculty grievance procedures are established in the Laws of the Regents¹⁹ and the Faculty Handbook.²⁰ The university's system-wide Senate Committee on Privilege and Tenure²¹ plays a critical role in monitoring and applying the procedures. The committee conducts hearings and inquiries as required by regental rules and procedures, and findings are referred to the campus chancellor for appropriate action. University policies emphasize that faculty hiring, promotion, or dismissal must be based on abilities in teaching, research, writing, or other scholarly activities—and cannot be influenced by political, social, or religious views.

In 2007, the university augmented existing procedures for handling faculty grievances by establishing the Provost's Grievance Procedure. This procedure establishes a formal mechanism for handling grievances directed against deans and grievances for which no existing procedures are appropriate. In addition, in 2008, the university created a model unit-level grievance procedure that units can adopt or adapt to meet specific needs. To ensure that all units follow through on establishing procedures, the university's program review process now requires verification that units' bylaws include grievance procedures. Also, in 2008, the Boulder Faculty Assembly (BFA) established a Grievance Advisory Committee to advise faculty members on the appropriate venue, procedure, and available campus resources for filing, hearing, and resolving grievances that may arise.²²

The university works to resolve conflicts without resort to formal procedures whenever possible. For example, in 2007, the position of director of faculty relations was created to provide conflict resolution services, coaching, and leadership development opportunities for faculty and academic administrators. The director of faculty relations is available for informal consultations, formal departmental assessments, and training sessions to help improve productivity and build positive faculty interactions.²³

Grievance procedures for classified staff members are outlined by the State of Colorado Personnel Board.²⁴ Classified staff grievance procedures can be accessed in the State Personnel Board's Board Processes and Programs²⁵ and in Section III of the *State of Colorado Employee Handbook*. Within the university, classified employees are entitled to dispute certain aspects of their performance planning and evaluation process through a formal dispute resolution process. The process, which is intended to resolve issues as quickly and effectively as possible, encourages dialogue and communication to resolve problems.²⁶



Transparency and public disclosure. CU-Boulder takes the public part of its mission seriously, striving to operate with openness and transparency. Campus communication efforts, led by the Office of University Communications, are characterized by accuracy and accessibility. The university adheres to the Colorado Open Records Act (CORA) and open meetings statutes. The Office of the Chancellor responds promptly to CORA requests for information, averaging about 70 requests annually from fiscal year 2005–06 to 2008–09. The office has developed a process for responding to CORA requests, including an official request form, a set of guidelines, and a log form for recordkeeping.

Information about the university is shared through a wide range of communication tools, aimed at both internal and external constituencies. A partial list of internal communication efforts in recent years includes the *Silver and Gold Record*²⁷ (a weekly system-wide faculty and staff newspaper), *Inside CU*²⁸ (a CU-Boulder faculty/staff electronic newsletter), and bi-weekly electronic announcements to faculty, staff, and students. The *Silver and Gold Record* was discontinued in 2009 as a result of budget cuts by the university system administration, which created a new online *faculty–staff newsletter*²⁹ system-wide. External communications tools include about 450 news releases annually, a *Just the Facts* fact book, an “experts guide” for use by news media, and photo-enhanced podcasts, all on an extensive CU-Boulder *news website*.³⁰ Other communications tools include a broad range of publications and brochures, including the annual *catalog*,³¹ which shares information about each school and college as well as providing general campus information, and a comprehensive *student handbook*,³² “Ralphie’s Guide to Student Life,” which provides important information about programs, policies, and opportunities for students. The Office of *Planning, Budget, and Analysis* website publishes statistics on budget, students, degrees, faculty and staff, university performance, and more.³³

External reporting to federal and state authorities is conducted regularly, including the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education; these submissions also are *posted*³⁴ on the Office of Institutional Analysis website. CU-Boulder also presents regular reports to the open meetings of the CU Board of Regents, covering such topics as capital construction, new degree proposals, retention and graduation rates, and budget proposals, to name a few. *Agendas* and *minutes* of all board meetings are posted on the CU Board of Regents website.³⁵ In addition, *system-wide policies*³⁶ are included on the system website.

Academic honesty. A number of policies and procedures emphasize the importance of academic honesty as a central value of the university community. These policies are disseminated widely through the *Laws of the Regents*³⁷ and the *Faculty Handbook*.³⁸

In the past decade, a student-initiated *honor code*³⁹ has been established across all schools and colleges on campus. Discussions began in 1998 among student leaders, faculty, and administration to write and promote an honor code, with

the support of the CU Board of Regents, the chancellor, and the president. The Honor Code, approved in 2002, is designed to secure an environment in which all students have responsibility for, and are appropriately recognized for, their individual academic and personal achievements. Administered by students and supported by faculty, the code outlines options and procedures for addressing accusations of academic dishonesty. In academic year 2008–09, the Honor Code Office dealt with 152 reported code violations, and a total of 315 sanctions were applied in the cases. Sanctions included community service, a letter in the student’s file, a required letter of apology by the student, a required response essay, attendance in a seminar on ethics, suspension in abeyance, university probation, and a required writing seminar.

Compliance with local, state, and federal regulations. The University of Colorado at Boulder is committed to operating with integrity in all areas and complying with regulations governing the institutional activities of its faculty, staff, and students. For example, CU-Boulder meets all requirements necessary to participate in federal financial aid programs and provides access compliant with the Americans with Disabilities Act of 1990. The university provides consumer information to students as required under federal regulations and complies with the Crime Awareness and Campus Security Act of 1990, the Higher Education Amendments, and the Family Education Rights and Privacy Act.

The university also works to meet the highest standards of ethical and regulatory compliance with regard to the research enterprise. The Office of Research Integrity (ORI)⁴⁰ helps university researchers assure compliance and coordinates the activities of various faculty oversight committees. These include committees on animal care and use, biosafety, conflicts of interest and commitment, export controls, human research, radiation safety, and research misconduct. CU-Boulder complies with numerous federal requirements related to research contracts and grants, such as OMB Circular A-21 (Cost Principles for Education Institutions), OMB Circular A-110 (Uniform Administrative Requirements), and a host of others.

Over the last decade, research compliance requirements have become increasingly broad and complex; the university must adhere to a vast array of federal rules and regulations in order to remain eligible to receive federal research contracts and grants. To assist in that effort, the system has launched an integrated electronic research administration system across all three campuses. The system, called InfoEd, provides for state-of-the-art integrated electronic administration that ties together all the processes involved in grant and project tracking, development, and compliance.

All individuals who have fiscal responsibility—ranging from staff personnel in academic departments to central finance officers, the controller, and the chief financial officer—share in the university’s fiscal management, integrity, and compliance. Formal policies for the campus community have been established and communicated in order to define fiscal roles and responsibilities. In addition, a

fiscal code of ethics policy for the university recently was implemented, including a requirement for fiscal training of all individuals engaged in financial transactions. CU-Boulder officers and principal fiscal staff conduct a mandatory annual fiscal assessment and certification of campus finances to certify reasonable assurance of fiscal responsibility and of accountability for financial management. Financial accountability follows the financial organization tree, beginning with the offices of the chancellor, provost, and senior vice chancellor and chief financial officer. Financial reporting tools are available for all campus individuals who have a fiscal role assigned to them. These desktop and web-based reporting tools are available on-demand or at the end of each month.

As requested by the North Central Association (NCA) Higher Learning Commission for evaluation purposes, Appendix C provides an overview of CU-Boulder's compliance with specific federal regulations related to credits, program length, and tuition; advertising and recruitment materials; public information; and professional accreditations.

Internal and external audits. Reporting directly to the CU Board of Regents, the Department of Internal Audit⁴¹ promotes sound business practices within the campuses of the university system. Its primary activities include examination and evaluation of current processes and controls (including audits and investigations), counsel and advice to management, and education in the use of sound business practices. These activities are designed to add value and improve the university's operations. Each campus has one or more audit liaisons who help facilitate communications and accomplishment of internal audit activity for the campus.

CU-Boulder takes audit results seriously and works to implement recommendations. The 2008 annual report noted only one outstanding internal audit comment—concerning information technology disaster recovery and continuity—as of June 30, 2008, compared with 24 as of June 30, 2006. Audits completed in 2008 ranged from “international education activities—safety and other key controls” to “athletics—NCAA-required agreed-upon procedures.” The Internal Audit Department also manages a website⁴² designed to assist people who may be aware of fiscal misconduct such as fraud, theft, or embezzlement. Options and guidelines for reporting such activity, including contacts through the CU EthicsLine, are outlined on the internal audit website.

External financial and compliance audits of the University of Colorado System are conducted annually by a public accounting firm contracted by the Colorado Office of the State Auditor. Oversight for internal and external audit activity is provided by the Regent Audit Committee.

University Fiscal Code of Ethics. In 2005, the system created a Fiscal Code of Ethics,⁴³ which sets forth requirements for ethical behavior by employees and affiliate fiscal staff in the conduct of official university business. A number of related Administrative Policy Statements comprise the Accountability Suite of

Fiscal Policies that aims to assure ethical conduct in fiscal transactions and university business. Such policies include controller function decentralization, fiscal certification, fiscal misconduct reporting, fiscal roles and responsibilities, and officer disclosure of interests. Training is provided on the Fiscal Code of Ethics, as well as the types and hierarchy of financial roles and responsibilities within the university community.

Intercollegiate athletics. CU-Boulder is a member of the Big XII Athletic Conference and the National Collegiate Athletics Association (NCAA) Division I Football Bowl Subdivision (FBS, formerly D1A). Teams are sponsored in 16 varsity sports, with more than 300 student-athletes competing annually. Currently, about 42 percent of the student-athletes are female. Over the years, more than 500 student-athletes have been named to various All-American teams, and 133 have earned “Academic All-American” honors.

The Department of Intercollegiate Athletics undergoes periodic NCAA certification, which requires an extensive self-study with campus-wide participation, followed by a campus visit by evaluators. The last cycle (NCAA’s “second cycle”) of NCAA certification was completed, with full certification awarded, in 2005. The NCAA’s “third cycle” certification for CU-Boulder is scheduled for 2014, with the formal certification process beginning in fall 2012. A thorough review of the previous certification reports is complete, and an assessment of the required and recommended changes is under way. A mid-term evaluation of the department’s academic support services also is in progress, to be completed by December 2009.

The athletics department reports regularly on sports equity issues to the chancellor and to the CU-Boulder Athletics Board (CU-BAB), which is advisory to the chancellor. The department works closely with the Faculty Athletics Representative (FAR) and the Office of the Registrar to monitor student-athletes’ progress toward graduation and graduation rates. Reports on these matters are provided regularly to the Intercollegiate Athletics Committee of the BFA and the CU-BAB. The department’s compliance office monitors adherence to NCAA and Big XII Conference rules and regulations and educates the athletics staff, student-athletes, the campus, and the community about compliance issues. Athletic compliance reports⁴⁴ are available online, as are graduation rates.⁴⁵

In 2004, major changes were made to the department’s practices and organization. A number of these have gained national recognition and are considered as models for intercollegiate athletics. New standards for recruitment practices were established, providing clear guidelines and control over the recruiting of prospective student-athletes. The organizational structure of athletics was revised to integrate its operations more fully into the university’s administrative procedures and to emphasize the importance of academics in the student-athletes’ experience. Several direct relationships were established between the department and the corresponding functions in the Office of the Provost and the Division of Student Affairs. Changes in athletics leadership also occurred, including the



positions of athletics director, football head coach, associate director of athletics for student-athlete services, and associate director of athletics for compliance and financial aid. More information is available on the university's [website](#).⁴⁶

A “[white paper](#)” produced by then-Chancellor G.P. “Bud” Peterson in 2006 describes the reorganization of the athletics department and the leadership role the university now plays nationally in integrating athletics into the academic mission.⁴⁷ The white paper, entitled “Aligning Athletics and Academics: The University of Colorado at Boulder,” describes actions taken in such areas as redefining the roles and responsibilities of the athletics director, enhancing oversight and institutional control of athletics, and improving faculty involvement. It describes changes in the department’s financial interface and oversight, improvements in recruiting policies and regulations, the hiring of a Title IX advisor, clarifications in expectations of student-athletes, and the numerous training programs offered to help student-athletes better understand their roles and responsibilities. CU-Boulder’s successes in “bridging the cultures of athletics and academics” are recognized in the white paper, along with a pledge to continue efforts to enhance athletic reporting, oversight, and budgetary structures. The report notes a “new spirit” of “common purpose, mutual commitment, and active goodwill” that characterizes the academic and athletic community. This document will be used as a continuing record of the university’s improved oversight of athletics and the development of strong relationships between the department and the university’s academic programs.

National statistics show that CU-Boulder’s student-athletes graduate at rates close to the general student population. A four-year aggregate for the 1999 to 2002 entering classes shows a federal (IPEDS) graduation rate of 58 percent for student-athletes and 66 percent for the general student population. Further, the NCAA’s Graduation Success Rate (GSR), which compensates for transfers into and from CU-Boulder, is 76 percent for the same period. The GSR statistic is not available for the general student population. [Details](#) are published online by the Office of Planning, Budget, and Analysis.⁴⁸

Leadership and Collaboration

Core Component 1D. The organization’s governance and administrative structures promote effective leadership and support collaborative processes that enable the organization to fulfill its mission.

Leadership of the University of Colorado is provided through a defined governance structure and administrative organization that encourages collaboration among faculty, staff, students, and constituents. This section provides an overview of CU-Boulder’s role within a three-campus system, the Boulder campus and system administrative structures, and the university’s governing board. Also discussed are the roles of the Colorado General Assembly and the state’s higher education coordinating board in the operation of the university. As described in

this section, CU-Boulder's system of shared governance defines and promotes participation by faculty, staff, and students helping the university meet its mission.

Governed by the nine-member elected CU Board of Regents, the university system includes campuses at Boulder, Denver, and Colorado Springs. Each university campus is led by a chancellor, who reports to the president of the system. The recently consolidated University of Colorado Denver is comprised of the university's Anschutz Medical Campus in Aurora and the Downtown Denver campus. Coordination for colleges and universities statewide is provided by the Colorado Commission on Higher Education (CCHE),⁴⁹ the central policy and coordinating board for higher education and part of the Colorado Department of Higher Education. The university also works closely with committees and leadership of the Colorado General Assembly, which provides tax dollar support and sets expectations for tuition, enrollment, and performance for all public higher education institutions in the state.

Campus administrative structure. An administrative team⁵⁰ of university leaders works collaboratively with multiple groups to set the strategic direction of the campus. The chief executive officer is the chancellor,⁵¹ who is responsible for administering all aspects of the educational, research, and service programs of the university. The chancellor provides leadership for the development of strategic plans and institutional policies consistent with the university's mission. The position serves as chief spokesperson for the Boulder campus, representing the university to a number of constituencies in the state and nation. On campus, the chancellor engages with faculty, staff, and students in considering major decisions that affect the future of the university.

The team includes the provost and executive vice chancellor for academic affairs,⁵² who serves as deputy to the chancellor. As the chief academic officer, the provost is responsible for coordinating academic planning and ensuring excellence in teaching, research and creative work, and service. The provost administers the Division of Academic Affairs, which oversees the recruitment, development, and promotion of faculty, deans, and other academic leaders. Reporting to the provost are the deans of all schools, colleges, libraries, and continuing education, as well as the vice chancellor for student affairs, vice chancellor for research, and the vice chancellor for diversity, equity, and community engagement. The provost also coordinates the activities of a team of associate vice chancellors with responsibilities in faculty affairs, budget and planning, Summer Session, and undergraduate education.

CU-Boulder's administrative team also includes the senior vice chancellor and chief financial officer,⁵³ who leads the financial management, operational, and planning activities of the university. The senior vice chancellor oversees the offices of the vice chancellor for administration, associate vice chancellor for budget and finance, the associate vice chancellor for strategic communications, associate vice chancellor/chief information officer, and assistant vice chancellor

CU-Boulder Deans

Dennis Ahlburg, Leeds School of Business

Rob Davis, College of Engineering and Applied Science

David Getches, School of Law

Todd Gleeson, College of Arts and Sciences

Anne Heinz, Continuing Education and Professional Studies

Lorrie Shepard, School of Education

Dan Sher, College of Music

John Stevenson, Graduate School, Interim

Paul Voakes, School of Journalism and Mass Communication

Jim Williams, University Libraries

for enrollment management. The senior vice chancellor is also responsible for overseeing the financial and operational aspects of the Department of Intercollegiate Athletics.

The vice chancellor for administration⁵⁴ supports the academic mission by developing and maintaining the university's infrastructure, including facilities management and business services; planning, design, and construction; facilities operations; human resources; public safety; parking and transportation; environmental health and safety; business services; and the campus bookstore.

The vice chancellor for diversity, equity, and community engagement⁵⁵ helps lead the university's efforts to create a diverse and welcoming environment of inclusive excellence. The vice chancellor works with students, faculty, and staff in the implementation of CU-Boulder's diversity plan and provides direction for a number of offices in support of that goal. Areas within the division include community engagement, the Center for Multicultural Affairs, faculty diversity, Disability Services, and pre-college services.

The team also includes the vice chancellor for research,⁵⁶ who provides direction for the university's endeavors in research and creative work. To that end, the position collaborates with research institutes, graduate departments, and local and regional agencies to expand opportunities for research. The directors of all research institutes report to this vice chancellor.

The vice chancellor for student affairs⁵⁷ helps develop and implement strategies for creating a positive learning environment that fosters successful learning and personal development, both inside and outside of the traditional classroom. The vice chancellor and the division's programs are focused on helping students develop as intellectually curious learners and as healthy, competent, and active citizens. Student affairs includes more than 20 units, including such areas as Wardenburg Health Center, Recreation Services, University Memorial Center, Housing & Dining Services, Career Services, the CU-Boulder Alumni Association, and the Office of Parent Relations, among many others.

Also serving on the administrative team is the managing senior associate university counsel, who is responsible for providing legal services to CU-Boulder and for managing the campus's Office of Legal Counsel. The position reports to the vice president, university counsel, and secretary of the CU Board of Regents at the system level—and indirectly to the CU-Boulder chancellor. The managing senior associate university counsel advises on such legal issues as employment law, regulatory compliance, faculty and student discipline and grievances, discrimination and harassment questions, and the application and interpretation of federal and state laws and regulations affecting higher education and the Laws of the CU Board of Regents.

The leadership team also includes the vice president for development, who provides overall leadership for fundraising efforts from private sources that benefit

CU-Boulder. The position reports to the president of the CU Foundation and collaborates with the CU-Boulder chancellor, provost, senior vice chancellor and chief financial officer, the deans, and the CU-Boulder development team in setting fundraising goals and priorities across the schools, colleges, and certain departments or units. The position manages a portfolio of prospective major donors for the chancellor and directly oversees a staff of development professionals working on behalf of the university.

Chancellor's Cabinet. The Chancellor's Cabinet is the principal group advising the chancellor on policy issues. It includes the chancellor, the provost, the vice chancellors, legal counsel, the vice president for development for CU-Boulder, the associate vice chancellor for strategic communications, and the senior advisor to the chancellor.

Chancellor's Executive Committee. In addition, the chancellor is assisted by a 21-member advisory group, called the Chancellor's Executive Committee (CEC). The group contributes input and advice, from a broad range of perspectives, on such issues as academic planning, budget, capital planning, information technology, fundraising, and student concerns. Besides members of the Chancellor's Cabinet, CEC membership includes two deans, the director of intercollegiate athletics, the university spokesperson, the executive director of the alumni association, the associate vice chancellor for student affairs and dean of students, the associate vice chancellor for academic affairs for budget and finance, the BFA chair, a Staff Council co-chair, and a University of Colorado Student Union (UCSU) tri-executive.

Shared governance. The University of Colorado at Boulder is characterized by a strong system of shared governance, as called for by the Laws of the Regents.⁵⁸ Faculty have the primary responsibility for originating policy in academic affairs, scholastic requirements, and academic ethics. Faculty members also collaborate with the administration in making recommendations to the CU Board of Regents in such areas as policies and procedures for faculty appointment, tenure review, and promotion. Shared governance structures also are established for undergraduate and graduate students and university staff.

The university's Boulder Faculty Assembly⁵⁹ engages with campus leadership on issues ranging from academic technology and campus budget to library collections and intercollegiate athletics. The BFA includes a plenary group of 60 elected faculty representing all schools and colleges, several standing committees, and an executive committee that serves as a primary consultative faculty body to the chancellor.⁶⁰ Representatives are elected from academic units and from the faculty at large. Numerous BFA committees contribute to the success of the university, including committees on academic affairs, administrative services and technology, budget and planning, diversity, faculty affairs, faculty compensation and benefits, intercollegiate athletics, libraries, and student affairs. The organization is represented on a number of campus-level policy groups, and BFA committees meet regularly with appropriate administrators to discuss specific



College of Arts and Sciences
Dean Todd Gleeson speaks
during a *Flagship 2030*
planning summit.

Leaders of CU-Boulder Faculty, Staff, and Student Governance Organizations, 2009–10

Joseph Rosse, Chair, Boulder Faculty Assembly

Larry Hill, Co-chair, Staff Council

Donna Maes, Co-chair, Staff Council

Thomas Higginbotham,
Tri-Executive, University of Colorado Student Union

Daniel Ramos, Tri-Executive,
University of Colorado Student Union

Christine Thai, Tri-Executive,
University of Colorado Student Union

policy matters. BFA conducts evaluations of university administrators through the Administrator Appraisal Program,⁶¹ a part of the administrators' review process. Relationships between BFA and CU-Boulder administrators generally have been collaborative, cordial, and mutually respectful while allowing for candid exchanges of opinion.

Strong structures for faculty shared governance also exist within individual schools and colleges. In the College of Arts and Sciences, for example, the Arts and Sciences Council (ASC) serves as the primary representative body for the college's faculty.⁶² The ASC regularly meets with the dean to consider matters of college policy and to provide advice and counsel. The ASC organization includes six standing committees focused on budget, curriculum, diversity, grievance, personnel, and planning. The council's website provides information on elected representatives, committee members, bylaws, motions, and minutes of meetings. Faculty in the law school have significant influence over the administration and operation of the school through procedures spelled out in the "Rules of the Law School."⁶³ The guiding principle of the rules is "that all recommendations, decisions or actions on matters significantly affecting the Law School shall be taken only with the prior approval of the faculty." In the College of Music, a faculty handbook outlines shared governance activities and expectations, including participating in decisions on budgetary matters, sabbatical leaves, prioritizing filling of vacancies, policy changes, promotion, post-tenure reviews, merit evaluation, and curriculum.⁶⁴ The Leeds School of Business bylaws include rules and regulations related to faculty governance; standards and procedures for annual faculty evaluations, career planning, differential workload, promotion, and tenure; policies on centers and academic program governance; requirements for admission and graduation and policies concerning students; and policies covering divisional organization.⁶⁵

Faculty members played a key role in a comprehensive review of the university's system-wide tenure processes, completed in 2006, which included both internal and independent external review components.⁶⁶ The year-long study concluded that the university's tenure procedures were sound and very similar to those at peer institutions, but improvements were needed in certain areas. For example, the final report recommended strengthening the post-tenure review processes, streamlining procedures for dismissal for cause, and improving tenure process implementation, review and oversight.⁶⁷ The review produced 40 recommendations that amended regental laws and policies and proposed new and revised administrative policy statements. The CU Board of Regents accepted all the recommendations, and the university is now engaged in implementing the changes.

CU-Boulder's system of shared governance also includes the Staff Council,⁶⁸ which represents the interests of the university's staff employees in campus decision-making processes. The council serves as liaison between staff and the administration and recommends proposals designed to improve the status and protect the rights of employees. Council members are elected by staff according to geographic area of the campus, in addition to three at-large positions, or

they may be appointed by the council. Representatives of the group serve on the Chancellor's Executive Committee and other policy or working groups.

Students are represented in participatory governance through the UCSU, one of the largest autonomous student governments in the nation.⁶⁹ UCSU, which represents both graduate and undergraduate students, administers a budget of nearly \$34 million and operates a number of student fee-funded cost centers and services. Cost centers include the Student Recreation Center, Wardenburg Health Center, University Memorial Center, Environmental Center, Cultural Events Board, Volunteer Resource Center, and others. The cost centers report jointly to UCSU and the Division of Student Affairs. The three branches of UCSU (executive, legislative, and judicial) are governed by the organization's student-adopted constitution. UCSU's participation in shared governance is outlined in a document called "UCSU-Chancellor Agreement,"⁷⁰ which identifies basic principles and responsibilities underlying the organization's relationship with the administration. The document closes with the following statement: "Our working relationship shall be based on good faith, good will, cooperation, and the best interests of our institution and our constituents."

The United Government of Graduate Students (UGGS) is the primary advocacy group for graduate and professional students at CU-Boulder.⁷¹ UGGS works to enhance the graduate student experience at the university by interacting with the administration and UCSU on such issues as financial aid, graduate stipends, healthcare, tuition and fees, and graduate student well-being. Graduate students from each department and program are solicited to serve on the UGGS Assembly, helping ensure a diverse and complete representation of the graduate student body.

CU Board of Regents. The CU Board of Regents consists of nine publicly elected members serving staggered six-year terms, one elected from each of the state's seven congressional districts and two from the state at large. Colorado is one of only five states that have elected boards—and the University of Colorado System has the only one in the state.⁷² The board meets in six regular sessions each year, in addition to an annual planning retreat. Power is vested in the CU Board of Regents by the state legislature through the Laws of the Regents, which delegate responsibility for the operation and governance of the university to the faculty and senior administrators. Matters related to budget, tuition, personnel, and policies are subject to approval by the regents. System-wide procedures and decisions are consolidated in the Policies of the Regents, which serve to guide and govern the university system.⁷³

University system administration. The University of Colorado is led by the president, who reports directly to the CU Board of Regents and is the principal administrative officer for the university system.⁷⁴ The position oversees an academic system that comprises three campuses at four locations, with nearly 54,000 students served throughout the institution. The president is assisted by an executive staff of a vice president for administration and chief of staff;



vice president and chief financial officer; vice president, university counsel and secretary of the CU Board of Regents; vice president for government relations; associate vice president for university relations; chief human resources officer and senior associate vice president; associate vice president and academic affairs officer; and the three campus chancellors.⁷⁵

Since 1995, the university has been served by five presidents: John C. Buechner (1995–2000), Alexander E. Bracken (2000), Elizabeth Hoffman (2000–05), Hank Brown (2005–08), and Bruce Benson (since 2008). A prominent business leader and higher education advocate, President Benson has worked to help the university address significant funding challenges by engaging with state policy officials and private donors. System administrative offices provide support for consolidated functions such as payroll, benefits, purchasing, student information and human resources systems, risk management, legal services, and other administrative activities across the three campuses.

CU-Boulder collaborates with the system and other University of Colorado campuses on several major support functions. For example, the system—including all three campuses—currently is mid-way through a major project transforming its student information systems, including student recruitment, admissions, degree audit, course and classroom scheduling, financial aid, student records and registration, data warehousing, data management, and student billing. The project is called MetamorphoSIS; the result will be a new system called the Integrated Student Information System (ISIS), which takes advantage of new features and technology to improve services to students, faculty, staff, and other constituencies. Part of MetamorphoSIS is a large-scale training program to help staff acquire the knowledge and skills necessary to implement and support the new system.

Colorado Commission on Higher Education. Established in 1965 by the legislature, the CCHE is the primary policy and coordinating board for the state's higher education system. The mission of CCHE is to "provide access to high-quality, affordable education for all Colorado residents that is student-centered, quality-driven, and performance-based." Appointed by the governor with the consent of the senate, the organization's 11 commissioners implement policies applying to all state-supported institutions of higher education, including junior and community colleges, extension programs of state universities and colleges, local district colleges, and area vocational schools. CCHE provides recommendations on such matters as institutional budget proposals, capital improvement requests, transfer and admissions policies, tuition plans, performance contracts, and teacher education. The commission is one of seven departmental divisions under the Colorado Department of Higher Education.⁷⁶

General Assembly of Colorado. Colorado's legislative branch holds final authority on many aspects of the operation and direction of state higher education institutions, including CU-Boulder. The General Assembly decides such matters as state tax budget allocations to higher education, tuition and fees,

enrollment guidelines, and requirements for performance contracts for public institutions in the state.⁷⁷ Three joint committees of the full legislature have a significant impact on higher education: the Joint Budget Committee (JBC), the Capital Development Committee (CDC), and the Joint Committee on Education (JCE). The JBC reviews programs, operations, and fiscal needs of all state agencies; conducts budget hearings; and prepares appropriation recommendations for the legislature. The CDC prioritizes requests for capital construction projects from all state departments, institutions, and agencies. The Joint Committee on Education (JCE) addresses issues related both to higher education and K–12.

Campus Diversity: Vision for Inclusive Excellence

Core Component 1B. In its mission documents, the organization recognizes the diversity of its learners, other relevant constituencies, and the greater society it serves.

CU-Boulder’s vision for diversity is expressed in many ways and in many venues, but the central theme is consistent: *everyone* benefits from an inclusive campus culture enriched by diverse ideas, thoughts, and perspectives. Students are better prepared for workplaces reflecting a wide range of backgrounds and experiences; staff and faculty are more productive in an atmosphere of support for diverse people and groups. Society as a whole reaps important benefits from the civic engagement of people who had a diverse educational experience in college. This section offers an overview of how the university plans for, implements, and evaluates strategies for creating a more inclusive community of learners.

Creating a New Model

In *Flagship 2030*, the university articulates an ambitious goal: “By 2030, CU-Boulder will be a model for the nation in applying best practices in support of diversity and inclusive excellence.” The strategic plan envisions a university that “exemplifies the power and promise of diversity, intercultural understanding, and community engagement to promote a greater sense of multiculturalism and inclusiveness in the state of Colorado and around the world.” As described in Chapter 2, the university views diversity in broad terms, to include a wide range of backgrounds and identities. Examples include first-generation students, people of different sexual and gender orientations, ethnic and cultural identities, economic status, religious beliefs, people with disabilities, people of different ages, and geographic distribution, among many others.

Many of the *Flagship 2030* initiatives incorporate the values of inclusiveness and excellence. In particular, the Core Initiative called “Learning for a Diverse World” focuses on improving the diversity of faculty, students, and staff, as well

In *Flagship 2030*, the university articulates an ambitious goal:

“By 2030, CU-Boulder will be a model for the nation in applying best practices in support of diversity and inclusive excellence.”



Colorado high school juniors experience life on campus and a taste of the business world through the Business Leadership Program, sponsored by the Leeds School of Business Diversity Office.

as fostering a more supportive and inclusive community. The initiative calls for the university to renew its commitment to diversity by refining the existing diversity plan and developing effective strategies for reaching its goals.

Other Core Initiatives in the plan also include diversity among their goals. For example, the “Enhancing Education and Scholarship” initiative calls for identifying and implementing strategies for enhancing faculty diversity. In the initiative on “Ensuring Access,” the plan emphasizes initiating a statewide dialogue on how Colorado can expand access to higher education and on developing recruitment strategies for building a diverse student body. The “Supporting the Mission” initiative calls for building a talented and diverse staff that contributes to the success of students and faculty in meeting the university’s mission. The initiative on “Serving Colorado, the Community, and Our Graduates” is intended to expand CU-Boulder’s interactions with diverse communities throughout the state.

Diversity is served also by the Flagship Initiatives in the university’s strategic plan. For example, expanding residential academic programs under the “Residential Colleges” initiative will foster a greater appreciation of diversity and community. Interdisciplinary work, which is the focus of the initiative on “Transcending Traditional Academic Boundaries,” includes research projects that incorporate diversity goals. The initiative on “Building a Global Crossroads” will bring a global, more diverse dimension to the learning environment at CU-Boulder. With an emphasis on further internationalizing the university, this initiative encourages worldwide intellectual exchanges, interconnections, and relationships aimed at enriching the learning community.

While diversity is everyone’s responsibility in the university community, dedicated leadership is provided by the new position of vice chancellor for diversity, equity, and community engagement, as discussed in Chapter 2. The senior-level position was created in 2007 to bolster CU-Boulder’s commitment to diversity and inclusive excellence, as well as to enhance programs and services aimed at creating and maintaining a supportive climate for all members of the university community.

The Office of Diversity, Equity, and Community Engagement (ODECE) is focused on faculty and student success, campus climate, community outreach and engagement, multicultural affairs, pre-college services, and disability services. Recent organizational changes have provided greater focus and visibility for those efforts. In April 2008, ODECE was expanded to include two units formerly housed in the Division of Student Affairs: the Center for Multicultural Affairs and the Disability Services. Also, three programs (Pre-Collegiate Development, University of Colorado Upward Bound, and the Roaring Fork Pre-Collegiate program) were moved from the Student Academic Services Center and reorganized to form the new Department of Pre-College Services within ODECE. Purpose of the reorganization was to enhance and expand the university’s pre-college outreach efforts.

Planning for Inclusive Excellence

Blueprint for Action diversity plan. There are few initiatives in *Flagship 2030* untouched by a commitment to diversity—and that is precisely the university’s intention. The current diversity plan, titled Blueprint for Action,⁷⁸ was launched in 1999 as the result of an extensive planning process that involved governance groups, students, faculty, staff, administrators, and community members. The Chancellor’s Advisory Committee on Minority Affairs (CACMA), which includes several members of the university community, took a lead role in developing the Blueprint for Action. The plan sprang from a shared vision of the university as “a place where the quality of education is enhanced and enriched by a diverse campus community—where all students benefit from multicultural experiences.” It envisions a campus climate that welcomes and respects all people, acknowledging and addressing the special needs of groups and individuals who historically have faced institutional, attitudinal, and misperception barriers.

Other aspects of the vision includes a student body that reflects, at a minimum, the state’s ethnic diversity; university partnerships with K–12 to enhance college readiness by all students; successful recruitment, hiring, and tenuring of faculty of color and women faculty; and a supportive campus climate and multicultural community. A notable example of these efforts is the Leadership Education for Advancement and Promotion (LEAP), discussed later in this chapter, whose original goal was to help retain more women faculty in science and engineering disciplines. Now open to all genders and disciplines, LEAP has worked with more than 300 faculty members, with several advancing into administrative positions.⁷⁹

Initiatives in the Blueprint for Action support three primary goals:

- To build and maintain an inclusive campus environment
- To recruit, support, retain, and graduate a diverse student population
- To maintain and enhance diversity in employment of staff, faculty, and administrators

For 10 years, the plan has served the campus as a guiding force for developing and implementing diversity strategies. In that period of time, the university has further refined its description of diversity to include a broad range of dimensions: ethnic, regional, cultural, intellectual, economic, religious, international, veteran status, age, viewpoints, sexual orientation, disability, and others. As the plan is refined and updated, the multi-dimensional aspects of diversity are emphasized and supported through deliberate actions and programming.

As part of its commitment to diversity, CU-Boulder has developed a rich infrastructure of academic and support programs and services aimed at building a diverse and inclusive campus climate. Examples of recent activities include:

DISPLAY 4.1

**Selected Recent Accomplishments that
Enhance an Environment of Inclusive Excellence at CU-Boulder**

College of Arts and Sciences

- 11 competitive merit- and need-based fellowships awarded for graduate students who contribute to the diversity goals of their departments
- Faculty of color hired in eight departments

School of Journalism and Mass Communication

- Student Diversity Advisory Board established for new *CU Independent* online newspaper

School of Law

- Law student associations provided tutoring at a local high school
- Partnered with ODECE to recruit CU-Boulder undergrads

College of Engineering and Applied Science

- New BOLD Center created to enhance recruitment, retention, and graduation rates for underrepresented students

College of Music

- Free 2009 Martin Luther King, Jr. Celebration Concert

Graduate School

- LEAP, a special initiative to support women scholars, institutionalized after a successful five-year pilot

University Libraries

- Major website revision improved accessibility for all
- 24-hour, Monday through Friday access provided to a new information commons area with improved facilities for users with disabilities

Continuing Education and Professional Studies

- Scholarships offered to first-generation students from the Denver School of Science and Technology
- Scholarships offered to nontraditional students (over \$100,000 annually)

Division of Student Affairs

- Social Justice Conference and Transgender Symposium
- Bystander education provided for those who witness bias-motivated incidents

- A new Center for Community building, scheduled to open in late 2010, which will house 11 core programs and services from two divisions, ODECE and student affairs
- Competitive Graduate Minority Fellowships in arts and sciences for students who contribute to the diversity goals of their departments
- A new Broadening Opportunity through Leadership and Diversity (BOLD) Center in engineering, which includes several support programs such as the Women in Engineering Program, diverse engineering societies, the Multicultural Engineering Program, and others
- The 2009 Workforce Recruitment Program for College Students with Disabilities, co-sponsored by the U.S. Department of Labor and the U.S. Department of Defense, to bring a federal recruiter to CU-Boulder
- A tuition rate for graduate students on appointment that helped promote enrollment of international graduate students
- A Deaf Culture and American Sign Language educational session for a student residence hall diversity program

Numerous initiatives and achievements related to diversity are described in the April 2009 Report on Diversity, a report for the CU Board of Regents with information ranging from staff diversity, to conferences on assistive technology, to the establishment of mandatory discrimination and harassment workshops for employees. In addition, examples of recent diversity achievements and activities in the schools, colleges and other units are provided in the document.⁸⁰

As discussed in Chapter 5, the university has revamped its academic program review process, with implications for CU-Boulder's diversity endeavors, among other areas. Under the new Academic Review and Planning (ARP) program, cognate units are encouraged to develop joint strategies to support inclusive excellence.

Diversity Summit. The university works to build solidarity for diversity efforts through timely administrative updates and statements as well as organizing the annual Diversity Summit. The summit, which is open to the public, features interactive sessions designed to increase awareness and encourage dialogue about diversity issues. National speakers bring expertise and student panel discussions focus on the campus experiences of underrepresented students. Recognition awards also are presented to campus units to honor their diversity commitment and efforts. Planning for the event is handled by members from a range of advisory committees in an effort to model inclusive excellence.

Chancellor's Diversity Advisory Board. To help implement the diversity model, the Chancellor's Diversity Advisory Board has been created, consisting of 35 community leaders from across the state and nation who represent many diverse communities. The group has formed work committees focusing on student success, faculty recruitment and retention, campus climate, and community engagement. Other campus-level committees focusing on the development of inclusive excellence include the Chancellor's Committee on Women (CCW); Chancellor's Committee on Gay, Lesbian, Bisexual, Transgendered, Intersexed Issues (CGLBTII); Chancellor's Committee on Minority Affairs (CACMA); and the Program for Accessibility (PAC). These committees are integral to attending to campus climate issues and forging a model of inclusive excellence throughout the university.

Accountability and assessment. Accountability for implementing the Blueprint for Action and achieving diversity success is shared throughout the university, from the chancellor's office and governance groups to students, faculty, and staff. From the beginning, performance measures have been used to determine levels of progress toward meeting the goals. The tables of statistical measures⁸¹ and plotted time series,⁸² updated annually, illustrate both the accomplishments and challenges of building a diverse learning community. The time series indicate, for example:

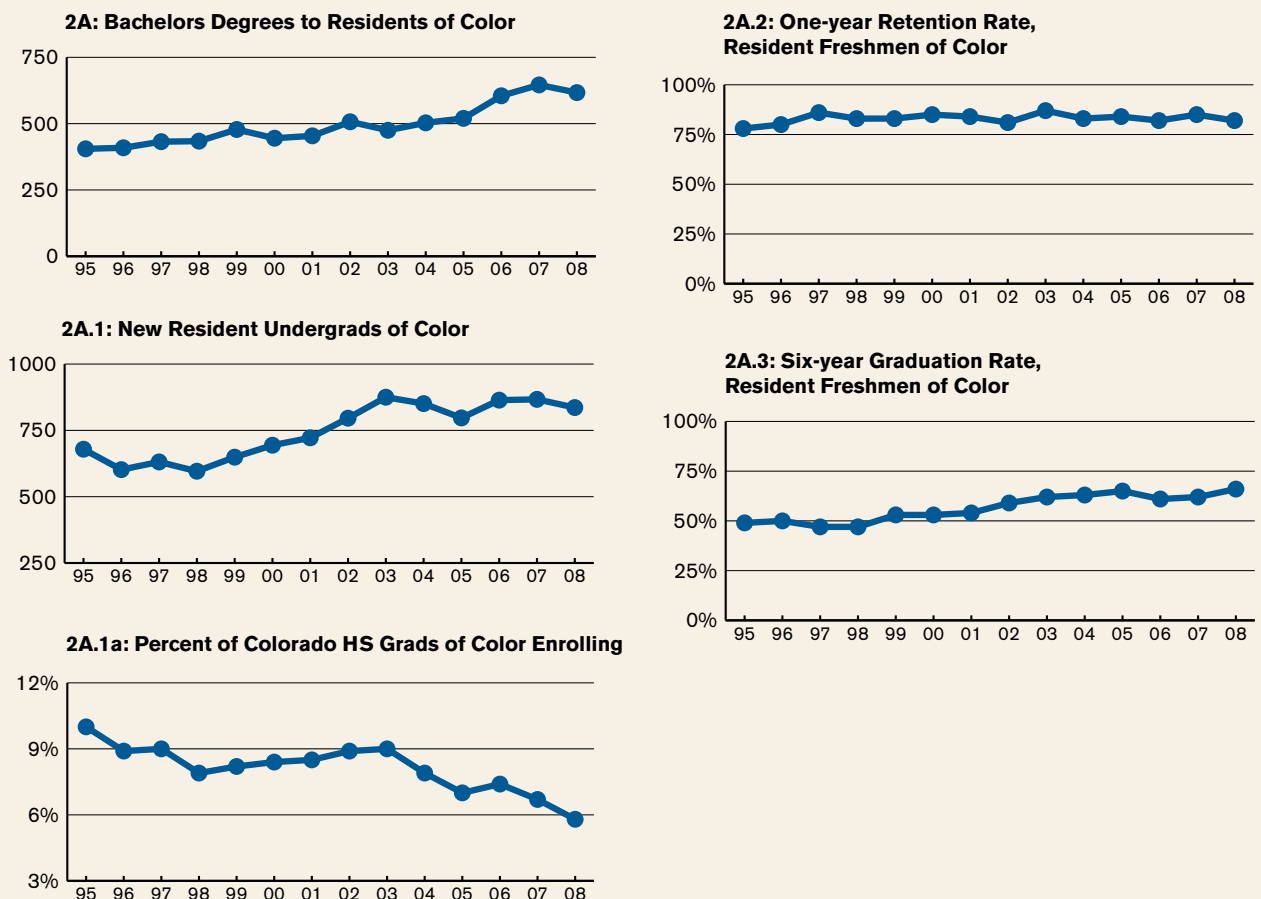
- Steady long-term increases in:
 - Bachelor's degrees to Colorado students of color
 - New Colorado undergraduate students of color
 - Six-year graduation rates of Colorado freshmen of color
 - Tenured and tenure-track faculty of color
 - Female tenured and tenure-track faculty
 - Administrators of color
 - Classified staff of color in selected job classes

- Minimal progress on:
 - Graduate-level degrees to students of color
 - New graduate-level students of color
 - The percentage of Colorado high school graduates of color enrolling as new freshmen
 - One-year retention of Colorado freshmen of color

Despite the efforts and progress made in diversity and climate, intolerant incidents occur—reminding the community of the work remaining to be done. In such situations, the university administration responds promptly and publicly to reiterate the institution's values and expectations and to communicate the steps being taken to address the incidents. Information is provided about the wide array of university resources available to help victims of discrimination and intolerance.

DISPLAY 4.2

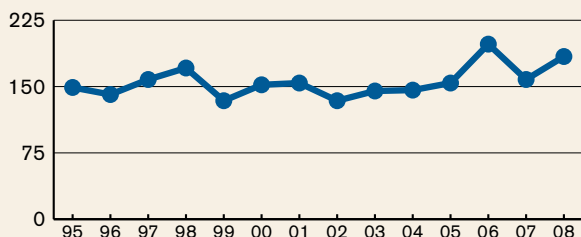
Diversity and Equity Blueprint: Time Series of Performance Measures



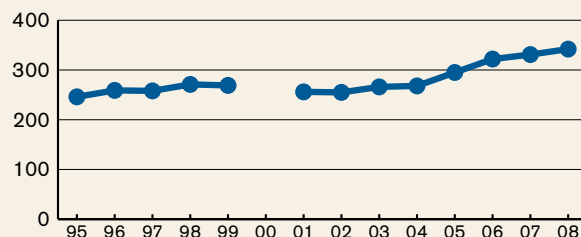
Source: www.colorado.edu/pba/div/dplanstat/goal40gr.htm

The university has begun to further refine the Blueprint for Action, with a new model developed under the leadership of the vice chancellor for diversity, equity, and community engagement. The model focuses on “**inclusive excellence**,” a concept promoted by the American Association of Colleges and Universities.⁸³ It emphasizes: 1) melding inclusiveness and excellence; 2) moving away from an emphasis on numerical representation only; 3) shifting the responsibility for diversity to everyone in the learning community; 4) broadening the definition of diversity to include a wide range of social dimensions; and 5) creating a vibrant community in which diversity is embedded throughout the campus. According to CU-Boulder’s April 2009 Report on Diversity, inclusive excellence “extends the concept of diversity beyond the inclusion and presence of people from traditionally underrepresented groups in all facets of higher education to the recognition that institutional excellence requires all faculty, students, and

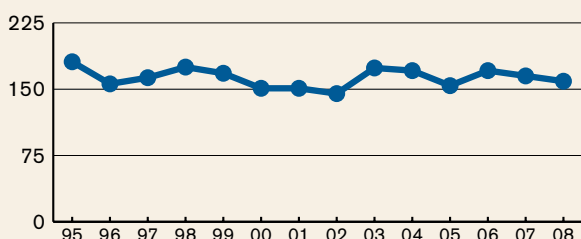
2B: Graduate-level Degrees to Students of Color



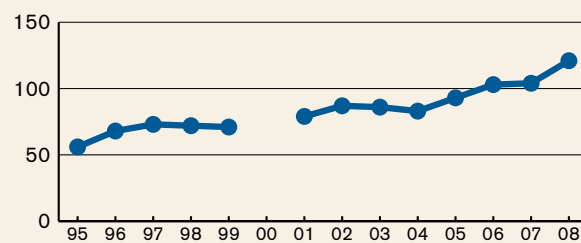
3B: Female Tenured, Tenure-track Faculty



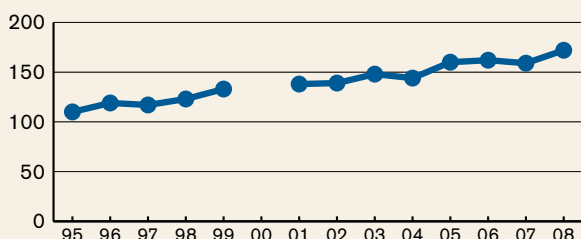
2B.1: New Graduate-level Students of Color



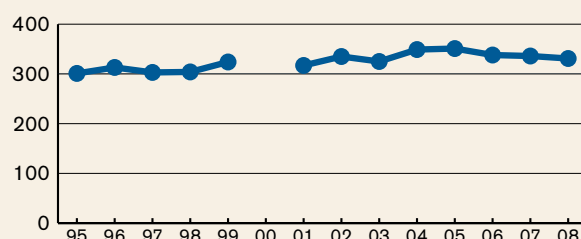
3C: Administrators of Color



3A: Tenured, Tenure-track Faculty of Color



3D: Classified Staff of Color in Selected Job Classes



staff to understand and practice multicultural competence from a global context, regardless of origins or personal identities.”

In summary, while important progress has been made on Blueprint for Action much remains to be done. The *Flagship 2030* call for renewed commitment to inclusive excellence is expected to help refine and elevate the diversity plan, as well as to develop evidence-based strategies for success.

Blue Ribbon Commission on Diversity

Blueprint for Action provided a framework for CU-Boulder’s response to recommendations by a system-wide Blue Ribbon Commission on Diversity organized by President Hank Brown in fall 2005.⁸⁴ Formation of the group followed a series of racist incidents reported at CU-Boulder earlier that year. Members of the commission included 46 civic, education, and corporate leaders who shared a deep interest in the diversity successes of the system’s campuses. They met four times in 2006 to review campus diversity programs and initiatives. At the conclusion of each campus meeting, the commission issued recommendations on recruitment, retention, programs, and university climate, culminating in a final report⁸⁵ in March 2006. A final, follow-up meeting was held in December 2007.

In preparation for the Blue Ribbon Commission on Diversity review, CU-Boulder analyzed progress towards its diversity goals under the Blueprint for Action. This analysis⁸⁶ surveyed activities, actions, and progress of several programs whose primary (but not sole) objective relates to recruitment, retention, and graduation of students with a special focus on students of color and first-generation college students. Among several findings, the study found encouraging outcomes by the Pre-Collegiate Development Program and the CU Leadership, Excellence, Achievement, and Diversity (CU-LEAD) Alliance, a network of programs aimed at enhancing access for students of color and first-generation students.

As a result of the Blue Ribbon Commission on Diversity recommendations, the university developed an action plan including investments in CU-LEAD programs, such as staff support for the Miramontes Arts and Science Program (formerly Minority Arts and Sciences Program), scholarships, and the Center for Multicultural Affairs Collegiate Leadership Program. The action plan outlined strategies such as mandatory diversity training for faculty, students, staff, and administrators. It also committed to identifying benchmarks among other educational institutions and industries with a history of success in diversity.

At the follow-up meeting of the Blue Ribbon Commission on Diversity in December 2007, CU-Boulder administrators provided a progress report⁸⁷ on actions taken to enhance diversity, including student enrollment and retention, financial aid programs, campus climate, diversity training, and diversity leadership. Examples of strategies included federal grant renewals aimed at improving student success for first-generation students; increased scholarships and program

support; support for Pre-Collegiate and CU-LEAD scholarships; increasing need-based financial aid by 40 percent in one year; a program review of the 12 learning communities in the CU-LEAD Alliance; and campus-wide diversity training, among other actions.

Summary

The mission of the University of Colorado at Boulder, as spelled out in the statutes of Colorado, is to serve as a comprehensive research university. That clear and concise mission is communicated through words, actions, and decisions throughout the institution. Integrity is a guiding principle for meeting the university's mission, demonstrated through the application of policies and procedures that underscore the values of honesty, fairness, and respect. University leadership is characterized by strong administrative structures and a commitment to collaboration and shared governance. A core value of the university is inclusive excellence, aimed at achieving a diverse and welcoming community of learning. The importance of diversity is underscored through numerous programs and initiatives, as well as through the *Flagship 2030* strategic plan.

Discussion

Key Strengths

- **Mission-driven planning.** *Flagship 2030* supports and extends CU-Boulder's statutory mission as a comprehensive research and teaching university. Under the strategic plan, the university remains focused on service to the state of Colorado, while broadening its reach to encompass the nation and the world. The strategic plans of the schools, colleges, and administrative units support the vision and goals of *Flagship 2030*.
- **Integrity as a core value.** Policies and procedures support the institution's core values, including its commitment to integrity. The university remains dedicated to the fundamental concepts of academic freedom, equity, respectful treatment, and transparency.
- **Organizational stability.** The current leadership team at CU-Boulder is characterized by extensive experience in higher education. Leaders such as Chancellor Phil DiStefano and Ric Porreca, senior vice chancellor and chief financial officer, bring a wealth of experience (nearly 60 years between them) at the University of Colorado. The deans and members of the Chancellor's Cabinet offer a remarkable depth and breadth of experience in their respective areas of expertise. CU-Boulder is served well by an active system of shared governance, involving faculty, staff, and students in institutional planning and decision-making.

- **Shared governance.** While CU-Boulder enjoys an experienced leadership team, the university's institutional culture transcends individual executive leaders through an effective system of shared governance. The system actively involves faculty, staff, and students in institutional planning and decision-making on an ongoing basis.

Challenges and Issues

- **Setting priorities and sustaining focus.** As a comprehensive research university, CU-Boulder's mission is broad and inclusive. However, the realities of limited resources and a strained economy require a new emphasis on targeted programs that focus on the university's highest priorities. The effects of the 2008–09 recession will mean making difficult choices and decisions within the framework of *Flagship 2030* and, while the strategic plan has created a new sense of direction, sustaining that focus over its long planning horizon will require ongoing attention and flexibility.
- **Creating a more diverse and welcoming community.** The university has developed a strong vision of inclusive excellence that aims to provide a diverse and supportive environment for all. CU-Boulder has made strides in realizing that vision, but much remains to be done. More progress is needed in creating a multicultural and welcoming academic community. Changing attitudes is a slow and continuous process that requires constant attention and commitment.

Flagship 2030: Next Steps

- **Setting the course with *Flagship 2030*.** The university's strategic plan was developed with the input of many constituencies, including faculty, staff, and students. Regardless of fiscal ups and downs, *Flagship 2030* continues as the guiding force for planning, decision-making, and actions. Recent investments made by the university remain consistent with the priorities set within the plan. CU-Boulder's leadership is committed to promoting *Flagship 2030* and implementing its initiatives as resources allow.
- **Aiming for inclusive excellence.** *Flagship 2030* calls for more ambitious strategies for cultivating a multicultural and inclusive environment—and those plans are under way. The Blueprint for Action diversity plan is being refined and updated to identify new initiatives for becoming a more welcoming and diverse community.

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characteristics, and structure.” Association of Governing Boards of Universi-
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Preparing for the Future

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CHAPTER 5

Preparing for the Future

CRITERION 2:

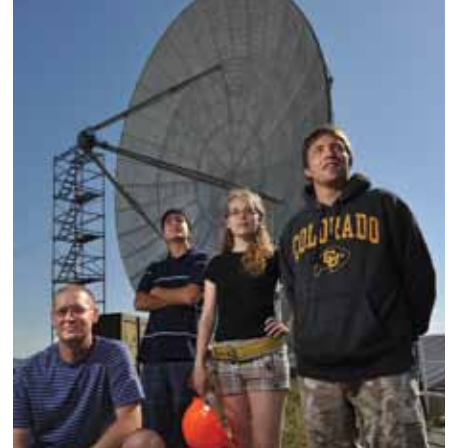
The organization's allocation of resources and its processes for evaluation and planning demonstrate its capacity to fulfill its mission, improve the quality of its education, and respond to future challenges and opportunities.

Flagship 2030 lays out a long-term course of action aimed at creating a new model for the 21st-century research university, as described in Chapter 3 and throughout the self-study. The strategic plan's quarter-century planning horizon requires close attention to current and anticipated trends, as shown in the work of planning subcommittees and task forces throughout the university. Particular attention is paid to the identification and prudent use of resources in support of the plan's goals, along with seeking efficiencies within university operations. In addition, assessment plays a major role in the planning cycle, allowing the university to evaluate progress toward reaching its goals and to improve continuously the quality of learning and discovery at CU-Boulder. This chapter provides an overview of the university's multi-tiered planning efforts, resource management, and assessment activities—demonstrating how the three are interconnected through *Flagship 2030*.

Flagship 2030: Building on a Continuum of Planning

Core Component 2A. The organization realistically prepares for a future shaped by multiple societal and economic trends.

Core Component 2D. All levels of planning align with the organization's mission, thereby enhancing its capacity to fulfill that mission.



Students in the College of Engineering and Applied Science work closely with faculty in hands-on learning opportunities that foster technical excellence, teamwork, and complex problem-solving skills.

Flagship 2030 clearly is the centerpiece of all planning at CU-Boulder, but it is not the only—or the first—piece. Planning is viewed as a continuum of effort, ranging from unit-level action plans to broad-based campus strategic initiatives. Conscious efforts have been made to align individual plans with the university’s mission and goals—and the *Flagship 2030* strategic plan. This section describes the deliberate congruence of *Flagship 2030* and planning efforts in such areas as the re-accreditation self-study, schools and colleges, administrative divisions, capital campaigns, campus facilities, commitment to a green campus, information technology, and student information systems. Widespread involvement in *Flagship 2030* has led naturally to the incorporation of the strategic plan’s basic themes and goals into unit-based and other planning efforts.

Leading the Planning Effort

Responsibility for CU-Boulder’s multi-tiered planning structure rests ultimately with the chancellor, provost, and senior vice chancellor and chief financial officer, as well as the Chancellor’s Cabinet. Working with multiple stakeholders, these officers set the tone and timetable for planning, encourage participation in the process, and help coordinate the various efforts. For example, the chancellor plays a key role in leading the campus-wide strategic planning effort but also is closely involved in capital campaign planning, campus facilities planning, and other planning efforts.

Campus-wide academic planning is led by the provost, working in concert with the deans council, the vice chancellor for research, and associate vice chancellors within academic affairs. The provost also oversees the planning efforts of the schools and colleges, providing guidance on academic goal setting and offering feedback on unit plans. Coordination of undergraduate education across schools and colleges is overseen by the associate vice chancellor for undergraduate education, working with the council of associate deans and others. Each year, the provost’s office prepares a report on academic programs that may be developed within the coming year, proposed during the next five years, and/or restructured or discontinued. Beginning in 2009, this annual academic planning report is submitted along with the annual summary on program review, which includes the current academic year’s reviews, a progress report on reviews conducted in the previous three years, and a seven-year schedule of upcoming program reviews. Both reports are provided to the system-wide Office of Academic Affairs; the academic planning report is posted on the university’s [Office of Institutional Analysis](#) website.¹

The senior vice chancellor and chief financial officer is involved in all planning efforts, working with units to identify resources and set funding priorities. This position also is responsible for planning efforts affecting overall operations of the campus, including facilities, information technology infrastructure, strategic communications, and others. In addition, the provost and senior vice chancellor co-chaired the self-study process and helped ensure its close integration with *Flagship 2030*.

At CU-Boulder, planning is both centralized and distributed among major units, with extensive support provided by the Office of Planning, Budget, and Analysis (PBA). With a staff of about 20 professionals, the office provides management information ranging from finances and personnel to strategic planning, enrollment, and instruction. Its goal is to help the campus community, leadership, and constituents make informed decisions affecting the future of the university.

PBA staff played a major role in the development of *Flagship 2030* as well as the university's prior *Quality for Colorado* strategic plan. The PBA budget office helps coordinate campus-wide budget planning and identifies and allocates resources to help the university excel. PBA's Office of Institutional Analysis tracks and reports the university's progress on defined performance indicators,² on CU-Boulder's state of Colorado performance contract, and on many other accountability measures.

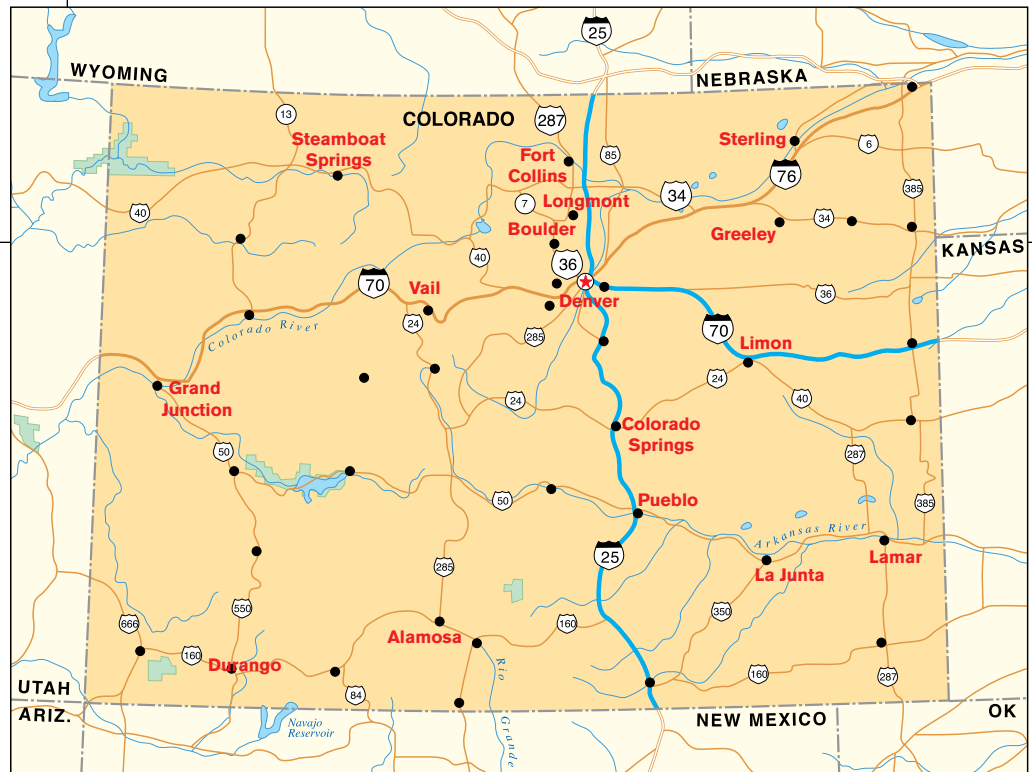
Listening to Stakeholders

The mission of the University of Colorado at Boulder speaks to its responsibilities and commitments to a wide range of stakeholders. In planning for its future, the university listens and learns from those stakeholders—and seeks to understand the implications of societal trends. In the following pages are numerous examples of ways in which the university seeks out and responds to its constituencies in preparing for the future.

Involving constituencies. The university highly values the opinions, ideas, feedback, and support offered by its many internal and external constituencies. As shown in planning documents such as *Flagship 2030*, these stakeholders include students, faculty, staff, alumni, parents, donors, local and area communities, the people of Colorado, government and business leaders, and national and global communities. Stakeholder voices were heard throughout the *Flagship 2030* strategic planning process. First, the planning effort was guided by a steering committee, comprised of 54 individuals from all segments of the university, the local community, state leadership, and other key groups. Open forums were held on campus to solicit ideas and opinions. Interviews were conducted with dozens of community, business, and government leaders throughout the state. A *Flagship 2030* website was developed to further encourage input. Other communications initiatives reached out to local, state, national, and worldwide audiences.

Subcommittees of the *Flagship 2030* steering committee were asked to address six central questions that helped guide the plan's development. These questions were:

1. What will students need to know in 2030?
2. What will the state of Colorado need from the university in 2030?
3. To what needs will our research, scholarship, and creative work respond?



DISPLAY 5.1

Colorado Communities
Where Interviews Were Held
for *Flagship 2030* (in red)

4. What should our relationship be with the Boulder community over this period?
5. What will the university community be like in 2030?
6. What financial and operational models will be necessary for success in 2030?

Over the course of many meetings, the subcommittees examined the implications of these questions for the future of the university. They submitted reports that provided their projections, analyses, and recommendations for action. The concepts and ideas shared in these reports helped shape the *Flagship 2030* plan.

Beyond internal inputs, CU-Boulder wanted to hear from leaders and citizens around the state of Colorado. For that purpose, the university sought the help of a National Science Foundation-funded leadership development program at CU-Boulder called Leadership Education for Advancement and Promotion (LEAP). Participants in LEAP interviewed six local leaders from each of 16 communities across the state. Interviewees included such individuals as the local mayor, school superintendent, publisher, chamber of commerce executive, active high school parent leader, and others.

The community-based interviews centered around two questions: “What will Colorado be like in the year 2030?” and “How can CU-Boulder best serve the state?” Responses were insightful and supportive of the university’s role in the state and nation. In these discussions, people described what they wanted the university to become, how they wanted it to act, and what was important to them. They said they wanted people to support CU-Boulder’s role in preparing the workforce of the future. They recognized the campus’s position as the flagship university. They held high expectations of the university as a “public trust.”

Also, they recognized CU-Boulder's difficult financial challenges but expected fair access for the state's students.

Constituencies also are playing an important role in the implementation of *Flagship 2030*. In 2007, nine task forces of faculty, staff, students, and others were asked to examine critical concepts within the *Flagship 2030* plan. They were asked to look at feasibility issues, determine resource needs, and identify the next steps needed for implementation. At a *Flagship 2030* summit meeting in September 2008, the task forces presented reports for in-depth discussion by more than 100 campus representatives.

The reports were candid, clear, and constructive. Some of the university's initiatives were revised in response to the task forces' examination. An example is the call for "year-round learning," which had prompted concerns about feasibility and costs. Consequently, the initiative was revised to focus on finding ways to expand and improve the use of the existing Summer Session program before considering a year-round campus schedule. Other reports expanded upon the initiatives or proposed new ways of looking at them. In all cases, the university benefited from the active and clear voices of its constituencies.

Involving advisory groups. Beyond *Flagship 2030*, CU-Boulder works closely with a blend of constituent boards and committees that provide guidance and counsel and advocate for positive change. These groups help broaden the university's access and exposure to the external environment, and they help develop private support. Primarily structured as advisory groups, these boards and committees interact with the campus at large, the administration, the alumni association, and the colleges, schools, departments, and institutes. Each of the colleges and schools has at least one board or committee to support its mission and goals.

The advisory groups range from 10 to 70 individuals or organizations and meet a minimum of two to three times per year. Of these groups, CU alumni represent about 45 percent of the total; university friends represent about 16 percent; and parents represent about 14 percent. The remainder includes a combination of faculty, staff, corporations, foundations, trustees, and students. The majority of these members live in Colorado, enabling them to attend meetings on a regular basis, to visit campus often, and to engage in the life of the institution. Their advice and ideas are incorporated in strategic plans, new initiatives, and policy considerations that help steer the institution into the future.

Surveying constituencies. Numerous campus entities gather information from stakeholders through formal and informal surveys. For example, surveys are conducted by institutional analysis, human resources, student affairs units, the Boulder Faculty Assembly (BFA), departments, schools, colleges, and other campus units. They survey students, alumni, faculty, staff, and the public about their activities, evaluations, and preferences. The results are used in planning



and evaluation at all levels. The institutional analysis survey cycle³ schedules surveys at one- to five-year intervals.

The NCA Self-Study as Planning Tool

The re-accreditation self-study process itself is viewed as an important marker on the planning continuum. As described in Chapter 2, important changes were made in the administrative organization, academic advising, diversity planning, physical infrastructure, and assessment following the 2000 North Central Association (NCA) evaluation. For example, with support from the NCA report, the university restructured its administrative team—developing a strong provost position, enhancing the position of senior vice chancellor and chief financial officer, and creating a new senior-level position for leading CU-Boulder's diversity programs.

The current re-accreditation process also offers a timely opportunity for re-examining the university's vision and goals in the context of expectations by the NCA Higher Learning Commission (HLC). CU-Boulder sought input from constituency groups on how it might take advantage of that opportunity. For example, the *Flagship 2030* implementation task forces were asked to describe planning implications of the HLC criteria for re-accreditation. Further, during the site visit, the CU-Boulder leadership hopes to engage with the evaluators/consultants to gain feedback on the concepts of *Flagship 2030* and other opportunities for improvement.

Strategic Planning by Academic Units

The university's schools and colleges operate under individual strategic plans that are being realigned in support of *Flagship 2030*. Following are some excerpts from the plans of various schools and colleges,⁴ as well as continuing education and the system of libraries:

- **The College of Architecture and Planning**,⁵ with an undergraduate program on the Boulder campus and graduate program at the University of Colorado Denver, has developed a vision for helping students prepare for productive careers in design and planning. Called integrative design, the concept creates learning experiences and partnerships that address real issues facing designers and planners in creating healthier, more sustainable, more meaningful environments for the 21st century.
- **The College of Arts and Sciences**⁶ seeks to build and maintain excellence in selected departments and programs across the arts, humanities, natural sciences and social sciences; to improve the educational experience of graduate and undergraduate students; to enrich the community of scholarship and learning through diversity; and to improve the ability of students and faculty to conduct research, produce creative work, and integrate scholarship with teaching.

- The strategic priorities of the **Leeds School of Business**⁷ include achieving excellence in research that challenges, extends, and applies current business knowledge; excellence in a research-based innovative learning environment; reduced class size, increased support services, and increased innovation in the undergraduate curriculum; revision of the master of business administration (MBA) curriculum and focusing the MBA on entrepreneurship and real estate; internationalization of the student and faculty experience; engagement of alumni and corporate partners in the life of the school; reaching out to the state of Colorado; and increasing the resource base of the school to fund the initiatives in the strategic plan.
- **The College of Engineering and Applied Science**⁸ strategic plan articulates desired outcomes that include technical excellence and knowledge in modern engineering, mathematics, and science; the ability to communicate effectively with diverse peoples and other cultures; the ability to think critically, analyze data, and formulate and solve complex problems; the ability to contribute effectively as individuals and in multidisciplinary teams; knowledge of contemporary issues and preparation for societal leadership and world citizenship; the desire and skills to pursue lifelong learning and personal and professional development; and a passion for serving others and a commitment to sustainability.
- **The School of Journalism and Mass Communication**⁹ plan states that its “ideals and objectives reflect the spirit of CU’s mission to benefit the people of Colorado, the nation and the world...through research, creative work, professional competence, and responsible citizenship. Our role as part of the University of Colorado at Boulder and our location are integral in our core strengths, mission, and strategies.” The school has developed a matrix of alignment with *Flagship 2030* in a document titled “Consonance of Strategic Goals,” updated in March 2009, that includes such examples as strengthening the new undergraduate certificate program in international affairs/journalism and mass communication and creating incentive funds for collaborative research efforts involving faculty across differing areas of emphasis.
- **The School of Law**¹⁰ expresses a vision of being “a supportive and diverse community of scholars and students in a place that inspires vigorous pursuit of ideas, critical analysis, and civic engagement in order to advance the rule of law in an open, sustainable society.”
- The strategic plan for the **College of Music**¹¹ states that planning and capital campaign goals “have been developed mindful of those embedded in *Flagship 2030* and at the same time maintain congruence with past and ongoing college objectives and aspirations.” Examples include initiatives that enhance cooperation, collaboration, access, international engagement, faculty and student support, and Residential Academic Programs (RAPs).

- **The Graduate School**¹² is in the process of developing a new strategic plan that aligns closely with the goals of *Flagship 2030*. However, the school's current plan, a "roadmap" crafted in 2005, already reflects many of the goals of *Flagship 2030*. The plan emphasizes a vision for CU-Boulder to "be recognized as a world-class research university devoted to engaged scholarship and learning." Three broad purposes focus on visibility and financial stability of programs; support for research, scholarship, and creative initiatives; and improving the quality of graduate education programs across all disciplines.
- Consistent with the university's mission, the mission of the **Division of Continuing Education and Professional Studies**¹³ is "to provide quality, innovative, lifelong learning opportunities to a diverse student population by extending the educational resources of the University of Colorado at Boulder." Its strategic plan was crafted in 2003 and is updated annually with program and budget goals and objectives aligned with *Flagship 2030*.
- **The University Libraries**¹⁴ mission statement reads, in part: "Be central to the university community's discovery, communication, and use of knowledge by providing materials, information, and services that support the University's mission." All goals and objectives of the libraries' 2006 strategic plan emanate from that primary mission, including many that are closely tied to *Flagship 2030*. These include the libraries' client-centered focus, the library as destination, and optimal organization efforts, as described in the plan.

Planning Efforts by Administrative Units

Planning efforts by the university's administrative divisions are linked to the goals of *Flagship 2030*, as well as the individual goals and aims of the schools, colleges, and other units. Each of the major divisions of the university—and sub-units within them—engage in strategic planning that guides their activities, programs, and services within the broader campus-wide strategic plan. For example, in 2004, the **Division of Student Affairs**¹⁵ completed a strategic plan that has provided long-term direction for the division, consistent with the university's existing strategic plan. The process resulted in seven initiatives focused on ensuring the development of the complete student and the removal of barriers that may impede student learning. In particular, the plan launched the application of a research-based student development model throughout the division. Other initiatives—such as building community, diversity and inclusive excellence, leadership, and healthy communities—emphasize student development outcomes as well as student learning. With the arrival of a new vice chancellor for student affairs in 2008, the division units engaged in a restructuring process guided by two primary principles: synergy within the division and service to students. The division also has developed a new mission statement: "To empower student learning and success." A new strategic plan is being developed that will focus on six general areas: retention, student personal growth and development,

inclusive excellence and diversity, health and wellness, quality student services, and sustainability. All these planning efforts are in alignment with the goals of *Flagship 2030* and the mission of the university.

The strategic plan for the **Division of Administration**¹⁶ focuses on key goals and objectives that provide general direction for initiatives and decision-making in alignment with university-wide planning. The division's six goals reflect an emphasis on providing high-quality service to the university, including enhancing customer focus and orientation, enhancing human infrastructure, improving effectiveness of decision-making, increasing revenues and returns to the university, improving operational efficiencies and productivity, and enhancing physical infrastructure.

Various administrative departments also participate in strategic planning. For example, planning within the **Department of Human Resources** focuses on helping departments attract and retain the best and brightest staff, in support of the university's mission as a comprehensive graduate research institution. Initiatives include professional development and career advancement opportunities, mentoring and succession planning, employee engagement through recognition and other programs, enhancing campus culture through work-life balance, and enhancing human resources' role as a strategic partner. The department also works with the university to establish appropriate staffing levels to support the work of students and faculty.

Capital Campaign Planning

Capital campaigns represent an important part of the CU-Boulder planning continuum. The last system-wide campaign was concluded in 2003, when the system became one of only 11 public universities at that time to raise \$1 billion in its seven-year "Beyond Boundaries" campaign. The goals and start date for the next capital campaign have not yet been set, but CU-Boulder fundraising efforts are now closely linked with the initiatives of *Flagship 2030* and the strategic plans of schools, colleges, and other units.

For all campuses of the University of Colorado System, fundraising is coordinated by the **University of Colorado Foundation**¹⁷ (CUF), whose mission is to raise, manage, and invest private support for the benefit of the university system. Established in 1967, the CU Foundation is an independent, privately governed nonprofit corporation. It is funded through a combination of fees on endowments, a development service contract with the university, and interest on account balances. The CU Foundation is governed by a volunteer board of directors, which has fiduciary oversight, elects the officers of the Foundation, and appoints the chief executive officer. A larger board of trustees serves as advocates for the university and elects the members of the board of directors. The CU president, a representative of the CU Board of Regents, and another university designee serve as non-voting members of the foundation's board of directors.¹⁸



Renovations to residence halls are advancing a number of CU-Boulder's Flagship Initiatives, including the creation of multi-year residential colleges.

CU-Boulder fundraising efforts are led by a CUF vice president for CU-Boulder development, whose office is located in the university's administrative building. The vice president works closely with the chancellor, vice chancellors, deans, and other officers to set fundraising goals and generate private support for the university.

The development budget for the CUF comes from a combination of funds from the system office and earnings/fees from the long-term investment pool the foundation manages for the university. In addition, both the chancellor and provost at CU-Boulder have encouraged the vice chancellors, deans, and directors to share in the expense of development activities with CUF. Such expense sharing regarding budget allocations for development activities is negotiated between the foundation and the university. This partnership between the university and the CUF is especially relevant during a capital campaign when all energy is focused on meeting college and campus fundraising goals. In fact, from 2006 through 2008, the CUF staff increased twofold in order to accommodate the increasing need for privately raised funds and campaign fundraising. As of January 2009, CU Foundation employees assigned to CU-Boulder totaled 77.

Campus Facilities Master Plan

At CU-Boulder, the interface between strategic planning and facilities planning is particularly strong. The Boulder campus is recognized nationally for its unified architecture, physical beauty, and commitment to sustainability. Such attributes require careful attention to coordinated planning on several levels. In that regard, the university is about to begin a new cycle of the 10-year master planning process.¹⁹

Changes affecting facilities planning. In the decade since the last plan was completed, the university has seen significant changes that influence facilities planning, such as:

- Launch of the *Flagship 2030* strategic plan with significant impacts on students and campus housing, calling for multi-year academic and residential experiences
- Signing of the American College and University Presidents Climate Commitment to fight global warming by moving toward carbon neutrality, serving as a model for reducing greenhouse gas emissions, and integrating sustainability both into campus operations and curriculum
- Efforts to lessen the effects of limited capital construction funding through financial partnerships with the student body, creative approaches to fundraising, and increased use of the university's own Research Property Services²⁰ authority to help fund needed facilities
- Integrated planning efforts by multiple stakeholders and funding sources for building projects

These trends and milestones help inform the decisions necessary to complete the next 10-year master plan and make intelligent choices about campus infrastructure. In effect, *Flagship 2030* creates the template by which the campus master plan will be created—and ultimately, it will drive the construction of the infrastructure needed to respond to the opportunities and challenges of the next quarter-century.

New focus for facilities planning. The next campus master plan will focus on four key areas: housing, parking and transportation, East Campus, and sustainability. The plan will address issues that past master plans did not, particularly in the realm of sustainability. High priority will be placed on seeking carbon neutrality and constructing LEED-certified, energy-efficient buildings. The campus master plan also will address housing needs identified in *Flagship 2030*'s initiatives, such as expanded residential learning experiences. Parking and transportation will be considered against a backdrop of the university's commitment to sustainability.

Flagship 2030's initiative in biotechnology has prompted a new conception of the 197-acre East Campus as an extension of the main academic campus. When the original master plan for the East Campus was developed in 1986, the property was conceived as a research park with a design similar to a suburban office park. Now, under *Flagship 2030*, that concept has changed from a research park to a research campus that is an extension of the main campus, featuring a collegiate grid design and consistent architecture. The distance of the East Campus several blocks from Main Campus raises questions about how to move students, faculty, and staff back and forth quickly, efficiently, and safely while limiting the university's carbon footprint. Due to these issues, the East Campus likely will be dominated initially by graduate-level research and education, while planners examine options for rapid, safe, low-carbon transit systems. The first major facility in the reconceived East Campus will be the \$115 million Systems Biotechnology Building, with construction expected to begin in fall 2009.

Internal and external input. Two key groups continue to play a central role in the development of the physical campus. The University of Colorado Design Review Board, created in 1968, and the Boulder Campus Planning Commission (BCPC),²¹ formed in 1976, provide careful stewardship of the historical design and functional integrity of the campus and its buildings. One of the first review authorities of its kind in the country, the four-member design review board consists of two external architects, a faculty member from the College of Architecture and Planning, and a senior staff member from the Office of the President. These volunteers are appointed by the president of the university system and interact closely with the CU-Boulder leadership and staff.

The BCPC represents the Boulder campus community and acts as another level of review, using the campus master plan as its guide. The 24-member commission, which is appointed by the chancellor, reviews proposed capital projects and makes recommendations to the chancellor on feasibility studies, program plans,

capital request prioritization, and schematic design. The group helps ensure that all proposed capital projects support the university's academic goals, adhere to the campus master plan, and reflect consideration for the historical development of the campus. BCPC also works to preserve open space and improve the overall campus environment.²²

Setting new standards. The Boulder campus has received numerous accolades for the beauty of its learning environment. The buildings' Italian vernacular architectural style, featuring sandstone buildings with red-tiled roofs, was inspired by the work of early designer Charles V. Klauder. In the 1991 book, *The Campus as a Work of Art*, by Thomas A. Gaines, the Boulder campus ranked as the fourth best in the United States. He noted that the beauty of the campus and its landscape "make all things seem possible here." The goal of today's campus planners is to build upon that high standard, with careful attention to new, more environmentally focused guidelines.

In 2005, CU-Boulder committed to an increased emphasis on environmentally sound construction as part of an agreement with student leaders on the implementation of the student capital construction fee. As a result, the university implemented the Leadership in Energy and Environmental Design (LEED) certification as the design and construction standard for all student-funded buildings. Subsequently, the university implemented LEED gold certification for all new building construction and building renovations, and the application of national Labs21 environmental standards for new or renovated research buildings. The emphasis on environmentally friendly building practices is a key element in efforts to create an increasingly "green" campus.

Creating a Green Campus

In 2000, a committee of faculty, staff, and students completed the Blueprint for a Green Campus,²³ offering a new vision and plan for reducing campus ecological impacts. The blueprint was highly acclaimed by community and state leaders as a comprehensive, practical, and visionary plan of action with results that brought national recognition for the university's commitment to environmental quality. It provided a new sense of focus that led to positive changes in CU-Boulder's practices, such as energy conservation programs that helped save \$2 million in operating costs in 2005 while reducing harmful gas emissions.

In 2006, the blueprint was revised and strengthened to account for changes in the campus and in the body of knowledge about the global environment. The plan addresses issues related to climate (achieving zero climate impact by 2025, for example), water (achieving an annual goal of a 5 percent water reduction each year for five years), recycling (substantially increasing recycling efforts), and campus health and safety (e.g., reducing hazardous waste and materials on campus). For the past several years, the campus has used significantly less water on a square-foot basis, largely due to the use of untreated ditch water for lawn water-

ing, innovative use of low-water systems in laboratories, and water-conscious remodeling and construction practices.

The university also works to reduce traffic and encourage sustainable alternatives as a means of lessening CU-Boulder's impact on the climate. The Eco Pass program, offered in partnership with the Regional Transportation District, provides CU-Boulder faculty, staff, and eligible retirees local and regional bus and light-rail service at no or low cost.

CU-Boulder intends to build on its national leadership in advancing campus sustainability, guided by the strategies in the 2006 Blueprint for a Green Campus and the campus master plan, as well as by a strong commitment to environmental stewardship.

Planning for Advances in Information Technology

Another kind of campus infrastructure—information technology (IT)—is also the subject of careful planning and strategic investments. Thinking strategically about IT investments starts with understanding the essential activities of the university—and then finding the most effective ways of supporting those activities with new technologies. Ultimately, this means transforming the delivery of technology services to meet the needs of the university.

In 2004, student government representatives in the University of Colorado Student Union (UCSU) approved a student capital construction fee that helped fund significant facility and technology upgrades on campus. Planning for such upgrades, however, began much earlier. In 1998, highlights of the university's IT strategic plan included establishing IT governance and coordination and providing sustained funding for the faculty computer purchase program. By 2002, the updated plan²⁴ emphasized academic and administrative computing; development of secure web portals for students, prospective students, staff, and faculty; multi-tiered support models; and many other initiatives.

The current campus-wide IT strategic plan,²⁵ developed in 2006, emphasizes three essential areas: supporting teaching and learning, supporting research activities, and meeting the technology infrastructure needs of the campus community. The plan includes strategies for bolstering information security, as well as providing for swift campus-wide notification during emergencies. In 2007–08, interviews with faculty and academic leaders reinforced the need for continued investments in technologies that support the learning and teaching environment. Initiatives include technology-enhanced classrooms and labs, necessary upgrades to the learning management system, e-mail/calendaring, and personalized academic technology support for arts and sciences faculty. In addition, the interviews identified a need for expanding resources and coordination for research computing in response to the growing demand for support of increasingly complex and multi-disciplinary research agendas.



CU-Boulder has long been a national leader in conservation and campus sustainability, including the nation's first student-run environmental center, recycling program, and zero-waste stadium initiative, among other efforts—in addition to the nation's first SmartGrid house at the Chancellor's Residence (pictured). In fall 2009, CU-Boulder was ranked the number one green campus in the nation by *Sierra* magazine.

Currently, researchers and research groups are responsible for providing their own computing resources, computing support staff, computational science activities, and data center management. However, they have expressed a desire for increased coordination to maximize the resources of multiple departments, minimize duplication of effort across campus, and significantly strengthen the university's ability to respond to research opportunities. Commonly called "cyberinfrastructure," this effort would link into the campus's high-performance network, which is connected to national research networks such as Internet2 and National LambdaRail.

The 2006 IT strategic plan also aims to create efficiencies in campus operations and administration. For example, the university's secure web portal, called CUConnect, serves as a gateway for students, faculty, and staff to conduct their campus business and to access university resources, announcements, news, events calendars, and other important information. Investments in wired and wireless connections throughout campus have created a working and learning environment virtually without boundaries.

Under the IT strategic plan, funding models have been implemented to provide renewal and replacement resources for strategic infrastructure components, such as smart classrooms and core servers. In addition, the campus has developed a "common good" funding model for strategic IT services, including access to a robust wired network and a universally available wireless network for all campus buildings and selected open common spaces. The model also includes a faculty purchase and renewal program that allows all faculty a \$1,200 subsidy for a new computer every four years. In addition, it provides free antivirus and encryption software to help protect data, as well as access to a variety of software licenses, including the Microsoft Office Suite, provided to faculty and staff at no charge. These and other strategies for information technology support for the teaching and learning environment are discussed further in Chapter 6.

Transforming the Student Information System

CU-Boulder is in the process of replacing its current 21-year-old Student Information System (SIS) as part of a larger system-wide information transformation project called MetamorphoSIS. The system-wide project will implement the new Integrated Student Information System (ISIS). ISIS includes Oracle Campus Solutions, a customer relationship management system for marketing to incoming students, the new Degree Audit Reporting System (DARS) described in Chapter 2, a document management system, a data warehouse system, web portals, a classroom scheduling package, and a web-based training package for training more than 4,500 employees on the new software platform. Cost of the system-wide MetamorphoSIS project is about \$44.5 million.

For CU-Boulder, ISIS will serve as the authoritative system of record for core student data, such as admissions, student records, student billing and receivables, and financial aid. It will provide improved functionality, access

to information, and improvements in services currently provided to students, faculty, and staff. Among the goals of the project, as well as the larger MetamorphoSIS project to implement ISIS, are:

- Create a single system of record for all students with the flexibility to accommodate differences in student populations and university policies and processes
- Use easy-to-use reporting tools and more sophisticated analytical tools to provide management data for planning and analysis
- Improve data quality and timeliness
- Develop IT infrastructure aimed at 24-hour availability, 365 days per year
- Increase the efficiency of student administrative processes through automation

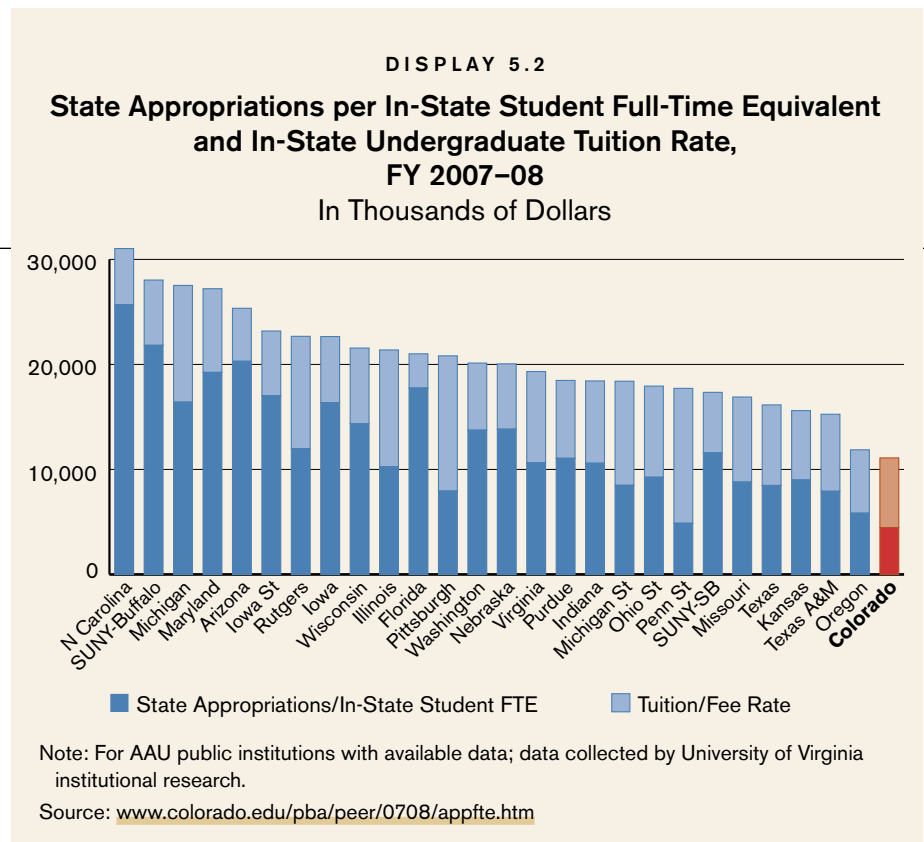
The new system is designed to manage a student's entire life cycle from prospective student through graduation and beyond, including all billing activity, with modern user interfaces for students, staff, advisors, and faculty. Planning for the new system was based on a set of objectives that included improved service to users and support for institutional initiatives in the face of growing service demand and stable or shrinking staffing and budgets. The plan also focused on ensuring flexibility to meet campus and unit needs, continuous improvement of data quality, and extending user access to integrated data in support of effective decision-making.

Timelines for rolling out the various aspects of ISIS are spread over three years, with the final program set for implementation by December 2010. In 2008, DARS was launched. Modules for recruitment and admissions are expected to be implemented by August 2009 for fall 2010 applicants, curriculum by September 2009, financial aid and scholarships in November 2009, and financial aid institutional student information reports in January 2010. Other projects slated for 2010 implementation are registration, student financials, financial aid award notices, transfer credit (March 2010), other student financials (July 2010), financial aid disbursement (August 2010), and transcripts and end-of-term processing and grading (December 2010).

Managing Resources, Creating Capacity

Core Component 2B. The organization's resource base supports its educational programs and its plans for maintaining and strengthening their quality in the future.

Funding challenges are nothing new to higher education, but some might argue that the University of Colorado at Boulder has more than its share. Nevertheless, to date, the university has managed to thrive under difficult fiscal circumstances. This section provides an overview of those circumstances, as well as the attributes that have allowed the university to respond to budgetary challenges and



strengthen its quality. Concerns remain, however, about CU-Boulder’s ability to maintain that quality in the future. While extraordinarily efficient, the university may not be able to sustain its effectiveness under its current operating model. In particular, the university will need to develop creative and strategic responses to the recent economic downturn as it begins implementation of *Flagship 2030*.

These issues have required—and will continue to require—close attention from the university’s leadership. Much of the information in this section was presented as part of a financial orientation²⁶ for new members of the CU Board of Regents in March 2009.

Managing with Limited Resources

The University of Colorado at Boulder has a history of remarkable accomplishments with limited resources, prompting some to wonder: “How do they manage?” Consider these challenges:

- The university has been at or near the bottom of Association of American Universities (AAU) public universities in terms of state funding per resident student for many years,²⁷ leading to a heavy dependence on tuition as a source of revenue.
- In 2008, the state’s contribution to Colorado resident student support at their flagship institution was at the bottom compared to peers and was over \$8,000 per in-state student below the peer average.
- Even so, the tuition and fee rate for resident undergraduates is more than \$1,000 per academic year lower than the average for peers.
- Nonresident students represent one-third of enrollment, yet two-thirds of tuition revenue.

- Revenue per student from state funding *and* tuition and fees—for all students, including nonresidents—is about \$4,000 less than the average for public AAU peers.
- CU-Boulder’s per-student expenditure on instruction is 80 to 90 percent of the AAU peer average, while administrative support expenditure per student is 50 to 60 percent of peer average spending (fiscal year 2007; higher figures are from comparison to non-medical universities only).
- The university’s dependence on out-of-state student tuition creates fiscal volatility when enrollment fluctuates even slightly.
- In general, heavy dependence on tuition revenues encourages enrollment growth in the short-term, but leads to long-term challenges in educating those extra students.

The university did not arrive at this underfunded situation overnight. As noted in Chapter 1, a combination of factors in the state of Colorado contributed, over many years, to the fiscal challenges for CU-Boulder. Those factors included an eroding state infrastructure, K–12 education needs, state limitations on spending, a low tax base, a low population, and large numbers of public higher education institutions. In simple terms, competing priorities has meant fewer tax dollars available to the university. Colorado’s perilous state of affairs was described in a 2009 [issues brief](#)²⁸ by the University of Denver’s Center for Colorado’s Economic Future. According to the brief, the “evidence suggests that Colorado’s system is out of kilter and responds to economic conditions in an exaggerated way.” The report noted that, while tax and fee collections have dropped dramatically, funding obligations are growing for such areas as public schools and Medicaid. The state’s lawmakers likely will continue to face difficulties in meeting these obligations in future years and, as a result, other general fund areas, such as Colorado’s public universities, will suffer.

Current financial profile. In fiscal year 2008–09, CU-Boulder’s operating budget reached \$1 billion for the first time, a \$300 million increase since 1999–2000. Budget growth occurred in all three of the university’s primary resource types: general fund (unrestricted), auxiliary, and restricted funds.

The **general fund** makes up half of the current funds budget. Sources of revenue for this fund include tuition and fees (course and program fees), state tax support, facilities and administrative cost reimbursements from sponsored project activity, plus other minor sources such as rental income and application fees. CU-Boulder includes private gifts and endowment proceeds under restricted funds.

Tuition plus course and program fees represent 73 percent (\$370 million) of the general fund; payments from nonresidents represent 62 percent of the tuition and fee total. At CU-Boulder, out-of-state enrollment is one-third of overall enrollment. Tuition for undergraduates from outside Colorado is more than four times that paid by in-state students (\$25,400 for nonresidents and \$5,922 for residents per academic year).

State funding comprises 17 percent (\$86.3 million) of the general fund. Beginning with the 2005–06 fiscal year, funding methods for Colorado higher education changed substantially. In prior years, each institution received a lump sum appropriation from the state each year. Under the new method, each institution receives a flat amount per credit hour taken by resident undergraduates who have applied for and authorized use of the College Opportunity Fund (COF) stipend. In 2008–09, the flat amount is \$92 per undergraduate credit hour, generating about \$41.3 million. Remaining funding, primarily for graduate and “high cost” education, came through a fee-for-service (FFS) contract, which is individually negotiated with each institution and not set by formula. In 2008–09, the fee-for-service contract was budgeted at \$45 million. Facilities and overhead reimbursements for sponsored research totaled 10 percent of the 2008–09 general fund budget, while fees and miscellaneous revenue represented 3 percent.

In light of long-time funding challenges, the university has developed processes for examining and further honing its own management of general fund dollars. Beginning in 2004, CU-Boulder established an annual analysis of funding sources and uses, with a primary focus on the distribution of general fund resources across schools and colleges. These revenues, totaling about \$500 million from tuition and state appropriations, are collected centrally; budget allocations then are provided to schools, colleges, and other units supported by the general fund. Thus, these units manage only the expense side of their general fund operations. In addition, there are pooled expenses—such as benefits, space costs, and the majority of financial aid—that are not expensed by the units, but by central campus offices. CU-Boulder’s annual source and use analysis identifies all general fund (and unit-specific auxiliary and restricted fund) revenue and expenses attributable to each school and college, using a variety of costing algorithms.

Not surprisingly, CU-Boulder’s analyses regularly indicate a variance among schools and colleges in their contribution to campus net income. Some schools and colleges contribute positive balances, others receive cross-subsidies or subventions, and still others are near break-even. Such variance is expected, as tuition rates traditionally have not reflected direct educational costs. However, most schools and colleges are moving closer to a match between revenue and expenditures due to enrollment changes, new space available for use, tuition differentials, and investments in quality. Investments in the schools and colleges have been based primarily on quality and demand factors, along with consideration of revenue potential and subvention needs.

Auxiliary operations on the Boulder campus are self-supporting entities that provide facilities and services to students, faculty, and staff. In 2008–09, the auxiliary fund budget was \$238.9 million, or 24 percent of the total current funds budget. More than 80 percent of the auxiliary fund is made up of enterprise operations such as housing (\$78.2 million), athletics (\$39.5 million), continuing education (\$21.1 million), and the student government (\$39.8 million).

DISPLAY 5.3
Financial Profile, Fiscal Years 2000 and 2009

| | FY 1999–2000, then- current \$ | FY 2008–09, current \$ | Change, both current \$ | FY 1999–2000 in FY 2008–09 \$ | Change, FY 2000 in FY 2009 \$ |
|---|--------------------------------------|---------------------------|-------------------------------|-------------------------------------|-------------------------------------|
| Current funds revenue (millions) | | | | | |
| Unrestricted (general fund) | | | | | |
| Tuition and course/program fees | | | | | |
| Residents | \$ 49 | \$ 143 | 188% | \$ 62 | 131% |
| Nonresidents | \$ 118 | \$ 227 | 92% | \$ 147 | 54% |
| Total | \$ 167 | \$ 370 | 121% | \$ 209 | 77% |
| State tax dollar funding | \$ 76 | \$ 86 | 13% | \$ 95 | -9% |
| Indirect cost reimbursement | \$ 29 | \$ 43 | 51% | \$ 36 | 21% |
| Other | \$ 6 | \$ 4 | -30% | \$ 7 | -44% |
| Total | \$ 278 | \$ 503 | 81% | \$ 347 | 45% |
| Unrestricted—source as percentage of total | | | | | |
| Tuition and course/program fees | | | | | |
| Residents | 18% | 28% | 56% | | |
| Nonresidents | 42% | 45% | 7% | | |
| Total | 60% | 73% | 22% | | |
| State tax dollar funding | 27% | 17% | -37% | | |
| Indirect cost reimbursement | 10% | 9% | -10% | | |
| Other | 3% | 1% | -67% | | |
| Auxiliary | \$ 148 | \$ 239 | 62% | \$ 184 | 30% |
| Restricted | \$ 202 | \$ 276 | 37% | \$ 252 | 10% |
| Total | \$ 627 | \$ 1,018 | 62% | \$ 783 | 30% |
| Enrollment | | | | | |
| Resident undergraduates | 14,347 | 16,468 | 15% | | |
| Nonresident undergraduates | 7,336 | 8,612 | 17% | | |
| All graduate and professional | 4,352 | 4,629 | 6% | | |
| Total | 26,035 | 29,709 | 14% | | |
| Graduate/professional as percent of total | 17% | 16% | -7% | | |
| Resident as percent of total | 67% | 66% | -2% | | |
| Relevant rates and factors | | | | | |
| Resident undergraduates | | | | | |
| Academic year tuition—base | \$ 2,444 | \$ 5,922 | 142% | \$ 3,049 | 94% |
| Highest (Engineering '99 / Business '08) | \$ 2,946 | \$10,852 | 268% | \$ 3,676 | 195% |
| Institutional aid as percent of tuition revenue | 14% | 21% | 50% | | |
| Tuition/fees as percent of AAU average | 76% | 88% | 16% | | |
| Nonresident undergraduates (incoming students) | | | | | |
| Academic year tuition—base | \$15,224 | \$25,400 | 67% | \$18,995 | 34% |
| Highest (Engineering '99 / Business '08) | \$15,944 | \$30,002 | 88% | \$19,893 | 51% |
| Institutional aid as percent of tuition revenue | 6% | 7% | 17% | | |
| Tuition/fees as percent of AAU average | 130% | 116% | -11% | | |
| Ratio, nonresident to resident tuition (base) | 6.2 | 4.3 | -31% | | |
| Required student fees | \$ 674 | \$ 1,356 | 101% | \$ 841 | 61% |
| Indirect cost recovery rate | 47.4% | 51.5% | 9% | | |
| Endowment, at end of fiscal year (millions) | \$ 207 | \$ 296 | 43% | \$ 258 | 15% |
| State funding paid as | Lump sum | COF, fee for service | | | |

Note: Direct lending removed from 1999–2000 to match fiscal year 2009 accounting

Inflation factor from CPI, 1.248

Source: CU-Boulder Office of Planning, Budget, and Analysis

Over time, the university has developed other attributes that help it respond to fiscal challenges. These attributes, discussed in this chapter, include efficiency and agility, focus on the mission, attention to students, participatory budgeting processes, and investment in people.

Fees paid to study abroad programs also are considered auxiliary activity. The remaining non-enterprise auxiliary activity is derived from royalty and incidental revenues generated by non-instructional departments, such as publications, conferences, and testing services.

The third major resource type is the **restricted fund**, consisting of direct sponsored research activity and private gifts to the university. This fund's budget for 2008–09 totaled \$276.2 million, with the research enterprise making up about 84 percent of the activity. Sponsored research awards totaled about \$340 million in 2008–09. The private gifts budget in 2008–09 was about \$45 million, most of which is restricted for uses specified by donors.

A comparison of CU-Boulder's fiscal year 2008–09 budget with fiscal year 1999–2000 shows changes and constants over the last 10 years.

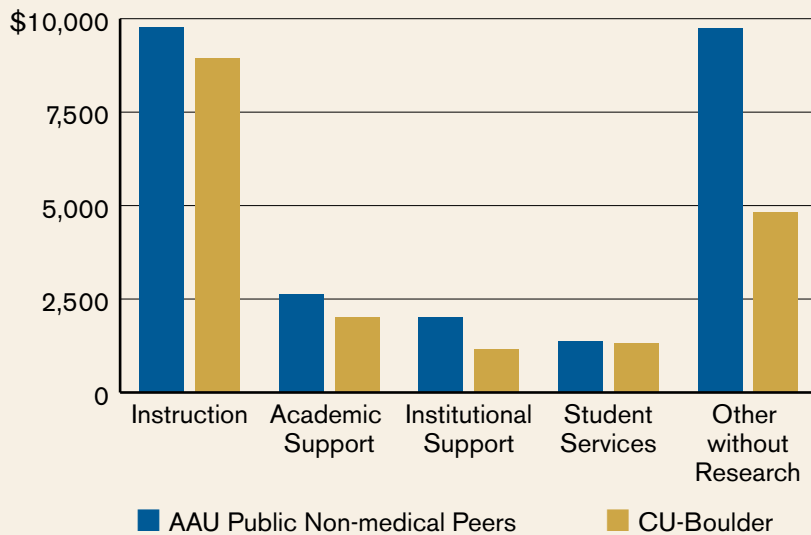
Over the last 10 years, the portion of unrestricted revenues from state tax dollar funding has declined from 27 percent to 17 percent. The portion from resident tuition and fees has increased from 18 percent to 28 percent, due primarily to increases in both base resident tuition rates and in differentials for engineering, business, and law. The higher rates, coupled with efforts to provide gift aid to resident undergraduates with demonstrated financial need (especially those eligible for Pell Grants), mean that 21 percent of tuition revenue from resident undergraduates is used for institutional gift aid, compared to 14 percent 10 years earlier. The allocation to aid reduces funds available for other purposes.

In order to attract more out-of-state students, a four-year tuition guarantee²⁹ was introduced for nonresident undergraduates in 2005–06. Under the guarantee, the tuition rate for an entering student remains the same for four years. CU-Boulder rates for entering students therefore overstate the cost to the family over four years relative to the cost at schools without guarantees, where tuition increases annually. Even so, CU-Boulder nonresident tuition and fee rates have declined relative to peers, moving from 130 percent of the AAU public peer average to 116 percent. In the same period, resident rates have increased relative to peers, moving from 76 percent of the average to 88 percent.

Managing in a national recession. As a public institution, CU-Boulder is not immune to the impacts of state and national economic fluctuations. The recession of 2008–09 led to a \$12.9 million budget cut for CU-Boulder, effective July 2009, for the 2009–10 fiscal year. In May 2009, CU-Boulder Chancellor Phil DiStefano announced that about half (\$6.1 million) of the reduction would be taken at the central campus level, and the balance (\$6.8 million) would be taken at the unit level. As a result, the university eliminated 33 faculty full-time equivalent positions and 42 full-time equivalent staff positions, for a total expense reduction of just over \$6.5 million. Cuts totaling about \$700,000 were made in information technology; \$330,000 in *Flagship 2030* strategic plan initiatives; \$1.89 million in unit operating support reductions; and \$2.8 million in contributions to the system, made possible by cuts taken in system

DISPLAY 5.4

**Expense Components per Student Full-Time Equivalent (FTE),
Fiscal Year 2007**



Note: Peers are U.S. non-medical AAU public universities used by Colorado Department of Higher Education

Source: Integrated Postsecondary Education Data System (IPEDS) finance, by Office of Planning, Budget, and Analysis

administration costs. In making these difficult budget decisions, the university leadership focused on preserving what is most crucial to CU-Boulder's success and what would directly support its role and mission.

Despite the challenges, now and over the years, CU-Boulder has excelled on a number of levels. An outstanding faculty has produced an international reputation, effective teaching, Nobel laureates, and life-changing research. Students thrive in an atmosphere of academic quality, community engagement, and diverse opportunities. New buildings have added space for learning, teaching, and conducting research while contributing to the beauty and functionality of the campus. Thoughtful technological investments are creating seamless mobility, allowing for increased productivity among the entire university community. Innovative and interdisciplinary initiatives have sparked the imagination of current faculty and new hires.

In 2000, when the NCA evaluation team visited CU-Boulder, the members found an "outstanding research university" ... that "should be a continuing source of pride to the citizens of Colorado." The team commended the university and its leadership for maintaining excellence "in a state where the political climate, state regulatory bureaucracy, and general level of support for higher

education make it particularly challenging to provide access to excellence at the post-secondary level.”

So, how has the university managed these fiscal challenges? Clearly, the good fortune of being in a stunning environment in the Rocky Mountain West is an important factor. Colorado and Boulder offer a quality of life that attracts many students, faculty, and staff. The presence of several federal laboratories in Boulder provides opportunities for productive partnerships. Location alone, however, cannot account for such exceptional achievement in the face of financial scarcity. Over time, the university has developed other attributes that help it respond to fiscal challenges. These attributes, discussed in this chapter, include efficiency and agility, focus on the mission, attention to students, participatory budgeting processes, and investment in people.

Efficiency and Agility

Enrollment growth and tuition increases clearly help fuel revenue increases that allow the university to operate at high levels, even when state funds decline. However, another important attribute—efficient and streamlined operations—has freed up funds for investment in strategic goals, although such efficiencies may not be sufficient to sustain excellence in the future. Results of a recent independent study³⁰ showed that CU-Boulder receives 80 percent of the average combined state and tuition funding per student, including nonresident students, when compared to its peers. The funding gap per student is around \$4,000, which would require an additional \$70 million of resources just for CU-Boulder to be funded at the average of its peers. This gap alone indicates a significant level of efficiency in meeting public educational and research missions.

As noted earlier, CU-Boulder also can compare its expenses per student to those of peer institutions. Instruction is a top priority at CU-Boulder, and the instructional expense per student is near comparable to its peers at 80 to 90 percent of peer average. In contrast, institutional support—or campus administration—is 50 to 60 percent of peer average spending. Academic support expenditures are behind, too, at three-quarters of the peer average. Such comparisons further indicate the university’s efficiency in administering campus services, although some concerns have arisen. While CU-Boulder has achieved extraordinary efficiencies, the institution has reached precariously low levels of staffing necessary for assuring that quality and compliance are not compromised.

Efforts to improve efficiency exist in all areas of the university, from administration, to student affairs, to academic affairs. Also, CU-Boulder has a progressive and engaged student government that manages its own nearly \$40 million annual budget to provide top-of-the-line student services and facilities. This student budget is less affected by state fiscal downturns and adds immeasurable value to students. Following are a few examples³¹ of **efficiencies** in the divisions of administration and student affairs:

Streamlining administrative functions. Various human resources programs, spread out over six departments, have been centralized, requiring fewer staff members and improving process efficiency and consistency. Several consolidations of similar units have led to enhanced services with lower overhead costs. For example, career services in five different areas (Career Services, the Graduate School, the Division of Continuing Education and Professional Studies, the College of Engineering and Applied Science, and the CU-Boulder Alumni Association) have been consolidated under a single administrative structure. A centralized human resource function is expected to shorten approval times and provide improved compliance, standardized position descriptions, improved recruitment, and reduced administrative operating costs.

Eliminating, reducing, or outsourcing services. Five different services have been eliminated or moved from university administration to third parties, resulting in savings in staff time and costs. For example, the bulk mail program was eliminated due to declining business. Bulk mail services now are provided by third parties and state services at a much lower cost due to reduced overhead. Other examples include moving the vending program from Facilities Management to the CU Book Store, writing standard queries for registrar data requests, eliminating the summer campus recruiting program, replacing the dental clinic with lower discounted insurance rates for students, and discontinuing the occupational health program at Wardenburg Health Center.

Efficiencies and cost containment. Administrative units have found numerous ways to increase efficiency through cross training of personnel, use of third-party vendors, and automation of activities, wherever appropriate. Web applications are employed to encourage self-service interfaces, requiring less staff involvement, such as:

- New work-order management systems
- Single website for new student orientation services for parents and students
- Replacement of registrar's office paper forms with online versions, resulting in 14,000 fewer student visits annually to the registrar's office
- Electronic transcript submittal (more than 900,000 transcripts have been imaged for immediate access)
- Extensive use of the "faculty toolkit," which provides faculty with online access to course rosters and photo rosters linked to individual student "clicker" numbers
- Online grading, saving over 15,500 pieces of paper annually
- Online direct deposit of financial aid and scholarship awards
- Online scholarship applications and online admissions applications, saving \$100,000 in printing costs alone
- Bar-coded shipping and receiving, resulting in improved tracking, integration with freight carriers, and elimination of most paper forms
- A new electronic process for project design and code review—streamlining the process, reducing errors, and trimming manual entries and routing





Professor of Mechanical Engineering Frank Kreith (right) and National Institute of Standards and Technology (NIST) researcher Isaac Garaway review the technology behind SkyFuel's solar SkyTrough near Golden, Colorado. Kreith and Garaway co-teach a CU-Boulder course about sustainable energy.

Also, research computing clusters have been consolidated into a single facility to increase security, reduce technical support needs, and expand faculty grant support. Centralized software licenses help simplify purchasing and significantly decrease costs. The university is exploring new energy supply opportunities by developing four “package” solar energy systems, and pursuing a large-scale sustainable energy contract. CU-Boulder is continuing campus-wide energy conservation maintenance projects and an educational campaign to reduce building energy usage.

Efficiencies have been accomplished in the academic arena as well. Examples of cost containment efforts within the schools and colleges include:

- Elimination of 70 courses from the arts and sciences core curriculum to date, with reviews continuing to identify further reductions
- Expansion of coordination and collaboration across course sections to ensure quality control and provide mentoring between tenured faculty, instructors, and graduate part-time instructors
- Consolidation of selected required graduate courses across disciplines

CU-Boulder's history and culture have encouraged **agility** in responding to challenges and opportunities. The university community has a tradition of seeking solutions that are innovative, strategic, and entrepreneurial—in some ways, an orientation similar to that of many private institutions and, increasingly, other public universities. In recent years, more public research universities have found themselves in the same situation: reduced state funding, greater dependency on tuition, increased state pressure to keep tuition low, and greater reliance on private fundraising. However, all those trends are more acute for CU-Boulder, which is among the most tuition-dependent and least state tax-supported of public institutions in the country. In fact, as discussed below, the university looks much more like a private institution in the way it cultivates partnerships, manages enrollment in strategic ways, develops creative tuition plans, and encourages an entrepreneurial approach to building resources.

Transformative partnerships. CU-Boulder has found innovative ways to work with business and industry, private donors, state and federal agencies, and students to help move the institution forward. Partners in the **business world** have joined with the university to enhance laboratories, create new degree programs, and endow entire programs. In 2001, for example, the Leeds family endowed the Leeds School of Business, providing critical new resources for the school. A corporate grant to the School of Journalism and Mass Communication furnished a digital innovation lab that features a state-of-the-art multimedia computer facility. The College of Engineering and Applied Science currently has 21 endowed faculty positions, many funded by leaders of business and industry. Generous individuals also have stepped forward to help construct new buildings and renovate old ones, as well as to help launch academic initiatives. Examples include the Leeds School of Business Koelbel Building, the Benson Earth

Sciences Building, the Wolf Law Building, and the Alliance for Technology, Learning, and Society (ATLAS) building.

CU-Boulder's research faculty engage in a rich blend of partnerships with **federal funding agencies**, resulting in a significant record for sponsored research awards. In fiscal year 2008–09, the university received about \$340 million in awards, diversified among NASA, National Science Foundation, Health and Human Services, Department of Commerce, and Department of Defense agencies, among others. CU-Boulder is the single largest university recipient of NASA research dollars in the nation. University scientists also have developed strong partnerships with the **federal labs** located in and near Boulder, resulting in remarkable research findings that have gained international attention. For example, in 1962, CU-Boulder collaborated with the National Institute of Standards and Technology to create JILA, one of the nation's leading research institutes in the physical sciences, which counts three Nobel laureates among its faculty.

Perhaps the single most remarkable partnership is one between the university and its **students**. In conjunction with the Division of Student Affairs, the UCSU student government manages several major student services funded by student fees, including the University Memorial Center, Wardenburg Health Center, and the Student Recreation Center. In recent years, state fiscal problems threatened to halt any construction plans for academic buildings at CU-Boulder. In an unprecedented action, representatives of the student body voted in 2004 to establish an annual \$400 student capital construction fee that allowed the university to construct new buildings for law, ATLAS, and visual arts, as well as to renovate and expand the Leeds School of Business building. The partnership included an agreement to use environmentally sound construction methods, phase in the student fee, allocate 20 percent of revenues for financial aid, and charge the fee only after the buildings were completed.

Partnerships with private **donors** clearly play a critical role in the university's ability to accomplish its goals, especially the ambitious initiatives of *Flagship 2030*. Private gifts have supported the construction of research and teaching facilities, implementation of new initiatives, endowed professorships, scholarships, and many other enhancements for the learning environment. For example, the new Colorado Initiative in Molecular Biotechnology (CIMB) already has gained significant private support, including seed grants, endowments, and other major gifts. In September 2007, one of CU-Boulder's Distinguished Professors donated \$20 million toward construction of the new interdisciplinary biotechnology building on campus. Also, in October 2008, two major gifts to CIMB were announced, including \$5 million to support interdisciplinary research and \$2 million to fund a vaccine development laboratory.

Fundraising continues to be a high priority at CU-Boulder, with increased investments of time and resources in development efforts. Results over the past decade have been remarkable. Between 2006 and 2008, private gifts increased



CU-Boulder alumni Jeannie and Jack Thompson pledged \$2 million in November 2008 to fund the new Vaccine Development Laboratory in CU-Boulder's Jennie Smoly Caruthers Biotechnology Building, which broke ground in 2009.

by 80 percent. Specifically, in the year that ended June 30, 2008, CU-Boulder posted a 43 percent increase in private fundraising over the prior year. Like most other universities, CU-Boulder felt the impact of the 2008–09 recession, but donors remained supportive. At the system level, for example, more than 50,000 donors made contributions to the University of Colorado, a record number in the university's 133-year history. The CU-Boulder portion of this figure was just under 45,000. As of June 30, 2009, CU-Boulder had received approximately \$52.5 million in private giving commitments for the fiscal year, compared with about \$57 million in 2007–08. To be trailing the previous fiscal year by only \$4 million is challenging—but positive compared with other institutions.

The university's endowment, managed by the CUF, saw silver linings despite a difficult year. As of June 30, 2009, the value of the system-wide endowment was \$590.1 million, down 17.7 percent from the previous year. By comparison, the S&P 500 declined 26.2 percent during the same period. The foundation's investment management performance surpassed the broad equity markets as well as foundation-specific benchmarks for the fifth consecutive year. The endowment pertaining to CU-Boulder was valued at \$296.4 million in 2008–09, compared with \$354 million in the prior year.

The effects of the 2008–09 economic downturn are not yet fully realized, but private giving clearly will be more important than ever. The foundation has taken steps to mitigate these effects, while strategizing to achieve goals paired with the initiatives of *Flagship 2030*. There have been considerable discussions with the foundation regarding the need for university resources to support the strategic plan and ongoing campaign efforts amidst the economic uncertainties. The foundation has taken steps to decrease operating expenses while focusing on the support needed for frontline fundraisers. Fundraising has continued to stay strong, while costs have increased and base support has been reduced.

Fundraising efforts are coordinated by CUF, based on priorities developed by the chancellor, provost, school and college deans, and other campus officials. The university is strengthening relationships with current and potential donors, including individuals (alumni, parents, and friends), foundations, corporations, and other organizations. A revitalized approach to alumni relations is helping engage more alumni in the life of the university, including contribution of their time and resources in helping shape the institution's future. In addition, significant investments have been made to expand the development staff, with the goal of generating increased private funds. Foundation staff and supporting operating budgets are allocated to each university unit, based on the unit size and priorities and fundraising goals. These budgets are determined after a thorough analysis of each unit's priorities and fundraising needs. In general, operating budgets are more heavily weighted on travel and support of the frontline fundraisers for cultivation, solicitation, and stewardship activities. Regardless of economic circumstances, fundraisers continue to place the highest priority on maximizing time spent with donors and prospects. Fundraising staff are coached to strengthen stewardship activities with donors who will be able to make significant

contributions when their financial circumstances improve. Such actions will serve the university well in future years.

Strategic enrollment management. At CU-Boulder, enrollment trends play a major role in the university's financial picture. The institution is highly dependent on tuition, especially from nonresident students, to fund its operations. Because tuition revenues are so crucial to the university's fiscal resources, deliberate and prudent enrollment management therefore becomes paramount.

For many years, setting enrollment goals for CU-Boulder has been complicated by two overarching factors: (1) the university's long-time fiscal dependence on nonresident tuition; and (2) statutory limits on the proportion of nonresident students. As a result, the university endeavors to manage undergraduate enrollment with as much precision as possible. Trends over the past decade underscore the need for such attention. In the five-year period between fall 2004 and fall 2008, enrollment of degree-seeking students increased by nearly 500, or two percent. In that period, nonresident undergraduates increased by 489 (6 percent) and nonresident graduate students by 212 (17 percent). Resident undergraduates declined by one percent and resident graduate students by four percent. Resident enrollment is 66 percent of total enrollment, yet comprises 39 percent of total tuition revenue. As of July 2009, fall 2009 enrollment was projected to remain stable with fall 2008's all-time high of just under 30,000 students.

CU-Boulder expects to continue enrollment growth at current rates, adding about 6,500 students by 2030, which is about the same number added in the previous 25 years. The university will work to keep nonresidents at one-third of overall enrollment unless funding for in-state students increases significantly. It also will work to increase graduate student enrollment from 15.6 percent to 20 percent of overall enrollment.

Skillful management of the enrollment mix is essential for reaching the goals of *Flagship 2030*. To help establish a fiscal foundation for the strategic initiatives, the university intends to:

- Increase enrollment slowly, adding about 6,500 students by 2030, consistent with the number added in the previous 25 years
- Return and maintain the university's resident freshman share of Colorado high school graduates (currently about 7 percent) to historical levels (about 5 percent)
- Maintain nonresident enrollment at one-third of total enrollment, the maximum allowable under statute, unless funding for in-state students increases significantly
- Maintain nonresident freshmen at about 44 percent, to ensure staying within a statutory limit of 45 percent
- Aim for smooth upward trends in numbers of both new freshmen and new transfers, with a 20 percent growth in transfers during the *Flagship 2030* planning period

- Add to the diversity of the student body
- Adjust the undergraduate/graduate mix so that graduate enrollment moves from the current 15.6 percent to about 20 percent

Taken together, these goals will mean keeping the number of new Colorado freshmen at 3,000 to 3,500 each fall, the same number seen in recent years. They also will mean increasing graduate enrollment from 4,500 to about 7,000 and increasing total enrollment to more than 33,000, a growth of 15 percent from fall 2007 by 2030. Constraints and plans for enrollment are further explained in *Flagship 2030 enrollment scenarios*³² and in the *Enrollment Task Force report*.³³

Undergraduate enrollment management activities are carried out by a broad range of offices and individuals. They include: the chancellor and the Chancellor's Cabinet; deans' offices and college advising units; senior vice chancellor and chief financial officer; the Division of Academic Affairs; the Office of Diversity, Equity, and Community Engagement; the offices of admissions, financial aid, the registrar, and the bursar; student affairs offices; and institutional analysis staff. Communication and coordination among so many units requires constant attention, primarily accomplished through regular and multi-tiered meetings. In particular, the Enrollment Prediction Committee, which includes representatives from many of the offices involved, meets bi-weekly to analyze trends and develop strategy proposals.

Undergraduate student recruitment is coordinated by the Office of Admissions, although many other offices and departments contribute to the effort. Admissions applications for fall 2008 freshmen totaled nearly 23,000, up 35 percent compared with fall 2005. The incoming class was the largest, most diverse, and most academically qualified class in the university's history. Applications for fall 2009 fell, especially for nonresidents, back to 2007 levels, totaling 19,600.

Increasing the proportion of graduate student enrollment is a complex challenge for the university, but it remains an important core initiative in *Flagship 2030*. As noted in the Graduate Education Task Force report, a "larger graduate student presence would help improve the academic tone and commitment of the overall student body." However, the report also notes that previous efforts to increase the percentage of graduate students have not had substantial results.³⁴ The Enrollment Task Force report also explored the challenges of increasing graduate enrollment and recommended substantial enhancements to assistantships, fellowships, and programs such as concurrent bachelor's/master's degrees, terminal master's degrees, professional master's degrees, and interdisciplinary programs.³⁵

Tuition planning. As a public research university, CU-Boulder works to keep college affordable, especially for resident students. The university's heavy dependence on tuition, especially from nonresident students, places increased importance on market forces and trends. In 2003–04, after nonresident tuition

approached \$20,000, nonresident applications began to falter. Out-of-state students said the “retail price tag” was causing them to opt for other colleges. By fall 2005, CU-Boulder had lost 700 new nonresidents (undergraduates and graduates combined) or almost 20 percent, compared with fall 2003, resulting in major budget shortfalls. Combined with a state budget cut, the university faced a revenue loss of nearly \$50 million in two years.

The university responded to the market pressures by instituting a guaranteed or flat tuition plan³⁶ for nonresident undergraduate students, in which their tuition rate at entry would be guaranteed at the same level for four years. Also, substantial merit scholarships for nonresidents were instituted: the top quarter of the nonresident applicant pool automatically receives a Chancellor’s Achievement Scholarship of \$15,000 over four years. In addition, the top 1 percent of the Chancellor’s Achievement Scholarship recipients receive the President’s Merit Scholarship of \$40,000 over four years.

Among resident students, application numbers were strong and tuition among the lowest at AAU public institutions. In order to strike a balance of revenues and meet the university’s mission of serving Colorado, resident tuition was increased and resident need-based financial aid was significantly bolstered. Resident need-based aid was increased both to fulfill a state of Colorado requirement that 20 percent of revenue attributable to resident undergraduate tuition increases above inflation be allocated to resident undergraduate aid and in keeping with CU-Boulder policies targeting institutional aid for the most needy students. A new Tuition and Aid Advisory Board,³⁷ with students, faculty, administrative staff, and external members, advises on tuition and aid policy.

The strategy succeeded. Between fall 2007 and fall 2008, the number of new nonresident undergraduates increased by 23 percent. On the resident side, tuition was increased, and financial aid was made available to students who otherwise might not have been able to afford a CU-Boulder education. Now, the proportions are back to two-thirds resident and one-third nonresident—the numbers historically necessary to make the model work.

At CU-Boulder, tuition rates vary among the schools and colleges. These tuition differentials have been in place for many years. The revenue from the differential rates supports the costs of education, such as faculty, student programs, and other expenses. The differentials reflect variations in the cost of education, the market worth of the degree, and the popularity of the college. On all three counts, law, business, and engineering top other colleges at CU-Boulder—and their tuition is accordingly higher. In recent years, differential tuition has been established by class year for Colorado resident students in law and the MBA program.

Another change in tuition policies, a new tuition rate policy for graduate students on appointment, is discussed later in this chapter.

Financial aid. In its tuition and financial aid planning, CU-Boulder is committed to providing an affordable, high-quality education for students. The university's Office of Financial Aid manages a wide range of resources for helping students reach their educational goals.³⁸ The office works to ensure that students who want to attend the university will not be prevented from doing so solely for lack of financial resources. Types of aid at CU-Boulder include federal, state, and institutional grants; scholarships; loans; and work-study.

The university is especially concerned about the amount of debt incurred by students during their college career and has initiated strategies to address this national issue. At CU-Boulder, financial aid awards are given in the following order: grants and scholarships, work-study, and then loans. The reality of obtaining a degree often requires a student to borrow money and use credit cards. Information on how to manage debt and finances is important to a student's financial future, especially in a turbulent economic climate. In spring 2009, CU-Boulder launched a website that helps students explore various tools and resource materials covering multiple topics—from understanding credit scores to making a budget. The Office of Financial Aid provides information and debt counseling aimed at preparing students for a successful financial future.

The university closely monitors the loan default rate among students. Over the past decade, there has been a significant decline in the already low loan default rate among CU-Boulder's student loan recipients, dropping from 3.8 percent in 1998 to 1.7 percent in 2006 (the last date for which official data are available).³⁹ In 2006, the national student loan cohort default rate was 5.2 percent.⁴⁰

In recent years, the university has invested significant resources in financial aid programs aimed at attracting both resident and nonresident students. Financial aid has been the fastest growing expense line in CU-Boulder's general fund budget for several years, increasing from \$40 million in 2002 to an estimated \$85.9 million in 2010, including funds both from the institution and the state of Colorado. Campus investments in financial aid increased 144 percent, or \$45.9 million, during that time period, while state financial aid funds started at \$8 million in 2002, decreased to \$6.1 million in 2006, and have returned to just over \$8 million in recent years. By state legislative mandate, 20 percent of any undergraduate resident tuition rate increase above inflation should be designated for resident need-based aid. The student capital construction fee designates 20 percent of the revenue for need-based aid as well.⁴¹

Need-based aid continues to be the focus of institutional aid for resident students. In fall 2005, for example, the university established the CU Promise Program to serve low-income in-state students whose family income is at or below 100 percent of the federally established poverty level. Under this program, CU-Boulder provides participants a combination of federal and state grants, institutional grants, and work-study eligibility to cover the entire cost of tuition, fees, and estimated books. The program is available to eligible in-state students entering as first-time freshmen or as transfer students from Colorado community colleges.

At CU-Boulder, financial aid policies target low-income families as determined by the Free Application for Federal Student Aid (FAFSA). More than \$46 million is disbursed as grants to all groups receiving aid. Of the 16,468 resident degree-seeking undergraduates enrolled fall 2008, 11 percent were dependent students eligible for federal Pell Grants. In 2008, about \$20 million in grant aid from all sources went to the neediest students, those eligible for Pell Grants.

Nonresident students, on average, are less reliant on need-based aid. About 66 percent of the 8,612 nonresident undergraduates enrolled fall 2008 submitted no FAFSA; another 13 percent had no demonstrated financial need. About four percent were eligible for Pell Grants.

In addition to need-based aid, the university has increased investments in merit aid to mitigate the effects of significant cuts in the State of Colorado Undergraduate Merit Aid Program. The state's merit aid funding fell from a high of about \$2 million in 2002–03 to \$200,000 in 2005–06 and will be eliminated in 2009–10. Nevertheless, the university recognizes the role of merit aid in promoting intellectual diversity and keeping Colorado's brightest students in Colorado—and it has taken steps to continue merit funding. Several university programs rely on such resources to attract outstanding resident undergraduates, and some have multi-year commitments. As a result, CU-Boulder has contributed nearly \$800,000 annually to help sustain these programs in providing merit aid to qualified resident undergraduates.

About 20 percent of CU-Boulder's nonresident undergraduate students receive institutional grant aid, not necessarily need-based. This includes the Chancellor's Achievement Scholarship, which offers \$15,000 over four years to the top 25 percent of out-of-state admitted new freshmen. Started in 2005–06, the program awards \$5,000 per year during the freshman and sophomore years and \$2,500 per year during the junior and senior years. Other programs include athletic aid and various merit aid from CU-Boulder schools, colleges, and other sources. These awards averaged almost \$9,000 per recipient for a total of \$15.5 million, including Presidential Scholar awards of \$10,000 to about 200 students.

Overall, approximately 55 percent of the student body receives some form of aid, including scholarships, grants, loans, or work-study employment. In 2007–08, more than \$237 million in financial aid was awarded to CU-Boulder students. Reports on student aid, including cumulative debt, for subgroups of students are available at the Office of Institutional Analysis [admissions and aid website](#).⁴² These reports also are submitted to the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education and to several college guidebooks.

CU-Boulder's financial aid services is an integral part of the university's annual external financial audit. Only minor audit findings have been noted, all of which were corrected within the required timeframe. Since 2006–07, there have been no financial aid audit findings.



NASA astronaut and University of Colorado at Boulder alumnus Vance Brand (left) presented a \$10,000 scholarship from the Astronaut Scholarship Foundation to CU-Boulder senior Ryan Kennedy in 2008. Brand is one of 17 CU-Boulder alumni who have flown in space.



The Leeds School of Business Deming Center for Entrepreneurship ranked 18th among undergraduate business specialties in entrepreneurship in *U.S. News & World Report's* 2010 America's Best Colleges edition.

Entrepreneurial approach. CU-Boulder's enterprising faculty members continue to set the example for institutional initiative. They seek out disciplinary and interdisciplinary opportunities and compete vigorously for federal research contracts and grants. They make the case for innovative proposals that position the university for national leadership. Their entrepreneurial attitude infuses a campus culture that is open to novel ideas, including new approaches to managing the university's resources. Among several recommendations, the *Flagship 2030* Budget Task Force suggested providing incentives and opportunities for a more entrepreneurial model in which resources are allocated by formula to the units that generate those resources. For example, in an effort to encourage growth in the MBA program, the university allowed the Leeds School of Business to keep more tuition revenue and increase the size of the program. In fall 2008, the program admitted 111 first-year MBA students, compared to about 50 two years earlier.

In 2004, the Colorado legislature enacted a new statute (Section 23-5-101.7, C.R.S.)⁴³ enabling higher education governing boards to designate their respective institutions as "enterprises" if their state tax support was less than 10 percent of their budgets. The University of Colorado, with its low level of state funding, qualified for enterprise status, but the implications of such status were unclear. The *Flagship 2030* strategic plan called for finding ways of "making enterprise work." The Budget Task Force was asked to explore ways of "achieving greater operating flexibility and expanded resources" under the enterprise designation. In its report,⁴⁴ the Budget Task Force recommended creating financial systems that are "nimble, flexible, and sustainable." This approach would include internal strategies (those that can be developed and implemented inside the CU-Boulder community); and external strategies (those that will require negotiation with system leadership, the CU Board of Regents, the governor, and the legislature).

From an internal perspective, the task force suggested implementing a coordinated campus budget model that takes a more holistic and multi-year view of resources, but provides for decentralized budgeting and incentives. Under the plan, a phased transition would include some aspects of the current practice of incremental budgeting, as well as internal redeployment of resources toward strategic goals.

In other recommendations, the task force suggested beginning to negotiate with external bodies to revisit enterprise designation and identify new resource opportunities. The task force also recommended developing a tuition/financial aid model that would limit the amount of debt held by resident undergraduate students graduating from CU-Boulder. The model, similar to one at the University of California, would include higher resident tuition, matched by higher levels of financial aid. A portion of the incremental tuition revenue would be used to support expanded financial aid programs.

In addition, the task force recommended the creation of a “board of visitors” who would serve as advisors, public advocates, and fundraisers for CU-Boulder. The group would act as ambassadors for the university and provide feedback from their communities and contacts. Another recommendation focused on cultivating alumni and public support, both to build loyalty among key stakeholders and to help bolster fundraising efforts.

The university leadership currently is evaluating the feasibility and implications of the task force recommendations in discussions with key constituencies.

Focus on the Mission

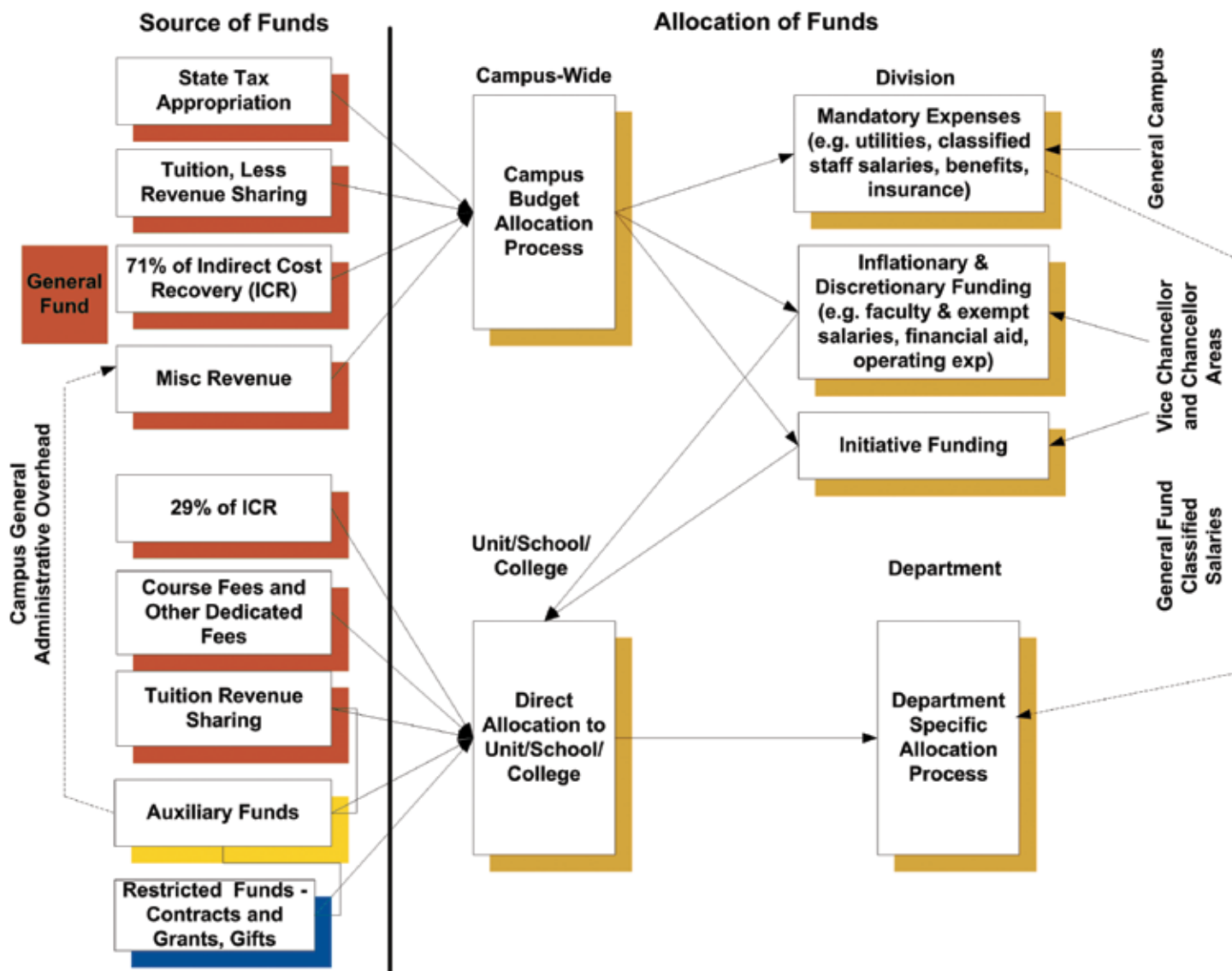
Despite financial challenges, the university remains focused on its mission as it engages in planning and budget decision-making. In 2003, for example, CU-Boulder launched the *Quality for Colorado*⁴⁵ strategic plan in the wake of serious budget cutbacks resulting from state fiscal constraints. Funding cuts of about \$30 million over 18 months had reduced state funding for the campus by nearly 30 percent. Nevertheless, using state funds earmarked for *Quality for Colorado*, CU-Boulder invested \$5.7 million in specific programs that supported its mission as a teaching and research university, such as financial aid, undergraduate education enhancements, and targeted academic programs and faculty support. State support for higher tuition was not available for subsequent phases, but the university’s priorities remained unchanged. As funding became available, investments were made in those areas most closely aligned with the university’s mission.

The current strategic plan, *Flagship 2030*, focuses on targeted investments that sustain quality in core service areas as well as aggressive and far-reaching initiatives. In particular, the Flagship Initiatives feature highly targeted programs aimed at transforming the university, such as residential colleges, experiential learning, a Colorado “research diamond,” and achieving a global crossroads, among others. The long planning horizon allows flexibility in identifying resources for funding and implementing these initiatives.

The university recognizes the importance of attracting the best faculty, even under difficult fiscal circumstances. In particular, CU-Boulder strives to construct competitive recruitment packages to draw outstanding faculty. Potential recruiting packages, which often are driven by market forces, include startup support, summer salaries, library accounts, faculty housing assistance, spousal hires, and others. Some startup packages now have exceeded \$1.5 million, with the rate of increase on the packages far outpacing inflation. Startup packages once included only items like lab renovation, equipment purchases, and electrical and machine-shop support; now, the most competitive packages can include travel funds, post-doctoral support, technical assistance, and graduate student support. Unlike many public research universities, CU-Boulder does not receive state funding for startup packages. Spousal hiring has become increasingly

DISPLAY 5.5

University of Colorado at Boulder Resource Allocation Process



important, and the university has established a shared-costs program modeled after the University of Illinois that makes it attractive to hire a spouse into a faculty position. Departmental chairs, deans, and others working in conjunction with the provost have helped find jobs for spouses in the area, supported spouses as graduate students, and provided support for spouses in research positions.

Attention to Students

At the heart of CU-Boulder's mission is the education of students within the context of a research university. Students are the center of many of the *Flagship 2030* initiatives. They are the focus of innovative teaching methods described in Chapter 6, and they are the reason for expanding popular academic programs, special enrichment programs, and living and learning options. Student learning also benefits from improved faculty/student ratios and enhanced campus technology, included among the strategic initiatives.

A number of programs at CU-Boulder foster innovation in teaching undergraduates. They include the Science Education Initiative (SEI); the Colorado Science, Technology, Engineering, and Mathematics (STEM) program; the Physics Education Research (PER) Group; and the CUTeach program, among others. The Faculty Teaching Excellence Program (FTEP) works with faculty to hone their teaching skills and the Graduate Teacher Program (GTP) helps graduate students develop their abilities as future faculty.

Flagship 2030 calls for building on the university's successful RAs⁴⁶ to create a residential campus concept offering multi-year residential academic experiences for every entering student. Special undergraduate enrichment programs, such as Undergraduate Research Opportunities Program (UROP)⁴⁷ and Norlin Scholars,⁴⁸ contribute to CU-Boulder's learning environment and will be enhanced. The university will also continue to build Living and Learning Communities (LLCs) that provide opportunities for learning within thematic residential environments.

By hiring substantial numbers of new tenure-track faculty over the next decade, CU-Boulder intends to create more opportunities for students to work closely with world-class scholars. The university is moving rapidly toward that goal, with 80 new faculty posts added between 2006 and 2009. The entire university community, including students, will benefit from a strategic plan for enhancing campus technology, which includes adequately protecting data assets through security initiatives; providing data storage; and fostering increased mobility and telepresence for studying, learning, and communicating.

All of these initiatives are intended to enrich the learning experience of CU-Boulder students and contribute to meeting the university's mission.

Participatory Budget Process

In the mid-1990s, CU-Boulder moved to a budget planning process that involved many more faculty than in previous years. As a result, budget decision-making is more transparent and collaborative, benefiting from the input of faculty leaders knowledgeable about the institution's needs and opportunities. Three primary committees participate in the budget process: the Academic Affairs Budget Advisory Committee (AABAC), the Chancellor's Executive Committee, and the Boulder Faculty Assembly Budget and Planning Committee. The AABAC is structured to advise the provost on new budgetary allocations to schools, colleges, and academic support units. It includes representatives from each school and college, members of the Boulder Faculty Assembly's Budget and Planning Committee, student representatives, and the campus budget director. The committee is chaired by the vice provost for academic affairs with support from the provost's budget staff.

Each summer, budget requests are prepared by the deans of the schools and colleges as well as vice chancellors, research institute directors, and directors reporting to the provost. These budget proposals typically seek additional resources to support new faculty lines, staff positions, graduate student assistantships, and other budget needs. The requests are reviewed by the AABAC and the committee meets with each dean and vice chancellor to discuss the requests. At the conclusion of these meetings, the committee meets again to discuss requests and vote on individual requests. These individual preferences are tallied and presented to the provost for use in making allocation recommendations. Each division of the university submits prioritized investment opportunities to the university's PBA office near the end of the fall term. Resource allocation decisions are made by the executive administration during the spring term, and the funds are allocated at that time.

Other campus groups and activities have their own regular budget planning cycles. The UCSU has a robust internal budget process that begins in January and ends in early May and requires participation from the entire student government and its cost centers. Administrative units, both general fund and auxiliary-funded, have budget-planning processes that occur both on and off the campus budget planning cycle as particular issues and initiatives arise. Expense items that are funded annually, such as salary increases, are part of the university budget planning process, which begins with the university providing resource allocations and budget parameters to the divisions. Divisions then allocate to the school/college/department, and those areas further allocate resources down to individual operating units. Items that require immediate attention and are off the annual budget planning cycle are handled on an as-needed basis, either at the school/college/department level or at the division level. The offices of the provost and senior vice chancellor and chief financial officer participate when the matter requires their attention.

University units are subject to various internal charges that must be calculated and applied as part of the budget process. Two of the most widely applied rates are the fringe benefit rate charged to salary expense and the campus administrative overhead charge to auxiliary units (GAIR). Fringe benefits and GAIR are calculated jointly by the budget and accounting offices each year. These rate calculations are based on federal government methodologies with the fringe benefit rate requiring annual approval from the U.S. Department of Health and Human Services. The GAIR rate is based on the research facilities and administrative overhead cost methodology. Other rates charged to campus units for costs and services include general liability and property insurance, police department recharges for supplemental services, and facilities management services recharges. These rates are set by units providing the service or managing the cost item.

Other input into the budgeting process is provided by the Chancellor's Executive Committee (CEC), which includes the vice chancellors and directors who report to the chancellor, as well as two deans and the leadership of the BFA, UCSU, and Staff Council. Also, the BFA Budget and Planning Committee is a standing faculty committee consisting of about 16 members who meet regularly during the academic year. The group discusses and provides recommendations on campus financial matters.

Investment in People

At CU-Boulder, as at all universities, investments in people represent a major segment of the budget expenditure "pie." From graduate student stipends, to staff salaries, to faculty compensation, procedures and guidelines have been developed to ensure equitable and sustainable compensation.

Merit allocation process. The annual faculty merit allocation process, for example, consists of multiple steps beginning when the CU Board of Regents approves a funding pool for merit increases. Merit allocation decisions are based on general principles such as clearly stated standards in the areas of teaching, research, and service; reasonably stable standards over time; peer faculty input; and consideration of individual merit. Allocation guidelines are provided by the chancellor to the provost and senior vice chancellor, who then share merit pool information with primary units. Recommendations for merit increases are prepared by department chairs, in consultation with department colleagues, as defined by the unit rules and guidelines. The process for officers and professional exempt personnel is essentially identical.

Faculty members are expected to contribute to the teaching, research, and creative work, and service missions of the university. To this end, they are evaluated each year in these three areas. In most cases, this evaluation is weighted 40 percent for teaching, 40 percent for research/scholarship/creative work, and 20 percent for service. This breakdown suggests the equal importance of teaching and scholarly activity and the value of faculty members' contributions to the campus, the profession, the community, and the state.

The provost and senior vice chancellor consolidate all salary recommendations in summary salary tables for review by the university's Salary Oversight Committee, consisting of the vice chancellor for research, dean of the Graduate School, the dean of the College of Arts and Sciences, and the chair of the BFA. This committee examines the salary process and reviews salary recommendations—by category rather than by individual case—to ensure that peer ratings of merit are primary determinants of salary adjustments.

Merit evaluation factors. CU-Boulder's merit allocation process⁴⁹ for faculty and exempt compensation is based on regental⁵⁰ policies and university procedures.⁵¹ Performance evaluations provide the underlying justification for individual performance ratings and merit adjustments. Evaluation criteria developed by each primary unit include measures of the faculty member's contribution to the teaching, research and creative work, and service missions of the unit, their profession, and the university. Additional considerations may include market factors, special opportunity increments, and equity issues. Evaluation information is derived from multiple sources, such as the Faculty Course Questionnaire (FCQ) discussed in Chapter 6, other evaluations of teaching, and documented progress made toward the faculty member's professional plan.

Faculty Report of Professional Activities. Information from the Faculty Report of Professional Activities (FRPA)⁵² is carefully considered in merit evaluations. The FRPA serves as an annual inventory of a faculty member's professional activities and is required for eligibility for merit-based raises during the annual salary-setting process. Faculty members complete FRPA reports online, listing activities in teaching, including course revisions and student advising; scholarly work, such as patents, refereed articles and books, and computer programs; and creative work, such as compositions, plays, poems, and theatrical performances. They also provide information on service activity to the department, school or college, campus, university system, and the profession, as well as honors received for their accomplishments. FRPA data are used for numerous purposes besides salary and promotion deliberations, including maintaining lists of books by CU-Boulder authors, finding individuals publishing on a specific topic, identifying international engagement and outreach opportunities, and preparing summaries for academic review and planning unit profiles.

Equity review. CU-Boulder examines trends in merit allocations over time in order to make equitable and fair increments on a year-to-year basis. In a series of analyses, the Office of Academic Affairs prepares scatter-plot charts for all departments showing salaries by years since highest degree, as well as an annual faculty salary report and a gender equity report. Peer comparisons of average salaries, by rank for the campus and by unit or discipline, are prepared and distributed widely via the planning, budget, and analysis⁵³ website. For example, the data show that, in comparison with the mean of CU-Boulder's public AAU peers, CU-Boulder faculty salaries in fiscal years 2006 to 2008 improved relative to peers for full professors (to 3.1 percent below the peer average) and remained above the peer average for associate (by 3.8 percent) and assistant (by

2.1 percent) ranks. Campus salary reports also look at long-term salary growth, compare merit increases with merit evaluations, and examine salary compression relative to peers. Such information is used in deciding salary increments during the merit allocation process.

Classified staff performance pay program. Compensation for classified staff also is tied to performance evaluations, as required under the state of Colorado's Performance Pay Program established by Senate Bill 211 in 2000. In response to this bill, the University of Colorado developed a system-wide performance pay program that links salary decisions directly to annual performance evaluations. The amount received by an employee is based on that individual's performance evaluation score. Each rating level is assigned a fixed percentage pay increase.⁵⁴ Classified staff salary increases are set by the State of Colorado and, typically, faculty and exempt personnel compensation follows trends in classified compensation. The state does not provide direct funding for these cost increases; rather, the university is expected to fund them. The state, through the university, has made significant increases in employer health contributions for all employee groups, including classified staff, with the contribution amount more than doubling from 2003 to 2009.

CU-Boulder's Performance Management Program is designed to help staff members achieve performance excellence. It encourages collaboration and communication between supervisors and employees, with emphasis on continuous feedback. The program provides a basis for salary adjustment and documents employee and supervisor commitment to planning, coaching, and evaluation. Supervisors are required to undergo performance management training within 90 days of assuming supervisory responsibilities.⁵⁵

Graduate student compensation. Compensation for graduate student employees has undergone a major change in order to address a long-standing cost distortion that strongly favored hiring resident students. Graduate students on appointment as teaching assistants, research assistants, graduate assistants, or graduate part-time instructors are compensated with a monthly stipend as well as a number of hours of tuition credit tied to appointment percentage. The employer, usually an academic department or research institute, is responsible for funding both stipends and tuition credits for their students. However, in the past the very large difference between tuition rates for residents and nonresidents encouraged departments to seek out the lower-cost Colorado residents rather than out-of-state or international graduate students. And, whereas U.S. non-resident students generally attain Colorado residency after one year of graduate studies, most international students are prohibited by law from ever establishing residency. As a result, the university's goal of increasing the number and quality of graduate student enrollment was hampered.

In fall 2006, a new policy was established to help rectify this situation, establishing a single "appointment" or "employee" tuition rate for all graduate students on appointment; this rate is currently the same as the resident tuition rate.



Billy Kardys, lead chef for the CU-Boulder Housing & Dining Services Piazanos café, won the National Association of College and University Food Services' regional challenge in April 2008.

Nonresident students are still charged nonresident rates on their tuition bills, as required by state of Colorado procedures. The employer is billed for the tuition credits at the appointment or employee rate.⁵⁶ The difference between the employee rate and the nonresident rate is covered by the Office of the Provost. Funding this expense (about \$4.3 million in fall 2007, roughly \$7,000 per nonresident full-time graduate student employee per semester in 2009–10) was made possible by centralizing any existing department budgets for higher nonresident tuition, plus new budget allocations tied to meeting graduate enrollment targets. Following the change in payment procedures, graduate enrollment increased steadily to more than 4,600 in 2008, an increase of 5.1 percent over 2005, with an increase of 10 percent in new graduate students.

Professional development. Members of the CU-Boulder campus community have access to a number of professional development opportunities that help sharpen their skills and develop leadership potential. Some examples are discussed in Chapter 6, such as the Faculty Teaching Excellence Program, the President’s Teaching Scholars, and the Graduate Teaching Program. Other successful models include the system’s Emerging Leaders Program (ELP) and the campus-wide Leadership Education for Advancement and Promotion (LEAP) program, both of which help build leadership skills among CU-Boulder’s faculty and staff.

The Emerging Leaders Program⁵⁷ was launched in 2001 by the system to enhance and develop leadership skills of university administrators and faculty who show an interest and talent for high-level leadership. CU-Boulder’s ELP participants, or “Fellows,” participate in lunch meetings on campus with upper-level administrators, helping broaden their understanding of the Boulder campus and the roles played by the various leaders. The larger group of fellows from all CU campuses meets about six times each year to hear presentations on leadership by invited national speakers.

The Leadership Education for Advancement and Promotion⁵⁸ program focuses on developing the leadership potential of faculty members who will move both the institution and their respective fields of expertise forward. The initial goal of the program was to improve the retention of women faculty in science and engineering disciplines. LEAP has matured to focus on faculty development and support at all levels (assistant, associate, and full professor) and is open to faculty members of any gender and discipline. LEAP faculty members played a key role in gaining statewide community input for the *Flagship 2030* strategic plan, as described in Chapter 3.

Funded initially by a National Science Foundation grant, LEAP now is supported by the campus budget and housed in faculty affairs. The program provides coaching, training, resources, grant funding, and supervised application opportunities for participants. In recent years, LEAP has initiated two innovative programs focused specifically on associate professors seeking promotion to full professor. The small grants program helps associate professors take their

research in new directions or re-engage their scholarship, and the associate professor workshops focus on career planning and skills needed to advance in the university system. In addition, LEAP offers tips for making departmental search processes more inclusive of women and underrepresented groups and provides support and workshops for department chairs. More than 300 faculty have participated in the program, including several who subsequently have taken administrative positions in the campus community.

The University Perspective⁵⁹ program is a nine-month leadership development program aimed at helping retain and continuously develop university staff from all levels of the organization. Sponsored by CU-Boulder and the system administration, University Perspective offers panel discussions and speakers, encourages peer networks, and increases staff awareness of the university's role in meeting the higher education needs of the state. The program engages staff in discussions with key officials to gain a better understanding of the university's interactions with the legislature, the CU Board of Regents, and the community.

Human resources offers training opportunities for all employees,⁶⁰ including a course in supervision, payroll/personnel liaison training, and training in the activities of 10 different campus units from the controller's office to the transportation center.

Assessing Progress Toward University Goals

Core Component 2C. The organization's ongoing evaluation and assessment processes provide reliable evidence of institutional effectiveness that clearly informs strategies for continuous improvement.

Evaluation and assessment have become critical elements of most university programs at CU-Boulder and, therefore, are discussed throughout this self-study. Assessments of courses, undergraduate student learning, and graduate education are discussed in Chapters 6 and 7. Other areas of the self-study present additional processes evaluating and assessing programs, faculty, scholarly activity, teaching, and other aspects of institutional effectiveness. These include specialized accreditations; planning for facilities, information technology, and diversity; and procedures for personnel evaluation, internal audit, and budget processes. The *Flagship 2030* process included evaluations of research infrastructure, graduate education, and others—all in the context of the direction and effectiveness of the institution as a whole.

This section focuses primarily on three campus-wide activities that help drive the management and academic direction of the university through assessment initiatives. The Academic Review and Planning⁶¹ (formerly Program Review Panel) process has itself been reviewed and revised to emphasize use of results in planning. Extensive public data used in communicating accountability and

in conducting the university's formalized assessment and planning efforts are provided by the Office of Institutional Analysis⁶² within the Office of Planning, Budget, and Analysis, as well as other offices. In addition, the Assessment Oversight Committee (AOC)⁶³ links review and assessment processes focused on student learning. The university's efforts to assess and improve student learning are discussed in greater detail in Chapters 2 and 6.

Academic Review and Planning

For nearly three decades, CU-Boulder's Program Review Panel (PRP) process served as a central mechanism for assessing academic programs. Each program was evaluated in a thorough review every seven years, resulting in a number of improvements in curricula and practices. In recent years, however, faculty and administrators alike began to feel that the process itself was in need of serious review. They saw breakdowns in the linkages between review and planning, and they saw a need for more accountability in responding to review recommendations.

Restructuring academic review. In 2006, the PRP process was placed on hiatus so that it could be completely revised. In fact, the process was transformed both in name and function. Now called Academic Review and Planning (ARP), the program is a more coherent, accountable, and strategic process aimed at continuous improvement. The new model⁶⁴ emerged from a faculty task force that suggested significant changes throughout the process, with an emphasis on setting priorities and connecting review recommendations with resources. A primary goal was to achieve a clearer sense of institutional needs and opportunities. Every aspect of the review process—from the way departments write their self-evaluations to the way internal and external reviews are conducted—was rethought.

The review process now is governed by the Academic Review and Planning Advisory Committee (ARPAC), a group of tenured faculty members who help guide the process and develop planning recommendations at the conclusion of each review. ARPAC members participate more fully in the review process than previous program review panels—joining in forum discussions, meeting with external reviewers, and engaging with members of the units under review during final deliberations. The committee's recommendations draw upon all components of the process, providing measures of accountability and supporting strategic planning goals. The recommendations are expected to be pertinent to both individual units and other related units under review. Review recommendations are public, including those from all reviews since 1980.⁶⁵ When the new process is fully implemented, a web-based system will allow units, reviewers, and others to access all units' answers to a single question, or all answers for one unit, plus curriculum vitae of faculty in units—all on a single website.

In another major procedural change, the review schedule was reorganized to tie reviews together organizationally and topically in logical ways—into “clusters”

DISPLAY 5.6

Academic Review and Planning Review Cycle

| Review Group or Cluster | Review Year |
|--|-------------|
| Arts and humanities departments, centers, and College of Music | 2008–09 |
| Physical sciences departments and institutes | 2009–10 |
| Engineering departments and programs | 2010–11 |
| Life science departments and research institutes | 2011–12 |
| Social science departments and research institutes | 2012–13 |
| Professional schools and colleges, University Libraries, Division of Continuing Education and Professional Studies, and special programs | 2013–14 |
| Academic affairs | 2014–15 |

Source: www.colorado.edu/pba/depts/arp

Note: 2008–09 was the first review year of the revised cycle

of units to be reviewed at the same time. The process now encourages a broader understanding of common challenges, provides greater clarity for budgetary strategies and priorities, and promotes synergy and learning among units. For example, in the first review under the new system, 21 departments and programs in the arts and humanities were clustered for review in 2008–09. Many natural sciences departments and research institutes will be reviewed together in 2009–10. Because the model offers adaptability according to review needs, the respective clusters may employ slightly different formats. The entire review cycle⁶⁶ was set in 2008, but is subject to change.

Several features also have been added to the program review process to help guide academic planning. Units and reviewers are provided statistical “unit profiles”⁶⁷ of student, faculty, and other data—with comparisons over time, to other units on campus, and in some cases to peer institutions. The procedures for the first year⁶⁸ of the new cycle will undergo some revisions for incorporation into a comprehensive website guiding all phases of the reviews.

Enhancing unit assessments and accountability. As part of their self-studies, units are asked to respond to a set of questions,⁶⁹ including how the unit would propose engaging with the initiatives of *Flagship 2030*. The use of internal and external review teams has been modified to fit unit needs and, wherever possible, to increase the campus’s ability to compare units and to make multi-unit planning decisions. Question number four, a mandatory element of each unit’s self-study, requests information about assessment practices. Units are asked to describe their undergraduate and graduate outcomes assessment procedures with particular attention to the following: “During the last review period, how has the department/program assessed how well it has accomplished

DISPLAY 5.7

**Academic Review and Planning Questions for Units,
2008–09 Review**

1. *Diversity*: Address enhanced diversity as a unit goal.
2. *Mentoring*: Describe your mentoring process.
3. *Bylaws*: Attach a copy of your bylaws.
4. *Assessment*: Describe your unit's undergraduate and graduate outcomes assessment procedures.
5. *Increased faculty hiring*: Submit a hiring plan.
6. *Initiatives in research, scholarship, and creative work*: Describe your unit's current and proposed contributions in research, scholarship, and creative work.
7. *Globalization and global initiatives*: Please answer whether there is a basis for setting your unit's work into the context of globalization.
8. *Enhancing undergraduate education*: Describe your unit's contributions to enhancing undergraduate education.
9. *Enhancing graduate education*: Describe your unit's graduate education goals and ambitions.
10. *Interdisciplinary research and teaching*: Please describe your unit's current interdisciplinary interests and where you see opportunities for expanding or initiating new collaborations.
11. *Increasing staff support and other key resources*: Please detail your unit's anticipated staffing and (non-library) resource needs.
12. *Enhancing library resources*: Please describe your library resource needs.
13. *For support units only*: Talk about the work you do and how your accomplishments enhance and expand possibilities for faculty and students.
14. *Public humanities and the arts*: Please describe your unit's interest in engaging in what is often called public humanities and arts or public research.

Source: Academic Planning and Review 2009 Review Procedures, www.colorado.edu/facultyaffairs/2009_Review_Procedures.pdf

its curriculum goals? What has the department/program concluded with respect to the outcomes of its undergraduate and (and if applicable, graduate) curriculum? What changes in the curriculum or in major requirements have occurred as a result of your assessment of your undergraduate program?"

Accountability is a key feature of the revised review process. In the past, academic units were required to report regularly on how they were meeting the recommendations of the campus planning committee. Now, the deans of areas under review also will be asked to report regularly, as well as to address the program review recommendations in budget requests. This process helps ensure that unit priorities are reflected in requests for new funding.

Crossing departmental lines. Along with the new review procedures have come new ways to encourage and facilitate collaboration across units. The arts and humanities review, which began in fall 2008, offered opportunities for campus-wide discussion of related issues. In September 2008, a fall academic forum was held to solicit input from a wide range of audiences about the future of the humanities and arts on campus. The attendees, numbering more than 100, included community members as well as students, staff, and faculty representing a wide spectrum of campus departments. Spirited discussion matched the goal for the event: to gather people to talk about what they value and to turn their attention to the upcoming review process. A side benefit was simple recognition for the quality and range of work conducted at CU-Boulder in the arts and humanities.

During the forum, several “big picture” questions were posed to encourage people to look across traditional organizational divides and talk about what new collaborations might allow. In the words of one attendee, “These were conversations unimaginable when reviews occurred in a random order and aspired to address nothing more than the needs of individual units. That the audience was attentive and eager to engage the speakers with pointed and challenging remarks about the place of the arts and humanities on campus was a heartening demonstration of what a more engaging review process might mean.”

As the review year progressed, internal and external reviews of individual arts and humanities units were conducted. All the review reports then were read by a four-member team of highly regarded national leaders in the arts and humanities, who also visited the campus in April 2009. While on campus, they met with chairs and directors of the involved units and with college and campus academic administrators. During the visit, the team engaged in a “public conversation” about the arts and humanities at CU-Boulder, attended by about 40 faculty and staff from the involved units, other units including research institutes, and support units. Conclusion of the arts and humanities review process is expected in fall 2009. All external and internal reviews were completed by mid-April 2009.

The restructuring of program review, with its emphasis on strategic goal-setting and accountability for action, has been both profound and exacting. With these shifts in process, individuals are encouraged to think collectively about the university. They have new ways to be heard and to address each other in a lively exchange of ideas. The reformed academic program reviews are expected to help people think strategically as a *community*, thereby enhancing the opportunities for meaningful change.

Institutional Analysis and Accountability

CU-Boulder is actively involved in gathering and disseminating information for effective use in assessment, planning, and communicating accountability. Data



evaluating institutional and program effectiveness routinely are made public, usually on the website of the [Office of Institutional Analysis \(IA\)](#)⁷⁰ within the Office of Planning, Budget, and Analysis. Similar offices elsewhere often are called “institutional research.”

Analyzing data for decision-making. IA staff members collect and analyze a wide range of information for policy and management decisions by campus academic units, administrative units, and students. The office also serves as an official point-of-contact for campus statistics and maintains data for peer comparisons. Other key websites for planning and evaluation include the [PBA budget area](#),⁷¹ the [PBA planning site](#),⁷² the [Flagship 2030 site](#),⁷³ academic review and planning sites described above, and the University Communications [News Center](#).⁷⁴ Institutional analysis collects and analyzes data from campus academic and student records, and from [surveys](#)⁷⁵ on student and alumni opinions. It administers for all three system campuses the extensive Faculty Course Questionnaire (FCQ) by which students evaluate courses and instructors. The office also is the national coordinator for exchange of data from the National Survey of Student Engagement (NSSE) among institutions of the Association of American Universities (AAU) and is involved in AAU data exchange activities of many sorts.

Peer comparisons often are conducted at the individual discipline or department level. Departments commonly place themselves in comparative national spotlights, such as the [National Research Council study of the research doctorate](#).⁷⁶ In addition, IA is one of a handful of institutional research offices nationwide working with a private firm, [Academic Analytics](#),⁷⁷ to develop reliable and valid data on faculty publications, citations, books, research funding, honors, and awards—all of which may be compared among institutions.

IA creates and maintains standard data sets for federal, state, and internal reporting, such as the Student Unit Record Data System (SURDS) for the Colorado Department of Higher Education and federal reporting on enrollment, financial aid, degrees, and undergraduate applicants. The office maintains data exchanges with AAU and Big XII institutions, as well as providing information for college guidebooks, news media, and others.

Sharing institutional data. Information gathered by IA is shared both internally and externally through presentations, responses to requests for data, and its extensive public website. Accountability publications on the site include:

- Institutional measures used in state of Colorado accountability programs. These programs have evolved from detailed descriptions of every aspect of campus life with a required assessment component (in the [1990s](#)),⁷⁸ to the purely quantitative Quality Indicator System ([early 2000s](#)),⁷⁹ to a [performance contract](#)⁸⁰ with sections on standardized tests, graduation and retention rates, academic rigor, teacher education, and more (2004 through present).

- A College Portrait⁸¹ in a format specified by the Voluntary System of Accountability (VSA).⁸² This will include “value-added” results from the Collegiate Learning Assessment (CLA)⁸³ of the Council for Aid to Education administered to freshmen and seniors starting in fall 2009. The portrait leads to brief summaries, written for students and parents, of CU-Boulder programs that describe how the institution assesses and improves undergraduate student learning and outcomes⁸⁴ and evaluates the experiences of undergraduate students.⁸⁵
- An annual report on academic rigor⁸⁶ developed for the CU Board of Regents, which lists grade distributions; standardized test results (Fundamentals of Engineering, Graduate Record Exam, Colorado Bar Exam, Certified Public Accountant, and teacher education); and results of selected NSSE items.
- Campus indicators,⁸⁷ reporting on a broad assessment of CU-Boulder’s success in meeting campus goals.
- An update on statistical goals related to diversity and equity.⁸⁸
- The Common Dataset⁸⁹ of information requested by college guide publishers, posted since 2000.
- Submissions to the U.S. Department of Education Integrated Postsecondary Data System and the IPEDS annual Data Feedback Report⁹⁰ with peer comparisons.
- Numerous additional peer comparisons.⁹¹
- Results of student evaluations of courses and instructors.⁹²
- Data on admissions, financial aid, enrollments, graduation rates, courses and teaching, faculty and staff, and survey results.

Assessment Oversight

Assessment of student learning is the primary focus of a campus-wide group called the Assessment Oversight Committee,⁹³ as noted in Chapter 2. Established in 2001, the AOC is charged with “providing advice, recommendations, and strategies to campus administration and primary units regarding all activities associated with student assessment issues.” Some of the schools and colleges, particularly the College of Engineering and Applied Science and the Leeds School of Business, also have established staff positions dedicated to assessment.

Chaired by the associate vice chancellor of academic affairs for undergraduate education, AOC includes representatives of the colleges, the BFA, the faculty at large, student affairs, and institutional analysis. It meets regularly, publishing minutes of all meetings. The committee’s plans include published annual reports, oversight of Collegiate Learning Assessment testing, and development of a statement of learning goals for all undergraduates.

Working with campus units. The AOC has established an important formal link to the academic review and planning process, beginning in 2003 and renewed with the recent revision of the review process. The committee works

with the units under review to improve, communicate, and make the best use of their assessment and evaluation processes. The revision of the program review process also interrupted the work of AOC and, as a result, fully functional procedures regarding the review process are still being developed.

AOC interacts with multiple campus entities engaged in assessment, providing support and encouragement for their efforts. Committee members compile information about individual assessment activities and help monitor their progress. The group works to synthesize and publicize activities related to improving student learning, working with such units as the College of Arts and Sciences, the Graduate School, other schools and colleges, institutional analysis, several support units in academic affairs, and student affairs. In all its work, AOC members strive to learn from campus assessment activities and share lessons drawn from them. By focusing attention on evaluation efforts, the committee aims to facilitate collaboration both within and across campus units.

In 2009, the Graduate School's Executive Advisory Council will be asked to accept responsibility for assessment of graduate school programs from the AOC. This too will require close integration with academic program review. The long-standing Executive Advisory Council is responsible for reviewing new, revised, and discontinued degree and certificate programs, concurrent bachelor's/master's programs, appointments to the research faculty, and graduate school rules.

Since its inception, the AOC has worked to develop assessment expertise and awareness as a resource for the campus. Among its activities, the group has sent representatives to national assessment seminars, initiated a collection of source materials for the campus, and reviewed best practices at peer universities. AOC has coordinated CU-Boulder's involvement with the Critical Thinking Assessment Test (CAT) and secured a grant to test it in three types of courses. AOC is assisted in its work by an "assessment coordinator" position added in 2007 to the office of the associate vice chancellor for undergraduate education and chair of the AOC. The coordinator staffs AOC and interacts with campus units on assessment issues; the position also serves as a top scholarships advisor to students in all schools and colleges who seek prestigious national and international scholarships, fellowships, and grants. The AOC administers funds provided by the provost for assessment, generally awarded to units for purchase of national subject-matter exams, travel expenses for outside consultants or evaluators, and administrative costs.

Summary

Planning for CU-Boulder's future begins with listening to stakeholders and valuing their perspectives. The ideas and concerns of constituents have played a significant role in the development of the university's strategic plan, as well as many other individual plans at all levels of the institution. *Flagship 2030* serves as the pivotal point of a broad continuum of planning activities ranging from the re-accreditation self-study, to diversity planning, to facilities planning, to capital campaign planning.

Even before the most recent economic difficulties began in 2008, the university had learned how to "do more with less." Despite scarce resources, CU-Boulder has managed to thrive over the decades—due in part to a climate emphasizing efficiency, agility, innovation, and entrepreneurship. Mission-driven planning and the cultivation of transformative partnerships have allowed targeted investments in student learning, research, and creative work. The results of such investment and innovation are described throughout this self-study. Nevertheless, many in the university community are concerned about its ability to maintain momentum in the face of economic uncertainty at all levels of society.

The depth and breadth of assessment and evaluation activities at CU-Boulder indicate a strong commitment to improving the university and enhancing student learning. That commitment is underscored by a wide range of initiatives ranging from revamped academic review processes, to the sharing of extensive assessment measures, to more coordinated assessment oversight. The clearest evidence of effective assessment can be seen in the outcomes of these activities, which are described throughout the self-study, particularly in Chapters 2, 5, and 6. Examples include revised curricula, program eliminations, a redesigned writing program, expansion of innovative teaching methodologies, new graduate degree programs, new faculty in needed areas, and new capstone courses, among many others. In summary, assessment at CU-Boulder is pervasive—and it results in positive change. Further enhancements are expected as the university implements the initiatives and recommendations in the *Flagship 2030* strategic plan.

Discussion

Key Strengths

- **Alignment of strategic planning.** Strategic thinking and planning are hallmarks of the University of Colorado at Boulder, whether at the campus-wide or unit level. Emphasis is placed on aligning such planning activities with the university's *Flagship 2030* strategic plan in support of more cohesive decision-making throughout the institution. These planning efforts

Flagship 2030 serves as the pivotal point of a broad continuum of planning activities ranging from the re-accreditation self-study, to diversity planning, to facilities planning, to capital campaign planning.

are informed by the input of constituencies, both inside and outside the university.

- **Remarkable achievement with limited resources.** CU-Boulder has been able to excel in many areas due to skillful, innovative management of scarce resources, although the situation is becoming precarious. Efficient practices and collaborative efforts have allowed the university to invest in core academic programs, people, and facilities. Student support for tuition increases under the Quality for Colorado strategic plan allowed improvements in specific academic programs, and the 2004 student capital construction fee helped fund several academic buildings.

Challenges And Issues

- **Sustaining excellence.** Heavy tuition dependence, especially on non-resident tuition, places CU-Boulder close to a private university operating mode—without the concomitant autonomy and control over its destiny. While the university has achieved remarkable efficiencies, those efficiencies may not be enough to sustain excellence in the future. The economic crisis has exacerbated an already difficult fiscal position and is affecting private fundraising as potential donors deal with reductions in net worth. While federal stimulus funds may afford some relief, they cannot provide a sustainable solution.
- **Funding Flagship 2030 initiatives.** The university recognizes that the *Flagship 2030* strategic plan is ambitious and will require visionary investment strategies. These strategies will be needed in three general areas: supporting basic operations and infrastructure, ensuring competitiveness in core areas, and advancing the Flagship Initiatives. Funding models for *Flagship 2030* call for 4.2 percent revenue growth above inflation on a sustained basis (10 to 15 years) to be more competitive with peers and invest in new distinctive initiatives.
- **Supporting the research enterprise.** Federal funding of research contracts and grants is a major part of the university's overall revenues and helps sustain the qualitative aspects of graduate education at CU-Boulder. The university plans to expand its research activities, which will create greater needs for infrastructure, personnel, and resources. At the same time, potential changes in federal funding patterns could create uncertainties for the university's plans. CU-Boulder's research enterprise currently is well diversified among federal agencies, but concerns remain about future funding allocations.
- **Gaining clarity on the university's role in Colorado and beyond.** While CU-Boulder's mission as a comprehensive research university might be understood on campus, the same may not be true among all

constituencies in the state. As a public university, CU-Boulder's future success depends on establishing more productive partnerships with Coloradans, their elected representatives, and other key stakeholders.

Flagship 2030: Next Steps

- **Rethink the university's financial models.** Financial models for supporting the strategic plan are being developed with an emphasis on diversifying and expanding the resource base. In order to make *Flagship 2030* a reality, funding strategies must be forward thinking and entrepreneurial. All potential sources for additional revenues are being explored, including increased state tax support, tuition, private fundraising, research contracts and grants, entrepreneurial initiatives, technology transfer, and budget reallocations. CU-Boulder supports the CU Foundation in its efforts to focus more strongly on a donor-centered operating philosophy, reducing expenses where possible without affecting the frontline fundraisers, and focusing on the initiatives of *Flagship 2030*. The current atmosphere of fiscal volatility at the national and state levels makes planning difficult, but the university plans to implement high-priority initiatives as resources become available.
- **Increasing understanding of the university's mission and role.** In order to gain public support for *Flagship 2030*, CU-Boulder must establish broad-based understanding of its mission and role. In particular, the university must communicate the benefits and services brought by a competitive and highly regarded research institution of higher learning in the state of Colorado. CU-Boulder plans to enhance its marketing and communication efforts regarding its services to the state, including economic and cultural impacts, education, outreach, and existing and potential partnerships.

Endnotes

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CHAPTER 6

Student Learning and Effective Teaching

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CHAPTER 6

Student Learning and Effective Teaching

CRITERION 3:

The organization provides evidence of student learning and teaching effectiveness that demonstrates it is fulfilling its educational mission.

From its early days, CU-Boulder has embraced its responsibility for educating future generations of citizens and leaders and for fostering student learning and promoting great teaching. This chapter begins with an overview of the ways in which the university strives to improve general education through a rigorous core curriculum with ongoing assessment of its academic quality. It also discusses the broad array of tools used to improve undergraduate education as a whole, including numerous assessment and evaluation activities.

Assessment has played and continues to play a key role in improving learning and teaching. In the last decade, students and their instructors have benefited from improvements in courses, general education, degree programs, and cocurricular activities—at both the undergraduate and graduate levels—resulting from assessment practices. The activities outlined in this chapter illustrate CU-Boulder’s commitment to ongoing assessment and improved student learning. While many efforts discussed in this chapter improve both graduate and undergraduate education, others are focused on undergraduate education alone. With 84 percent of CU-Boulder students enrolled at the undergraduate level, the university places a high priority on achieving excellent undergraduate education. Graduate education is discussed in greater detail in Chapter 7.



Professor of Applied Mathematics Mary Nelson interacts with students in a mock oral exam on a chalkboard to show instructors the benefits of this teaching method. CU-Boulder’s Department of Applied Mathematics has been awarded a \$450,000 grant by the National Science Foundation to introduce pre-examination “oral assessments” in a number of courses to improve student understanding.



“Above the portal of our new library building there will be this inscription, *Who knows only his own generation remains always a child.* I hope that the purpose of the university, thus expressed, to enable the student to grow in the full stature of his being through companionship that ranges beyond his day and time, will stand unshaken as long as those words shall endure in stone.”

—Dr. George Norlin,
CU president,
1917–1939

As described in this chapter, student intellectual growth is promoted through numerous learning environments, ranging from Residential Academic Programs (RAPs) to undergraduate research opportunities. Also included is a summary of activities aimed at cultivating an inclusive climate for learning. In addition, this chapter outlines the ways in which CU-Boulder nurtures outstanding teaching through supportive programs, innovative approaches, and recognition of excellence. The final section describes the various resources that support learning, including the libraries, academic technologies, the physical infrastructure, and staff personnel.

Assessing and Improving Student Learning

Core Component 3A. The organization’s goals for student learning outcomes are clearly stated for each educational program and make effective assessment possible.

General Education at the Core

General education and the core curriculum lie at the heart of improving undergraduate education and, therefore, receive close attention by the university’s faculty and administration. Enhancing the curriculum has been a longstanding priority for faculty committees with support from deans and other academic leaders.

That emphasis also is reflected in *Flagship 2030*, which issues a new call for redefining learning in a global context. Every initiative in the university’s strategic plan has implications for enhancing student education, whether in the classroom, laboratory, residence hall, internet café, or the halls of business and commerce. CU-Boulder recognizes the inherent value of successful teaching and proposes avenues for improving the delivery of undergraduate and graduate education. *Flagship 2030* proposes enhancements to the learning environment, along with more effective means of integrating research and teaching. Innovations in teaching and learning are incorporated in the plan, as well as a continued emphasis on collaborative work. Such enhancements contribute to the value of students’ degrees as they enter the workplace and global society.

Early in the planning process, a *Flagship 2030* subcommittee was asked to address the question: “What will our graduating students need to know and be able to do in the year 2030?”¹ As noted in Chapter 5, the subcommittee’s work also informs the efforts by the Assessment Oversight Committee (AOC) to articulate learning goals for all CU-Boulder undergraduates.

Goals for learning are central to the core curriculum—and are communicated to faculty and students alike. For example, six goals set by the *College of Arts and Sciences*² for the education of its students are outlined in the CU-Boulder catalog:

DISPLAY 6.1

Arts & Sciences Core Curriculum Requirement Areas

Skills Acquisition

Foreign Language
Quantitative Reasoning and Mathematical Skills
Written Communication
Critical Thinking

Content Areas of Study

Historical Context
Human Diversity*
United States Context
Literature and the Arts
Natural Science
Contemporary Societies
Ideals and Values

*The title for this core area was changed from Cultural and Gender Diversity in April 2009.

Source: www.colorado.edu/ArtsSciences/students/undergraduate/core.html

- Educate students for careers and a productive life
- Provide students with a well-rounded education
- Educate citizens who can think for themselves, understand the rapidly changing world, and make wise choices within a democratic system
- Impart a love of learning so that students can continue to grow throughout life
- Teach ways of thinking about and approaching new problems
- Prepare students to help enrich the lives of others

Enhancing the core curriculum. The College of Arts and Sciences core curriculum,³ adopted in whole or in part by all other undergraduate colleges, was established in 1988. In 2000, the faculty rejected a proposed simplification of core requirements, affirming requirements that remain primarily intact today. Two-thirds of lower-division enrollments, and one-third of upper-division enrollments, are in more than 500 distinct courses meeting core requirements, making core curriculum review a critical piece of campus assessment and improvement efforts.

Requirements of the college's core curriculum focus on skills acquisition and content areas of study. For example, for skills acquisition, students complete requirements in a foreign language, quantitative reasoning and math skills, written communication, and critical thinking. Requirements for content areas of study include historical context, human diversity, United States context, literature and the arts, natural science, contemporary societies, and ideals and values. The college's core curriculum website and the university catalog provide

Goals of the Quantitative Reasoning and Mathematical Skills Core Curriculum Requirement

Liberally educated people should be able to think at a certain level of abstraction and to manipulate symbols. This requirement has two principal objectives.

- The first is to provide students with the analytical tools used in core curriculum courses and in their major areas of study.
- The second is to help students acquire the reasoning skills necessary to adequately assess the data which will confront them in their daily lives.

Students completing this requirement should be able to: construct a logical argument based on the rules of inference; analyze, present, and interpret numerical data; estimate orders of magnitude as well as obtain exact results when appropriate; and apply mathematical methods to solve problems in their university work and in their daily lives.

descriptions of the requirement areas, their underlying educational philosophies and goals, and the list of approved courses.

In academic year 2005–06, the College of Arts and Sciences Curriculum Committee⁴ initiated a five-year systematic review of the more than 500 courses meeting core requirements to ensure that content and instructional methods—and student learning—are congruent with the core’s aims and goals. In 2009, the College of Arts and Sciences Council approved realignments of two core knowledge areas based on recommendations from the college diversity planning process. In a significant revision to the core, the United States context area was changed to require qualifying courses to “include discussion of the realities and issues related to matters of ethnic and racial diversity that characterize the nation’s ongoing experience.” Also, the “cultural and gender diversity” area was renamed “human diversity” and was broadened to include other kinds or categories of difference.

Since the core course review process began, the following areas have been reviewed: quantitative reasoning and mathematical skills, written communication, foreign language, literature and the arts, ideals and values, human diversity, historical context, and contemporary societies. Other areas planned for review include United States context in 2009–10 and natural science and critical thinking in 2010–11.

Throughout the course review process, the Curriculum Committee gathers and reviews information from faculty teaching the respective core courses. Courses are reviewed according to a number of criteria, including academic rigor, expectations of student workload and performance, how the course addresses stated knowledge and skill goals, instructional methods (such as writing assignments, lectures, and use of films), and the nature of exams and other evaluations of student work. Course syllabi and all assignments also are reviewed.

By March 2009, 292 courses had been evaluated under this process. Of these, 44 (15 percent) were retired from the core by the departments based on their own internal reviews. Another 25 courses (9 percent) were not reapproved by the Curriculum Committee. In addition, a substantial number of other courses were sent back to departments with requests for more information or suggestions for various improvements, such as expanded writing assignments, essay exam questions, and/or more focus on specific core elements.

In addition to content areas, the core curriculum emphasizes student learning and competencies in four skill areas: writing, quantitative reasoning, critical thinking, and foreign languages. Instruction in two of these areas (writing and quantitative reasoning) has been completely redesigned to improve student learning, while instruction in critical thinking and foreign languages is the focus of enhancement efforts by the AOC, the college, and its departments. Improvement activities for these skill areas are discussed below.

Writing program. One of the most far-reaching and important changes made since the last re-accreditation review was the complete transformation of the university's writing program. In 2001, a thorough assessment of the previous program resulted in a major reorganization and creation of a new Program for Writing and Rhetoric⁵ (PWR) and campus-wide writing center.

Previously, writing instruction was diffused across multiple departments and was poorly received by students. First-year writing was offered by no fewer than 13 units on campus, with little coordination among units and with uneven attention to assessment. The existing campus-wide writing program focused primarily on upper-division writing, and made minimal investments in teaching first-year students and staffing a writing center.

The new PWR retained and expanded the earlier program's focus on upper-division writing, while consolidating and redesigning first-year writing programs, establishing a full-service writing center, and fostering pedagogical reforms driven by assessment activities. The PWR now oversees all required and elective writing courses at CU-Boulder. In addition, the new writing center offers one-on-one writing advice and consultation to all CU-Boulder students, faculty, staff, and alumni.

In addition to changes in administrative structure, organization, and program content, funding has also increased considerably. The continuing general fund budget for the writing program increased from \$1.1 million in 1999–2000 to \$3.8 million in 2008–09. Budgeted funds cover salaries and operational expenses but not personnel benefits. The three-fold increase for writing is more than double the increase in other non-research expenditures.

Currently the PWR is one of the largest instructional units on campus, delivering each academic year nearly 500 sections of required or elective courses to approximately 8,000 students in the lower and upper division, generating more than 24,000 student credit hours. The program offers approximately 115 sections of first-year writing with portions designated for at-risk students and for those better prepared for student success. In the upper-division, the PWR offers about 115 sections of five different courses (with more under development) to address the unique writing requirements of different disciplines and professions.

Another major change since the last accreditation has been the tightening of the criteria for exemption from the lower-division requirement. Cutoff scores required on the ACT English/SAT verbal exam were monitored annually and adjusted as needed to fit available sections through summer 2005, when the ACT/SAT exemption was eliminated. The exemption based on the Advanced Placement English language and composition exam was retained, but the minimum score changed from 3 to 4 for fall 2005 and after. The exemption process for the upper-division requirement has remained unchanged—exemption is granted only to students who take and pass the Written Communication

Selected Questions from Core Curriculum Nomination Form: United States Context

- Which specific aspect(s) of U.S. culture and society will the course explore?
- Provide examples of specific questions or issues that will be explored in the course regarding U.S. values and ideals, such as how Americans derive a sense of identity; how rights and responsibilities of U.S. citizenship have changed over time; how Americans address opposing cultural values; and how students will gain a better understanding of the United States in terms of past, present, and future.
- How will the course develop critical thinking skills that help students to identify the United States in the world?
- How does the course teach analysis (as opposed to factual knowledge)?

DISPLAY 6.2

Writing Program Activity, 1999–2008

| Fall | Entering College of Arts & Sciences (A&S) students must complete a lower-division writing course unless | | Est. percent- age of A&S new freshmen required to take lower-division writing (percent not exempt) | Percentage of A&S new fresh- men taking a lower-division writing course in their first academic year at UCB | Course subject for writing program courses | Total enrollments in writing courses | |
|------|---|---|--|--|---|---|-------------------|
| | Exempt with AP English language and composition score of | Exempt with ACT English or SAT verbal at/over cutoff | | | | Lower division | Upper division |
| 1999 | 3, 4, 5 | 25/500 | 33% | 19% | UWRP | 1,170 | 3,594 |
| 2000 | 3, 4, 5 | 25/500 | 33% | 16% | UWRP | 966 | 3,763 |
| 2001 | 3, 4, 5 | 25/500 | 33% | 23% | Lower: WRTG, Upper: UWRP | 1,706 | 4,173 |
| 2002 | 3, 4, 5 | 27/620 | 66% | 51% | WRTG | 2,822 | 4,253 |
| 2003 | 3, 4, 5 | 27/620 | 66% | 45% | WRTG | 2,645 | 4,288 |
| 2004 | 3, 4, 5 | 29/660 | 75% | 56% | WRTG | 3,017 | 4,726 |
| 2005 | 4, 5 | Not Allowed | 75% | 60% | WRTG | 2,987 | 4,788 |
| 2006 | 4, 5 | Not Allowed | 90% | 54% | WRTG | 3,591 | 5,197 |
| 2007 | 4, 5 | Not Allowed | 90% | 54% | WRTG | 3,825 | 4,967 |
| 2008 | 4, 5 | Not Allowed | 90% | 54% | WRTG | 3,838 | 4,959 |

Note: In 2001–02 only, what became course WRTG1150 was offered as ARSC 1150 (arts and sciences special courses).

Source: Office of Planning, Budget, and Analysis

Exemption Exam, an all-essay exam administered at least once per term and scored by writing professionals. About 20 students per year are exempted.

The changes noted above have been accompanied by a large increase in total enrollments in writing courses. Enrollments in lower-division writing courses increased from 1,100 in 1999–2000 to more than 3,500 in 2006–07 and later; this threefold increase far outstrips the 15 percent overall increase in lower-division enrollments. In the same period, the proportion of new freshmen taking a writing course in their first academic year increased from 20 percent to about 55 percent.

Upper-division writing enrollments have increased as well, from 2,600 in 1999–2000 to 4,900 in 2006–07 and later, a 40 percent increase, compared to a 20 percent increase in total upper-division enrollments.

PWR courses satisfy the arts and sciences core graduation requirements, accrediting requirements in professional schools, and the statewide transfer articulation agreements. The writing courses have become a cornerstone of collegiate life at CU-Boulder, as the program grounds the first-year experience and supports RAPs, service learning, and longitudinal, inter-institutional, and critical thinking assessment metrics. The program offers *service learning*⁶ in roughly 10 percent of its courses and has been designated a “Model Project” by the university’s Institute for Ethical and Civic Engagement, joining engineering, education, law, journalism, and architecture and planning with sustainable service learning programs. The writing center now reaches over 4,000 students through individual contacts per academic year and offers workshops across campus.

The PWR is led by four tenure-track faculty in rhetoric and composition and by a roster of 65 instructors; it also supports more than 15 graduate student teachers. The program, which was part of the 2008–09 academic review cycle, is developing a more coherent lower- and upper-division curriculum to further integrate the PWR with CU-Boulder’s strengths in sciences and environmental sustainability, *Flagship 2030*’s emphasis on global citizenship, and the university community’s goal to be more inclusive, diverse, and engaged.

The PWR uses both internal and external resources to evaluate the effects of the program:

- A *recent analysis*⁷ by CU-Boulder’s Office of Institutional Analysis staff showed that first-year students who took a writing course performed much better in the first year than students who did not take a writing course. Among new freshmen in the College of Arts and Sciences in fall 2006, taking a first-year writing course was associated with a positive difference of 0.15 in first-year GPA in non-writing courses and with an increase in probability of retention of 9 percentage points. The GPA advantage occurred even though the writing students had lower average scores on college entrance examinations (SAT and ACT).
- In spring 2009, the PWR partnered with institutional analysis in a national pilot of a joint National Survey of Student Engagement (NSSE) and Writing Program Administrators survey of student engagement and writing. Data from this survey of freshman and senior students will permit assessment of the connections between good writing practices (as assessed by more than two dozen *survey items*⁸) and student engagement and learning. In addition, CU-Boulder’s data will be compared with that from other schools in the Consortium for the Study of Writing in College (CSWC).
- The base NSSE questionnaire, administered at CU-Boulder in spring 2000, 2002, 2006, and 2009, includes some items related to student writing. Ratings by CU-Boulder freshmen and seniors generally increased somewhat on these items between 2002 and 2006, both on an absolute basis and in



The CU-Boulder campus features dozens of “smart” classrooms that offer multimedia capabilities, overhead projectors, video projection units (TV or data projector), power outlets for laptops, and Internet and/or wireless Internet connectivity.



The Department of Speech, Language, and Hearing Sciences offers a broad range of training in audiology and speech pathology clinical practice and research, including access to a wide range of clinical education opportunities in schools, hospitals, and clinics throughout the metro Boulder and Denver area.

comparison to comparable groups at the 29 peer Association of American Universities (AAU) U.S. public institutions for which ratings are available. In addition, in 2006, ratings at CU-Boulder matched or slightly exceeded peer ratings on the three items below. Results for 2009 are not yet available. The NSSE items cover the extent to which “your experience at this school has contributed to your knowledge, skills, and personal development in writing clearly and effectively”; “How often [during the current school year] you have prepared two or more drafts of a paper or assignment before turning it in”; and the number of written papers or reports during the current school year.

- Student ratings of writing courses on the Faculty Course Questionnaire (FCQ) have increased markedly. The new writing courses (course subject WRTG) rank in the middle third of the 40 largest arts and sciences subject areas on all 11 FCQ questions (overall course rating, overall instructor rating, learning, fairness of grading, accessibility of instructor, and so on). In contrast, the writing courses eliminated after 2001–02 (course subject UWRP) ranked in the bottom quarter of all subjects (31st to 40th among the 40 subjects) on all ratings. Student judgments of workload gathered on the FCQ were similar for the new versus old writing courses, both at the “OK” point of the response scale.

Quantitative reasoning. Another core area that has changed significantly as a result of comprehensive review is the area of quantitative reasoning and mathematical skills.⁹ For example, the mathematics department had offered self-paced “**math modules**” for several years, covering components of college algebra, calculus, probability, and other math-related components. These 1-credit modules were conducted primarily online with attendant instructors available for personal help during scheduled hours. When student and faculty feedback indicated problems with academic quality, several modifications were tested but failed to meet quality standards. As a result, the math modules program was dismantled and is no longer offered. In its place, lecture and recitation-based courses now are offered.

In addition, the department of applied mathematics has used research-based methods to improve learning among students in its classes, developing and testing oral assessments in teaching calculus.¹⁰ Since 2003, the department has incorporated pre-examination “oral assessments” in some classes, resulting in better student understanding of important math concepts and the capacity to apply knowledge in new situations. Before each written exam, groups of five students meet for an hour with a facilitator, who engages the students in talking about the basic concepts of the course, uses of specific mathematical procedures, and creation of graphs to illustrate the meaning of key concepts in the course. In 2003, oral assessments were introduced into a two-semester Calculus I course designed for students at risk of failing calculus. Analyses showed that students in the course earned higher grades, took and passed Calculus II at a higher rate, and were more likely to be retained at the university than their counterparts. In 2008, the program received a \$450,000 grant by the National Science

Foundation (NSF) to expand the oral assessments program at CU-Boulder and implement them at other sites.¹¹

Critical thinking.¹² In the core curriculum, the university also emphasizes the importance of critical thinking skills, recognizing that the phrase can mean different things in different contexts. CU-Boulder offers about 200 courses that have been endorsed by a faculty curriculum committee as qualifying for the “critical thinking” designation. Most baccalaureate programs require one or more such courses as part of the formal degree program. The primary purpose behind such requirements is to enhance students’ abilities to analyze and solve problems, especially in novel contexts.

Through the AOC, the university has participated in the development of the Critical Thinking Assessment Test (CAT),¹³ a program initiated by Tennessee Tech University and funded by the NSF. The test is strongly faculty-based and faculty-scored, thus serving both as an outcomes instrument and a faculty development tool. At present, the AOC considers the CAT test to be the best of all nationally available methods for assessing undergraduate critical thinking abilities.

Also, in 2009, the Teagle Foundation¹⁴ funded a proposal submitted jointly by CU-Boulder and Colorado College in Colorado Springs to carry out an experimental analysis using the CAT in a before/after design in three types of courses. This four-year project is expected to strengthen assessment of students’ gains in critical thinking skills.

Foreign languages.¹⁵ At CU-Boulder, proficiency in a foreign language is viewed as an important element of the core curriculum. As noted on the arts and sciences core curriculum website, the goal of the language requirement is to encourage students to confront the structure, formal and semantic, of another language, along with significant works in that language and aspects of the culture associated with that language. Under the core curriculum, arts and sciences students are required to demonstrate third-level proficiency in a single modern or classical foreign language. This requirement may be met all or in part by high school work. More than 15 different languages, ranging from Arabic, to classical Greek, to Chinese, to American Sign Language, help satisfy the language requirement.

At CU-Boulder, the study of foreign languages and cultures is supported by a high-tech resource facility called the Anderson Language Technology Center (ALTEC).¹⁶ The facility, located near the center of campus, provides a variety of services for students, faculty, and staff. It provides space and equipment for viewing foreign language films, listening to language practice tapes, and word processing in foreign languages. The center includes multimedia classrooms and a library of films from around the world. Foreign language classes are offered for faculty and staff, as well as a foreign language technology program that helps faculty and graduate students incorporate technology into foreign language

teaching. The center also broadcasts satellite programs from the International Channel and SCOLA, a nonprofit educational organization that receives and re-transmits television programming from around the world in native languages.

University departments have implemented a number of programs, collaborations, and initiatives to broaden and enhance the learning of foreign languages. Examples include:

- The development of new major and core curriculum courses in the department of Germanic and Slavic languages and literatures
- Cross-disciplinary sponsorship of certificate programs (such as German for Engineers), some of which include an internship abroad at either a non-profit or commercial firm
- Offering of courses in Hebrew and Arabic as part of the foreign language options
- Targeted recruiting efforts by the department of French and Italian that expanded the number of minors in both French and Italian by 30 percent in just three years
- The addition of courses in Indonesian and Farsi in the department of Asian languages and civilizations—and also has organized workshops for faculty members to address proficiency-oriented teaching, syllabus/course design, classroom practice, and textbook adaptation
- The securing of external funding by the Center for Asian Studies (CAS) to provide curriculum development and revision grants to faculty; seed funding for new faculty lines in targeted fields; support for faculty-led summer courses in Asia; and undergraduate student scholarships, study abroad scholarships, and internships for students with Asian area interests

Enhancing Undergraduate Education

Beyond the core curriculum, CU-Boulder stresses improvements in undergraduate education as a whole, supporting efforts to assess and enhance programs at all levels of the organization. Emphasis is placed on developing goals for all degree programs, assuring academic quality in teaching, providing administrative and data support for assessment efforts, improving academic advising, and recognizing the role of student development in learning.

Setting skill and knowledge goals. The [CU-Boulder catalog](#)¹⁷ describes the skill and knowledge goals for undergraduate degree programs, as it has since 1990. These goals are reviewed by departments each year as the catalog is revised, and they are reevaluated more intensely in the department's academic review and planning self-study. In spring 2009, the AOC contacted departments about a small number of programs without published goals and received cooperation in working toward inclusion of their goals in the catalog.

The Colorado Challenge. In 2004, College of Arts and Sciences Dean Todd Gleeson issued “A Colorado Challenge”¹⁸ to faculty in the college, calling for their involvement as “custodians of liberal arts education” in improving the quality of undergraduate education. In particular, the dean raised questions about improving student perceptions of academic rigor, raising the level of expectations for student performance, and creating a culture that emphasizes study and analysis of material. Concerns were raised about academic challenges provided to students and the consistency of grading practices.

The college initiative was reinforced by a series of memos¹⁹ and departmental visits by the dean, actions of the College of Arts and Sciences Council, and the actions of individual faculty and departments. The result was a collective, ongoing conversation about the issue. In April 2005, the dean shared a lengthy list of ideas and suggestions by faculty in response to the Colorado Challenge. He emphasized the challenge was not only a call for action by departments and programs, but for individual faculty to evaluate their own courses and elevate the academic challenges for students.

Most would agree that the Colorado Challenge has created a better learning environment by heightening attention to such areas as curricular integration; course syllabi, assignments, and assessments; consistency in multi-section courses; student feedback; pedagogy; orientation of new and short-term instructional faculty; and others. In 2006, Gleeson noted that “the Colorado Challenge was meant to stimulate an ongoing conversation at the department and program level about the quality of our undergraduate education.” The challenge has been embraced by faculty despite, or perhaps because of, a lack of requirements, reporting, financial incentives, or uniformity across departments.

Later, a related faculty task force examined areas of the undergraduate curriculum that might benefit from focused attention. The task force looked at five areas of academic rigor: maintaining curricular integration, similarity of multiple-sectioned and frequently taught courses, stricter enforcement of prerequisites, orientation of short-term instructional faculty, and sharing common data. Recommendations included developing standards for homework time, use of learning portfolios, and evaluation of course content to reduce repetition.

As a result of the renewed focus inspired by the Colorado Challenge, departments have made a variety of improvements in their academic programs:

- The *English department* has established common syllabi for multi-sectioned courses in creative writing and is working to extend this pilot program to literature courses taught by graduate students. Also, the department has launched an e-mail listserv for prompt distribution of materials for part-time instructional faculty.
- The *psychology department* is working to establish an honors track and has organized regular meetings of faculty teaching the same course to impose standardized grading.



A Faculty In Residence Summer Term (FIRST) visiting professor teaches a film class during Summer Session. Working in conjunction with CU-Boulder's schools and colleges, FIRST is designed to bring prominent scholars to teach during summer. FIRST broadens the faculty expertise and curricula offered to Summer Session students.

- The *political science, sociology, and linguistics departments* have included more writing in their lower-division courses, as well as smaller recitation sections to encourage more one-on-one interaction.
- The *French and Italian department* is considering minimum requirements for writing and is developing guidelines for a preferred format of writing.

Assessment/improvement in departments and programs. Discipline-specific assessment and improvement is pursued by many departments, schools, and colleges. Changes and improvements in individual degree programs are ongoing, usually under the purview of curriculum committees or other department and college groups. These changes are shared with a campus-wide audience in the academic review process; as noted in Chapter 5, the review process explicitly includes assessment of student learning and a formal link to the campus-wide AOC. The AOC works with units to clarify and improve their assessment processes, share findings across units, and make selected assessment findings public.

Prompted by assessments ranging from standardized tests to external reviews of student portfolios, units have taken such actions as adding courses, adding faculty in needed areas, refining degree requirements, refining their published skill and knowledge goals, adding capstone courses and assessment methods based on them, and reviewing and revising syllabi and instructional methods, among others. Examples of specific actions to improve student learning include:

- The **film studies department**²⁰ assesses learning outcomes of its bachelor of arts program through external reviews of randomly selected final papers or exams. In the bachelor of fine arts program, a random sample of films from each of the upper-level courses is submitted for outside evaluation. External reviews corroborated internal findings regarding student writing problems; significant changes were made in the program to address these deficiencies.
- As part of its assessment strategy, the **English department**²¹ generates a random sample of students taking two courses for the major and asks that they provide final essays for review. An outside reviewer is asked to analyze student performance on the learning outcomes of the major. Results have indicated that the department's emphasis on critical theory and analysis enhances students' level of thinking as they engage with text.
- Three types of assessment tools are utilized by the **political science department**²²: graduating seniors' portfolio review, evaluation of syllabi for large introductory courses, and web-based exit surveys of graduating seniors. These assessments have resulted in curricular changes, including greater emphasis on critical-thinking assignments, less variation in assignments, and greater emphasis on writing.
- In the **French and Italian department**,²³ the assessment of learning outcomes includes for all majors a mandatory senior essay, a 15- to 20-page original research paper in French or Italian prepared under the direction of a faculty member. When completed, the essay also is read and evaluated by at least one other faculty member. When the paper is acceptable to

the committee members, the student makes a 20-minute oral presentation in French or Italian on the topic of the essay to the students in his or her senior seminar and answers any questions from the audience. The members of the student's committee attend this presentation and meet to decide whether the essay and oral presentation are acceptable. This exercise assesses in a formal and comprehensive fashion student mastery of both writing and speaking skills in the language.

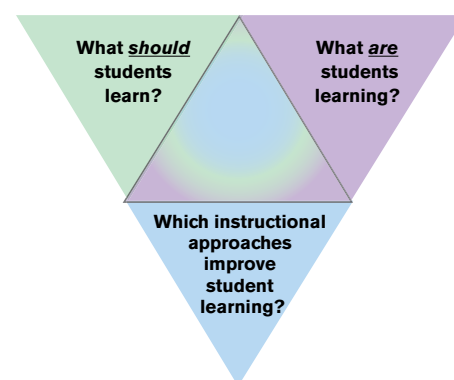
Inter-departmental improvement initiatives. Other initiatives aimed at improving undergraduate education cross departmental and college boundaries, emphasizing improved instruction and assessment methods. These programs involve more than individual courses but not full degree programs. Examples described below include the Science Education Initiative,²⁴ a “five-year, five-department, five-million-dollar project to improve how we teach science to all undergraduate students”; CU-Teach,²⁵ a program designed to prepare secondary school math and science teachers (with the School of Education); and the physics education research²⁶ group (PER@C), with over a dozen faculty, staff, and graduate students from the Department of Physics and School of Education.

- The **Science Education Initiative**²⁷ (SEI) serves as a model for utilizing research to enhance learning. Some of its tested methods have gained campus-wide and national recognition. Aimed at improving undergraduate science teaching, the program emphasizes practices based on research and tested by proven methods. SEI helps participating science departments develop explicit learning goals, implement research-based teaching methods, incorporate technology to improve learning, assess the effectiveness of their practices, and share what they have learned with educators.

SEI was developed by Nobel Prize-winner Carl Wieman to change the way science is taught to undergraduates at CU-Boulder. The initiative uses research findings on effective science instruction to improve science education, especially in large introductory classes. Launched in 2006, SEI's goal is to achieve highly effective, evidence-based science education for all post-secondary students by applying the latest advances in pedagogy. Funding for the program is provided by the president's office and chancellor's office, with an annual budget of \$1 million per year for five years (2006–10).

As part of the program, participating science departments receive funding for PhD-level Science Teaching Fellows to partner with faculty in carrying out goals for improving teaching. Currently, five science departments participate in the program, including chemistry; geology; integrative physiology; physics; and molecular, cellular, and developmental biology. Plans call for the program to be expanded to involve all nine of CU-Boulder's natural science departments, affecting thousands of students taking science courses at the university.

Science Education Initiative Model



Source: www.colorado.edu/sei

“The purpose of science education is no longer simply to train that tiny fraction of the population who will become the next generation of scientists. We need a more scientifically literate populace to address the global challenges that humanity now faces and that only science can explain and possibly mitigate, such as global warming, as well as to make wise decisions, informed by scientific understanding, about issues such as genetic modification.”

—Carl Wieman,
Distinguished Professor
of Physics and Nobel
Laureate

“...Changing student demographics, modern faculty responsibilities, and the new knowledge gained from advanced assessment techniques showed us that we need to fix fundamental aspects of science education if students are to receive the high-quality education that is becoming increasingly important to individual and societal success.”

—Carl Wieman¹⁴⁴
July 28, 2008

Among the teaching technologies tested and proven in the project are web-based distribution of course materials, faculty–student communication, interactive simulations, and the effective use of “clickers.” Clickers are electronic hand-held devices that provide instant feedback to the teacher during a lecture about what students understand. Clickers now are used in all large physics classes at CU-Boulder, and their use is spreading rapidly throughout campus, with about 90 percent of the undergraduate student population using them in fall 2008. The hand-held tools also were utilized in an SEI study of the effectiveness of classroom “peer instruction,” in which students discuss concepts with classmates before responding. The study was published in the January 2, 2009 issue of *Science* magazine.²⁸

SEI staff engage in evaluation efforts to provide feedback about the project’s level of success. For example, they conducted observations of several courses at the beginning of the project to provide a baseline to which departments can be compared at the end. In addition, faculty are surveyed, both formally and informally, about their views of the project and its benefits. Results from these evaluations are used to shape planning for the initiative. In May 2009, SEI hosted an end-of-year, half-day event in which faculty and science teaching fellows from participating departments shared ideas for improving science education and presentations about using research related to their students’ learning to guide their efforts. Examples of topics included teaching assistant training, interactive learning in lectures, assessing learning, improving critical thinking, and transforming upper-division courses.

- Improving the teaching and learning of physics is the primary aim of the nationally recognized **Physics Education Research Group** (PER@C),²⁹ a collaborative effort by CU-Boulder faculty, staff, and students from the physics department and the School of Education. The research group has added significantly to the body of knowledge about physics education, with more than 80 articles contributed to journals since 2003. PER@C members engage in theoretical and experimental work to understand student learning in physics, with projects that span the education continuum from pre-college to post-doctoral. The group also studies uses of technology in physics education, assessments, theoretical models of student learning in physics, and social and contextual foundations of student learning, among other topics.

Two PER@C projects that are adding to the body of knowledge about physics teaching and learning are the **Colorado Learning Attitudes about Science Survey** (CLASS)³⁰ program and the **Physics Education Technology** (PhET)³¹ project. The CLASS survey tool measures student attitudes and beliefs regarding their science courses, while PhET provides a suite of online animated simulations to help students develop visual and conceptual models of physical phenomena. In 2008–09, the PhET Project received grants of more than \$2.1 million to support its work in helping students understand complex science reactions and models. The project has developed a series of

interactive science simulations available on a simple, easy-to-navigate website. Originally aimed at physics students, the project has been expanded to more than 80 different simulations in physics, chemistry, math, biology, and earth science. More than five million simulations were run from the website in 2008, with another one million simulations downloaded for offline use. The simulations have been translated into 33 languages already—and more, including Arabic, are planned. They are used not only by college students and professors at CU-Boulder, but also by elementary, middle, and high school teachers.

CU-Boulder's School of Education has transformed its teacher certification program in math and science through a four-year degree-licensure program called **CUTeach**.³² In collaboration with the College of Arts and Sciences, CUTeach allows students to complete a rigorous education in a mathematics or science major and fulfill the requirements for a Colorado teaching license at the same time. Students interested in CUTeach can “try out” teaching in elementary or middle school classrooms by taking two 1-credit introductory “Step” classes while they decide whether teaching is for them. The CUTeach program dovetails with the learning assistant model, a program aimed at enhancing large introductory math and science classes, by tailoring teacher education courses to focus on curricular and pedagogical reforms specific to math and science teaching. The learning assistant program is discussed in further detail later in this chapter.

All these initiatives, as well as other teaching resources discussed in this chapter, help instructors and departments articulate and assess learning goals for students in courses. They lead to improvements in delivery of instruction, including enhanced lecture techniques, interactive methods, use of technology, use of assistants to the primary instructor, more effective assignments, and others—as well as creating a culture of continuous assessment of student learning.

Assessment/improvement initiatives within schools and colleges.

Numerous activities by schools and colleges are aimed at improving student learning through assessment. Examples are provided below, as well as an overview of specialized accreditation programs that help schools and colleges identify opportunities for improvement.

- The **College of Engineering and Applied Science**³³ has a long and distinguished history of employing strong assessment activities to guide curriculum and improve student learning. At the college level, an assessment professional conducts and analyzes data from regularly scheduled surveys of undergraduate and graduate students, alumni, and employers. Survey results help inform the departments and programs about perceived strengths and weaknesses and point to improvements deemed most essential. In addition, student performance on the Fundamentals of Engineering exam, administered by a national engineering examiners' organization, is analyzed



“Clicker” technology is a popular teaching tool that allows students to participate in classes and answer questions posed by their professors using hand-held devices during lectures.

“Over the years, our licensing program has changed in ways that increasingly capitalize on the content knowledge of the teacher candidates. However, the strength of our program lies in the fact that we are very committed to the idea that you have to be properly trained before you go into the classroom, so students who go through our program come out with both content expertise and pedagogical expertise.”

— Dean Lorrie Shepard,
School of Education

and charted for use by several of the college's programs. Two assessment websites,³⁴ one internal and one external, share results of college assessment activities.

Within the college, assessment occurs at the discipline level as well. Curriculum goals are reviewed regularly, with results and any curricular changes reported to the dean and shared on the public website. These annual reports form the basis for self-studies prepared for the Accreditation Board for Engineering and Technology (ABET). Changes made as a result of assessment include a significant revision of a course in thermal systems design, which had been found lacking with respect to topic areas, timing structure, and teaching resources. In environmental engineering, feedback from the 2006 Water/Environment Joint Evaluation Committee indicated a need for more emphasis on geographic information system technology, resulting in a fundamental change in course content. The college also provides systematic feedback on the effectiveness of courses to departments providing physical science and mathematics instruction for engineering students.

- CU-Boulder's School of Education³⁵ utilizes a well-developed assessment program as part of its teacher licensure protocol. Data are gathered on individual teacher candidates at four key points in their progression through the teacher education program: entry to the program; courses and co-requisite practica; student teaching; and exit from the program. In the last assessment stage, for example, a survey of all students who complete the program is conducted near the end of their first year of teaching. The first-year teacher survey asks candidates to evaluate the level of preparation they received in the teacher education program. Also, the school surveys the principals who hired those teachers, asking for their analysis of the teacher's level of preparation. Assessment results, which are reported to the dean and relevant faculty on an annual basis, are considered in curriculum and programming decisions. All students referred for licensure must pass either the Program for Licensing Assessments for Colorado Educators (PLACE) exam, a Colorado testing instrument for teacher licensing, or PRAXIS II exam, a national subject assessment test for prospective teachers in their area of specialization.³⁶
- Learning goals established by the School of Journalism and Mass Communication³⁷ help ensure academic rigor in preparing students for careers in journalism and mass communication. In support of those goals, the school has established 11 competencies that all students should acquire before graduation. Rigor and student learning are measured through a detailed assessment plan adopted by the school in 2003. The plan calls for measuring two competencies each year through at least one direct and one indirect measurement. Direct measures include internship evaluations, portfolio critiques, and reviews of student work from capstone courses. Critiques are conducted by external academic colleagues and professionals. Indirect

measures include exit interviews, alumni surveys, awards, and scholarships obtained.

- The CU-Boulder catalog describes **College of Music**³⁸ expectations of its students, ranging from acquiring the ability to perform solo and ensemble repertoire to demonstrating an understanding of theoretical studies. In 2004, the College of Music instituted a mandatory graded course entitled “Sophomore Proficiency,” which requires that all students pass an exam in the performance of their major instrument before reaching the upper performance levels. In 1997, the music education faculty formalized a sophomore interview process, for which music education majors must assemble a portfolio that documents performance proficiency, academic accomplishments, and pedagogical development as educators. Music also has added new undergraduate courses in the Alexander Technique, which helps the college prepare for upcoming changes in requirements in the National Association of Schools of Music guidelines.

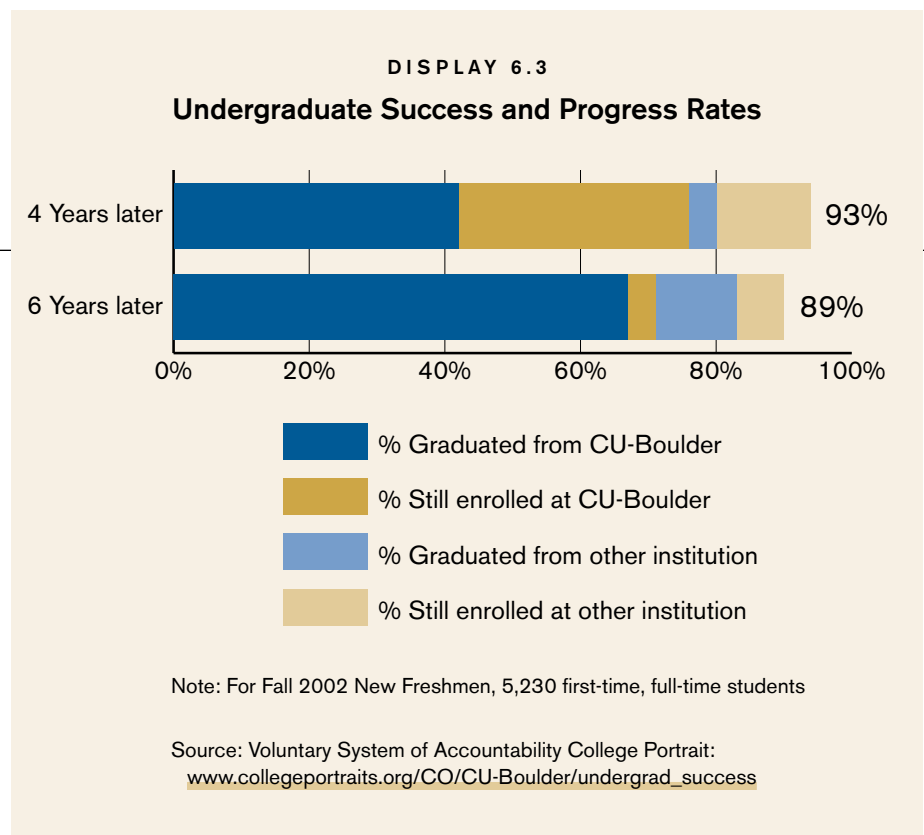
Music students are frequently evaluated by professional musicians in addition to their own instructors, including both other music faculty and world-class performers teaching periodic master classes. Evaluations occur in end-of-semester juried events, in required public recitals, in auditions for master classes, and in master classes themselves. Master class teachers provide direct feedback to students and to the faculty with whom the students have worked.

- Student learning expectations by the **Leeds School of Business**³⁹ also are described in the CU-Boulder catalog. The school recently reevaluated its curriculum and assessment protocol, and has implemented a number of initiatives as a result. The school used feedback from a national survey in 2003 to develop a five-year plan to make major changes in the undergraduate curriculum based on weaknesses identified by faculty, staff, and students. After improvements were made, follow-up surveys indicated higher student satisfaction in all areas affected. Examples of changes include:
 - A first-year mega-section computer skills course was discontinued.
 - New capstone courses specific to emphasis areas or majors have replaced a common Strategic Management course.
 - A new first-year introduction to business course was added.
 - Self-taught math modules were replaced by small-size math courses taught by faculty.
 - A lower-division writing course was added to an existing upper-division writing course requirement.

To help meet learning goals, the Leeds School of Business Curriculum and Policy Committees have developed program goals for undergraduate, master’s, and doctoral programs. Each emphasis area or major has mapped its current curriculum against the program goals and identified ways of providing evidence that these goals are being achieved. In fall 2008, a program



CU-Boulder’s Jazz Studies Program has won 14 *Down Beat* magazine Student Music Awards during the 2000s.



assessment/learning assurance faculty committee began developing a process for collecting data and sampling student outcomes to determine whether goals are being met. Any deficiencies will be addressed with additional curriculum improvements prior to the 2011–12 visitation by the school’s accrediting agency, the Association for the Advancement of Collegiate Schools of Business.

Improvement through specialized accreditations. In addition to institutional accreditation through the Higher Learning Commission, CU-Boulder’s seven professional schools and colleges are evaluated and accredited by specialized accrediting bodies. These specialized accreditations emphasize assessment, student learning, and improvement of educational programs, with most covering both graduate and undergraduate education. Examples include the Accreditation Board for Engineering and Technology (ABET), the Association for the Advancement of Collegiate Schools of Business (AACSB), and the Accrediting Council on Education for Journalism and Mass Communications (ACEJMC). Colleges including engineering and business devote significant resources to assessment and accreditation; data and analyses from the Office of Institutional Analysis are also utilized in these activities. A list of specialized accreditations at CU-Boulder is provided in Appendix D.

Campus-wide support for assessment. Support for unit-level and campus-wide assessment activities is provided by the **Office of Institutional Analysis (IA)**, which offers a wide range of data collection and analysis for assessment and improvement purposes. For example, the [IA website](#)⁴⁰ publishes graduation and retention rate analyses, course outcomes, survey results, and special studies, often with a focus on undergraduate education in general or by program. These data are used by schools, colleges, programs, and departments to understand and improve undergraduate education.

Institutional analysis staff track graduation rates and retention⁴¹ for CU-Boulder students over time and compare those rates with other public research institutions. Trends are analyzed and shared with campus decision-makers, other constituencies, and the general public. Such information is posted on a public website, where prospective students and their parents may access the data. In the case of graduation rates and retention, the data show steady, positive trends of about 84 percent of new freshmen enrolling for their second fall semester, just over 40 percent graduating in four years, and 67 percent graduating in six years. After six years, another 10 percent remain enrolled at CU-Boulder or elsewhere, and 10 percent more have graduated from another institution—leaving only about 12 percent who neither have graduated nor are still enrolled. Attention is paid to the rates for resident and nonresident students, students of color, Pell Grant recipients and first-generation college students.

IA also assists with reviews of outcomes in special programs, ranging from residential learning programs to diversity initiatives. In 2005, for example, it conducted a study of demographics and outcomes for CU Leadership, Excellence, Achievement, and Diversity (CU-LEAD) Alliance programs, exploring the relationship of CU-LEAD participation to GPA and retention to the second fall semester. Because students are self-selected and not randomly assigned to CU-LEAD, the study could not draw causal conclusions. However, among resident students, CU-LEAD students held an advantage of 0.17 in first-term GPA on average and a 3-percentage-point advantage in retention to the second fall. Such information is used in planning and decision-making by programs that support student success.

CU-Boulder's assessment programs themselves are subject to assessment, such as the major review and revision recently of the Program Review Panel (now Academic Review and Planning) process. As discussed in Chapter 5, the academic program review process has served as a primary tool for assessing academic programs for nearly 30 years. In 2006, the entire process was completely retooled, providing greater focus on institutional needs and opportunities as well as assessment. Another assessment instrument, the Faculty Course Questionnaire, also underwent major revisions, as described elsewhere in this chapter.

As part of its assessment efforts, CU-Boulder has developed a robust system of **student surveys** that solicit feedback from students and alumni, allowing for comparisons of results with peer institutions. Information from student surveys is used to help identify strengths and weaknesses, providing a basis for improving the learning environment. The cycle of student surveys⁴² administered by IA has evolved to emphasize program-level data and comparisons; comparisons to other institutions wherever possible; and student reflection on learning, on behaviors associated with learning, and on other campus goals. The cycle includes regular senior, graduate, campus climate for diversity, and alumni surveys, plus participation in the National Survey of Student Engagement (NSSE). NSSE offers feedback on institutional practices that encourage high levels of student engagement

DISPLAY 6.4

NSSE 2006 Results for CU-Boulder Seniors

Items selected for display by the College Portrait
of the Voluntary System of Accountability

Group Learning Experiences

- 95% worked with classmates on assignments outside of class
- 59% tutored or taught other students
- 30% spent at least six hours per week participating in cocurricular activities such as student organizations and intramural sports

Active Learning Experiences

- 83% spent at least six hours per week preparing for class
- 25% worked on a research project with a faculty member
- 53% participated in an internship, practicum, or field experience
- 58% participated in community service or volunteer work
- 23% participated in study abroad
- 96% made at least one class presentation last year

Institutional Commitment to Student Learning and Success

- 87% believe this institution provides support for student success
- 51% rated the quality of academic advising at this institution as good or excellent
- 44% reported that this institution provided help in coping with work, family, and other non-academic responsibilities
- 89% reported working harder than they thought they could to meet an instructor's standards or expectations

Student Interaction with Campus Faculty and Staff

- 36% believed that the campus staff were helpful, considerate, or flexible
- 68% believed that faculty are available, helpful, or sympathetic
- 93% reported that faculty members provided prompt feedback on their academic performance
- 72% discussed readings or ideas with faculty members outside of class

Experiences with Diverse Groups of People and Ideas

- 67% reported that they often tried to understand someone else's point of view
- 71% reported their experience at this institution contributed to their understanding people of other racial and ethnic backgrounds
- 46% often had serious conversations with students of a different race or ethnicity

Student Satisfaction

- 76% would attend this institution if they started over again
- 80% rated their entire educational experience as good or excellent
- 68% reported that other students were friendly or supportive

Source: www.collegeportraits.org/CO/CU-Boulder

and learning, including student–faculty interaction, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. All regular surveys including NSSE are reported publicly with results by CU-Boulder school and college, arts and sciences division, and department. In addition, listings of comments by students are sent to or made available to department and program heads.

CU-Boulder’s NSSE results,⁴³ which are available online, generally demonstrate the university’s successes in many of its practices and rarely differ significantly from those at other AAU public universities. However, in 2006, more noticeable differences were shown on the item that asked the extent to which the student’s institution emphasizes “spending significant amounts of time studying and on academic work,” with results lower than the institution’s peers. Although CU-Boulder students varied little from other institutions’ students in the reported class preparation time, these findings lend credence to the university’s efforts to enhance academic rigor and faculty expectations for study time.

The NSSE survey of 2009 was the first to invite responses from all freshmen and all seniors, enabling characterization and comparison of results for students in individual schools, colleges, and programs. In addition, the university participated in both the AAU data exchange consortium, with questions designed for large public research universities, and in the NSSE Consortium for the Study of Writing in College. The writing results and comparisons are expected to assist the Program on Writing and Rhetoric in improving offerings and practices.

Through senior surveys,⁴⁴ the university regularly asks graduating students about their satisfaction with their educational experiences and about their post-graduation plans and activities. Results are presented by program and school and college, with graphic and tabular comparisons. Open comments by respondents are provided privately to program administrators.

Survey results generally remain stable from year to year, although the most recent (2008) survey yielded higher average ratings than in previous years. In general, the surveys indicate that seniors are satisfied with CU-Boulder and rate the overall quality of the institution highly. They are somewhat more satisfied with advising services than any previously surveyed classes. Seniors also reported the highest satisfaction ever with opportunities for interaction with faculty, with 66 percent reporting satisfaction with such opportunities.

In alumni surveys,⁴⁵ early-career graduates generally have been laudatory about the quality of education at CU-Boulder and the level of preparedness provided. Alumni sometimes point to a need for increased emphasis on written and verbal communication skills and abilities to work in team contexts. Graduates have reported strong records of success in graduate programs for advanced degrees and in professional programs of law, medicine, nursing, and dentistry. They have entered careers in business, government, and in nearly all areas of modern life.



The frequency with which CU-Boulder students proceed to advanced degrees, professional or other, provides clear evidence that they can and do continue their formal education and continue learning in their professions, according to the 2007 CU-Boulder Alumni Survey.⁴⁶ Administered every four years, the latest survey indicates that 41 percent of bachelor's recipients, 22 percent of master's recipients, and 4 percent of doctoral recipients reported taking courses toward an additional degree after graduating from CU-Boulder. In the survey, 79 percent of bachelor's recipients said that they plan to earn a master's degree or higher. Almost one fourth of the alumni (24 percent) reported they were currently working on, or had obtained, an additional degree at the time of the survey.⁴⁷ The 2009 graduating senior survey on future plans⁴⁸ verifies these outcomes.

CU-Boulder's Office of Institutional Analysis is the national coordinator for the exchange of NSSE response-level data among AAU schools,⁴⁹ a program that significantly enhances the utility of local NSSE data. Many colleges administer their own, more focused surveys. For example, engineering⁵⁰ surveys freshmen, seniors, graduate students, alumni, and all students who held summer internships. Student survey results are particularly useful when describing student behaviors associated with learning, student needs, and student dissatisfactions and suggestions, particularly when coupled with student records data. As such, they inform general education, undergraduate education, graduate programs, courses, and teaching.

Advising services. Advising services enhance undergraduate education by helping students navigate successfully through their academic careers. Advising assists students in clarifying their own goals, finding programs and courses they can most benefit from, and moving efficiently through their time at CU-Boulder. The College of Arts and Sciences advising center,⁵¹ upgraded in the late 1990s, continues to refine and oversee systems for advising, placement, and diagnosis of student preparedness for particular courses throughout the college. Center staff members offer insights to and work with faculty groups on student learning, student needs, and student success. A powerful new degree audit system,⁵² with initial use in 2009, will enhance advising in all colleges.

Academic advising plays a central role in the quality of the student learning experience. Advisors, which include staff and faculty in each school and college, are a student's primary resource regarding academic issues, requirements, opportunities, and programs. They help students understand their options, maximize their academic experience, and make sure they are fulfilling degree requirements for graduation.

CU-Boulder's centralized PreProfessional Advising Center⁵³ provides support to students preparing for careers in the medical and other health professions and law. The center, which consists of five professional advisors and a program assistant, serves about 2,300 pre-health and 500 pre-law students and alumni. Resources for students include an extensive website, an e-mail list, individual advising, workshops, and presentations. A Pre-health Advisory Committee,

consisting of about 25 faculty members, helps interview pre-medical and pre-dental students for committee letters of evaluation. The committee letter process has substantially increased the acceptance rates of students, from below the national average to well above it for students taking advantage of the process. The center also oversees a Medical Scholars Program, which guarantees acceptance to the UC Denver School of Medicine for five to six students per year, and is developing a Health Professions Residential Academic Program, slated to open in 2012.

Other specialized advising is provided through various programs that support student success and achievement. For example, the Student Academic Services Center (SASC) engages with students who are underrepresented, low income, first generation in college, educationally disadvantaged, physically or learning disabled, non-traditional, or affected by bias. SASC programs provide academic, career, and personal guidance to help students succeed. Other examples include the Puksta Scholars Program, a civic engagement program; the CU-LEAD Alliance, a set of multidisciplinary academic neighborhoods that promote diversity and educational excellence; and the Presidents Leadership Class, which helps develop talented undergraduates into civic, business, and community leaders.

As discussed in Chapter 2, the College of Arts and Sciences restructured its undergraduate advising program in 1998, offering more coordinated and effective delivery of services through the new Academic Advising Center (AAC).⁵⁴ The center's professional staff members see their role as broader than merely explaining graduation requirements, although that is important. The organization works to improve the students' overall educational experience and to help them become positive contributors to the campus community.

In spring 2007, the AAC launched the "First Year Initiative" (FYI) planning project—which quickly became the "Four Year Initiative." The project began by focusing the center's efforts on reviewing and rethinking its programs and practices and, where appropriate, revising its strategies to help students achieve the best possible education, inside and outside the classroom. In Phase I of the FYI project, cross-divisional working teams of advisors focused on specific student populations: first-year students, sophomores, juniors, seniors, and students at risk for academic difficulty. Each team was asked to articulate the advising/learning outcomes most important for that population based on relevant research. They developed concepts for new student-centered planning tools, resource materials, and guides for achieving learning outcomes. They also identified other people and offices on campus that could be important resources for students. In addition, the teams were asked to identify fundamental questions that should be asked to determine if the learning outcomes established for each population are being achieved.

The working teams completed their reports in spring 2008 and presented them to the entire unit, which prioritized the recommendations for implementation. Implementation teams were named to begin work on the recommendations



CU Regent, law student, and former UCSU tri-executive Joseph Neguse as an undergraduate student with his academic advisor. Neguse graduated *summa cum laude* from CU-Boulder in 2005 with a bachelor's degree in economics and political science.



Vice Chancellor for Student Affairs Julie Wong (right) with an incoming CU-Boulder student and move-in day volunteers in a residence hall.

identified as highest priorities: creating online tools to improve student advising and enhance student success, developing academic support workshops, improving new student orientation programs, and implementing best practices in advising and student support. The teams are expected to incorporate plans for assessing effectiveness of any new strategies, working in collaboration with the AOC.

For many students, the learning experience begins with orientation. In recent years, CU-Boulder has taken a close look at the quality of programs introducing new students to the university. The College of Arts and Sciences new student orientation⁵⁵ program has been retooled, now offering a more personalized and comprehensive introduction to the university for students and their parents. Orientation programming has been shaped by national research, peer educators, data collected from students and parents, and feedback from the many constituencies involved in the program. Students, for example, regularly reported that they wanted a more interactive orientation experience, so changes were made to incorporate more involvement by students and peer leaders. The program remains focused on instilling the core values of the university and bringing students and their families into alignment with the campus communities. In addition, orientation works to streamline entry experiences, with pre-registration tools that help build full course schedules by the end of orientation. Informational sessions are offered on residential learning communities, the Honors Program, preprofessional programs, student life, housing, financial aid, and other topics. Parent survey results consistently advocated for more sessions; therefore, the parent program was expanded significantly to address the wide range of concerns and questions they bring to orientation. Formal orientation programming continues in residence halls through the students' first semesters.

Academic advising at CU-Boulder also is being transformed by more sophisticated electronic tools now in implementation. As discussed in Chapter 2, the new Degree Audit Reporting System (DARS),⁵⁶ is expected to reduce the time spent by advisors on technical and manual processes, thus allowing more time for one-on-one contact with students. DARS and Oracle Campus Solutions⁵⁷ are part of the Integrated Student Information System (ISIS) that is replacing the university's current student information system. ISIS will take students from the time they apply for admission all the way through to graduation and beyond, offering a menu of critical information for each stage of their academic careers. More information on the new student information system is provided in Chapter 5.

Cocurricular learning. CU-Boulder has demonstrated a commitment to cocurricular programs that complement general education and enhance student learning, from the growth of undergraduate research opportunities,⁵⁸ study abroad programs,⁵⁹ and RAPs⁶⁰ to the establishment of a service learning office⁶¹ and the Institute for Ethical and Civic Engagement.⁶² These programs are discussed in greater detail later in this chapter and in other chapters.

Learning through student development. At CU-Boulder, student learning is closely allied with the development of the whole student—intellectually, physically, emotionally, ethically, and socially. Leadership for this holistic approach, based on student development theory,⁶³ is provided by the Division of Student Affairs.⁶⁴ Student affairs aims to create an environment supportive of student learning and involvement, both inside and outside the classroom. In addition, the division is facilitating the development of a campus community characterized by mutual respect, shared goals, shared commitment, and shared responsibility. The ultimate objective is to help students grow as successful, intellectually curious learners; as socially, environmentally and civically aware citizens; and as responsible, competent, and caring community members who contribute to society now and in the future.

In addition to supporting intentional student development, the division is working to enhance learning outcomes outside the classroom. Units within the division provide learning opportunities that focus on increasing cognitive complexity; knowledge acquisition, integration, and application; humanitarianism; civic engagement; interpersonal and intrapersonal competence; and practical competence.

Six **developmental themes**—or factors affecting the student experience—help guide the services, programs and outcomes promoted by units within student affairs. They include intellectual development; lifelong learning; beliefs, values, and ethics; belonging and intimacy; diversity and inclusive excellence; and identity development, independence, and interdependence. These themes have been defined by all student affairs units and are aligned with theoretical perspectives and research findings in the field of student development.

Programs and services in student affairs engage in some or all of the student development themes and establish proposed outcomes for each. For example, the theme of “beliefs, values, and ethics” is supported by the Colorado Creed, the Honor Code, the Community Health Program, the Office of Judicial Affairs, the Office of Orientation, and New Student Welcome. Under this theme, desired outcomes include reduced high-risk behaviors, healthier lifestyles, and the definition of personal moral codes. The judicial process within student affairs is viewed as a part of student development, where students learn the impacts of their decisions as they improve their ability to self-regulate within the context of the community.

A variety of other services and programs address the themes from different perspectives, ranging from residence life and career counseling to building community. Support also is provided through such programs as Alcohol and Other Drugs Program, Counseling and Psychological Services, the Office of Victim Assistance, and the Women’s Resource Center. Through these and other services, the division provides multiple educational opportunities, resources, and support to help each student reach his or her goals—and strives to eliminate barriers to student learning, development, and success.

Division of Student Affairs Student Experience Developmental Themes

Intellectual development
Lifelong learning
Beliefs, values, and ethics
Belonging and intimacy
Diversity and inclusive
excellence
Identity development,
independence, and
interdependence

An outcomes-based assessment program is expanding throughout the division. Assessments will continue to focus on the developmental themes, as well as adding the assessment of specific learning outcomes. Units carrying out regular programmatic assessments include the Office of Orientation, Alcohol and Other Drugs Program, Environmental Center, Volunteer Resource Center, University Memorial Center, Student Outreach and Retention Center for Equity, and Residence Life. The findings are used to shape and reshape programming and departmental policies. Recent examples include:

- Modifying communications to parents attending freshman orientation to reduce their interference with students' own orientation activities
- Considering changes in schedules of evening programs for students after learning that half report regular bedtimes after midnight; increasing staff and security presence before and after midnight
- Working with the College of Arts and Sciences to improve administration, use, and effectiveness of placement testing in math, natural sciences, and languages at new student orientation
- Studying the impacts of residence hall living, community involvement, and alcohol use on intellectual growth and personal development

Currently, CU-Boulder's Assessment Oversight Committee is working with student affairs professionals to develop new processes for measuring learning outcomes regularly throughout the division. Most student affairs areas have implicit learning goals for students with whom they work, but they are working toward more explicit goal identification and establishing authentic assessment practices to measure learning outcomes.

Elevating the Learning Environment

Core Component 3C. The organization creates effective learning environments.

The traditional classroom is only one of many learning environments available to students at the University of Colorado at Boulder, with possibilities ranging from technology-enhanced laboratories to innovative academic neighborhoods. Credit courses use several different modes of instruction. Recitation, laboratory, or practicum sessions are formally attached to about 30 percent of enrollments in lecture courses; as discussed later in this chapter, many lecture courses themselves emphasize student interaction and learning in innovative ways. Roughly 15 percent of credit enrollments are in small seminars, independent study, combined lecture/lab sections, practica, internships, studios, and workshops. Undergraduate research activities offer the opportunity for hands-on learning through a number of programs at CU-Boulder. Also, students' intellectual growth is enabled and enriched by high-tech environments such as the Integrated Teaching and Learning Program,⁶⁵ with an interactive classroom-laboratory shared by all six departments in engineering; a creative Visual Arts

Complex (VAC)⁶⁶ opening in spring 2010; the Anderson Language Technology Center (ALTEC),⁶⁷ supporting all foreign language students and teachers; and the Alliance for Technology, Learning, and Society (ATLAS) Institute,⁶⁸ which creates and facilitates educational and research programs augmented by information and communication technology. In addition, learning takes place in special organized educational opportunities through such programs as the Division of Continuing Education and Professional Studies,⁶⁹ Summer Session,⁷⁰ the Conference on World Affairs,⁷¹ experiential and service learning, internships, and collaborative student endeavors.

Also in this section is a discussion of CU-Boulder's highly popular RAPs established over the last four decades, which have inspired a *Flagship 2030* initiative to broaden and expand the concept. Other academic neighborhoods help nurture learning through such programs as the Honors Program and special enrichment programs offered by the university. CU-Boulder also works to create a climate for learning that is inclusive and welcoming for all students, with supportive programs that exemplify the value and promise of diversity. The learning environment at CU-Boulder is characterized by a dedication to excellence in teaching, discussed later in this chapter under "Nurturing Effective Teaching."

Learning through Undergraduate Research

Undergraduate students at CU-Boulder have the opportunity to engage in discovery learning through hands-on research activities in partnership with faculty members. Examples range from traditional laboratory experiments to artistic creations. A number of popular programs encourage undergraduate research, such as the Undergraduate Research Opportunities Program (UROP), the Discovery Learning Apprenticeship Program in engineering, and work-study, as well as the Honors Program discussed later in this chapter.

Undergraduate Research Opportunities Program. In one of the university's most academically enriching programs, UROP⁷² brings outstanding faculty and undergraduates together as partners in research and creative work. The program provides students with unique opportunities to pursue academic interests outside the classroom and gain an understanding of scholarly processes in the field. Students develop close working relationships with faculty mentors that benefit them throughout their career. Many UROP students eventually write an honors thesis, adding depth to their academic portfolio. In addition, the experience offers positive academic and professional credentials for entering the workforce. Faculty members benefit as well, receiving research support at no cost to them, the chance to integrate research into undergraduate teaching, student assistance with course development, and the opportunity to encourage the next generation of scholars.

UROP is open to undergraduate students from all academic levels in all schools, colleges, and academic disciplines. The university pays hourly wages to UROP students as well as modest expenses for supplies, travel, and other needs of the



University of Colorado at Boulder Discovery Learning Apprentice student Caleb Rodig (right) and postdoctoral researcher Guadalupe Gutierrez, who is holding two jars, one with unfiltered biomass from corn waste product and one with purified ethanol.

student projects. The program averages about 625 student participants each year, with more than 7,500 receiving nearly \$6.8 million for student research projects since its inception in 1986.

Discovery Learning Center. The concept of undergraduate research is central to the DLC⁷³ in the College of Engineering and Applied Science. Twelve DLC laboratories offer a creative venue for developing critical thinking, solving problems, and building research skills. Undergraduates engage in collaborative teamwork with graduate students, faculty, and industrial partners, addressing such projects as unmanned vehicle systems, biorefining and biofuels, and molecular biotechnology.

The College of Engineering and Applied Science also sponsors a Discovery Learning Apprenticeship Program designed to encourage undergraduate involvement in research activities. Students accepted into the program learn about research techniques, time management, teamwork, and insights into a field of study—all while earning hourly wages. Undergraduate students in engineering and other schools and colleges also may earn money while they learn through work-study jobs, such as research assistantships in a wide variety of academic departments or off campus.

Creative Learning Environments

Integrated Teaching and Learning Program. Students and teachers at all levels benefit from innovative learning experiences in the engineering college's Integrated Teaching and Learning Program and Laboratory (ITL).⁷⁴ Winner of many national awards, ITL encourages learning through interdisciplinary, hands-on approaches utilizing leading-edge technology. The curriculum-driven program models the professional world of engineering, with support for student learners who work in teams on real-world projects and develop critical problem-solving skills. Program components include design-and-build courses, experimental hands-on learning courses, invention and innovation courses, design expos, and senior design projects.

The ITL Laboratory itself is a learning tool with exposed engineering systems, interpretive signage, interactive exhibits, and kinetic sculptures—drawing thousands of K–12 students and teachers to campus for engineering camps, events, and workshops. ITL is recognized for its commitment to creating a more diverse student population and enriching the exposure of K–12 students to engineering, reaching out in particular to students of color, young women, and first-generation college-bound students.

Visual Arts Complex. As discussed in Chapter 1, the new Visual Arts Complex features state-of-the-art facilities for teaching, learning, and exhibition. Housing the CU Art Museum and the Department of Art and Art History, the complex creates a new cultural gateway for the campus, funded by student fees, state and university funds, and private gifts. It offers access to a digital image

database, room for ceramics and outdoor kilns, and spaces for sculpture, print-making, and painting. The facility features open cross-disciplinary teaching studios with natural light, as well as dedicated studio suites and classrooms that address all disciplines.

The VAC includes specially designed galleries for students' thesis exhibitions and other projects, as well as spaces for community discussions and workshops. Wireless and hardwired internet access is available in the VAC, along with multimedia "smart" seminar rooms to enable the latest academic technologies. The complex was built to be environmentally friendly, using green building technologies and construction materials.

Anderson Language Technology Center. The Anderson Language Technology Center offers a number of foreign language services to the entire university community. A highlight of the center is the ALTEC MultiMedia Library, which contains a large collection of foreign language films, textbooks, foreign language CDs, magazines, newsletters, pre-recorded news from around the world, and other materials. Technologically advanced equipment and computer workstations enable students and others to immerse themselves in the diverse languages and cultures of the world.

ATLAS Institute. The interdisciplinary learning environment in the ATLAS building helps students prepare for their future in the networked information age. Located near the center of campus, the ATLAS building provides an innovative space for learning, research, performance, and outreach. With state-of-the-art classroom, performance, study, and broadcast production space, the facility serves about 5,000 students in 50 fields of study each semester. A "black box theater" offers opportunities for theatre, dance, music, and film students to explore new modes of artistic expression. Broadcast journalism students practice their craft with high-tech equipment, an audio recording studio, video editing, and sound design systems. Leading-edge technology at ATLAS promotes collaborative productions, involving such programs as music and theatre in meaningful ways.

Conference on World Affairs.⁷⁵ Every April, the entire university community as well as area residents have the opportunity to engage in a longstanding, week-long learning tradition at CU-Boulder. Founded in 1948, the Conference on World Affairs⁷⁶ has gathered intellectuals, political pundits, journalists, artists, environmentalists, business leaders, and a host of others to discuss and debate a wide range of issues. More than 110 conference participants engage in impromptu discussions that offer "whole new ways of looking at old questions and information that can transform the way you look at things," according to the late journalist Molly Ivins, a frequent participant over 25 years.⁷⁷

The Conference on World Affairs has drawn such luminaries as Eleanor Roosevelt, Marshall McLuhan, Arthur Miller, Roger Ebert, Margot Adler, Dave Grusin, Buckminster Fuller, Abba Eban, Ted Turner, Studs Terkel, Annie



International flag display on campus during the annual Conference on World Affairs.



Journalism student Maggie Schoonmaker works with young girls in the EDGE writing program at the YWCA of Boulder County. Thousands of CU-Boulder students each year participate in some form of community service or are engaged in academic service learning, a teaching strategy that integrates meaningful community service with classroom instruction.

Leibovitz, and Henry Kissinger. Attending at their own expense, conference participants interact with students, faculty, staff, and Boulder community members, who join in planning and hosting the week's events. All events are free and open to the public. About 90,000 people attend the sessions over the course of five days, ranging from 75 to 2,000 at individual sessions.

In 1999, the university established the World Affairs Athenaeum⁷⁸ to help extend the cultural and intellectual richness of the Conference on World Affairs throughout the academic year. The Athenaeum focuses on a few individual distinguished guests, visiting throughout the fall and spring semesters and interacting with students in both formal and informal settings over two to three days. Athenaeum programs take an interdisciplinary approach, drawing together students from various schools and colleges for classroom visits, symposia, a public lecture, and a student dinner. Past participants have included Golden Globe-nominated filmmaker and actor John Cameron Mitchell, jazz musician Don Grusin, National Public Radio correspondent Margot Adler, Pulitzer-Prize nominee Sister Helen Prejean, humorist Jessica Seigel, and many others.

Experiential and service learning. Experiential learning is becoming a more pervasive part of the learning environment at CU-Boulder. The Undergraduate Research Opportunities Program serves as a prime example of experiential learning, but there are many others. As discussed further in Chapter 8, schools and colleges have developed active experiential learning programs as well as multiple service learning opportunities. The Service Learning Office serves as a central resource for engagement initiatives within the College of Arts and Sciences. CU-Boulder also has developed a reputation for its spirit of volunteerism, with such programs as the Volunteer Resource Center and the International and National Voluntary Service Training (INVST) Community Leadership Program, which facilitate volunteer work. In fact, the university's accomplishments in service to communities were recognized by the 2007 Presidential Award for General Community Service.

Growing interest in service learning has led to more evidence-based assessment of such courses, with the goal of improving course content and pedagogical techniques. At CU-Boulder, a collaborative study⁷⁹ led by architecture and planning Professor Willem van Vliet resulted in a set of "best practice" recommendations for improving undergraduate service learning courses. The project evaluated existing service learning and outreach courses within the College of Architecture and Planning and across the Boulder campus. The study noted both the value and challenges of developing meaningful service learning opportunities that benefit both the students and the community partners. It concludes that much time and energy are required to establish productive working relationships with community partners, coordinate schedules, facilitate meetings, and ensure the needs of the community partner and university students are met. Recommended best practices range from aligning course content with the outreach component to ensuring that students have the necessary skills to interact with the community group. Completed in June 2009, the study was co-sponsored by the college,

the Institute for Ethical and Civic Engagement, the Service Learning Office, and the Office of the Associate Vice Chancellor for Undergraduate Education.

Departments in the College of Arts and Sciences actively seek opportunities to incorporate service learning into the curriculum. Examples include:

- In a course titled “The Literature of Education,” English Professor Marty Bickman asked students to engage in some kind of service learning in an educational setting beyond their own classroom: tutoring, teaching, or assisting in a school or other community organization.
- The Department of Spanish and Portuguese includes service learning as a key element of several courses, in which students volunteer their services to community partner schools and agencies. Their duties include tutoring in a wide range of subjects and organizing field trips, games, sports, and recreation in Spanish-speaking settings. At the same time, the CU-Boulder students have the opportunity to learn more about Hispanic cultures while improving their Spanish-speaking skills.
- Numerous service learning opportunities are available through courses in the philosophy department that place student volunteers in such community programs as wildlife rehabilitation centers, preservation of prairie ecosystems, women’s health clinics, American Red Cross, American Cancer Society, Boulder County AIDS Project, Boulder County Safehouse, homeless shelters, and many more.

At the College of Engineering and Applied Science, students also may engage in service learning, participating in activities that serve the college, the community, or the world, such as K–12 outreach, projects to help disabled clients, or the Engineers Without Borders program of international service. In addition, engineering students may participate in professional learning projects, in which they experience the “real world” through external internships and co-op programs.

In the School of Journalism and Mass Communication, the capstone course for most seniors is experiential in nature. Advertising students create a marketing and advertising campaign for an area business; broadcast students produce a semi-weekly half-hour news program called “NewsTeam Boulder”; and print students work 10 to 15 hours per week as writers, photographers, or copy editors at an area magazine or newspaper.

In the law school, a number of experiential learning opportunities help introduce students to the practical law-related activities they will encounter after graduation. The school’s Experiential Learning Program⁸⁰ includes clinics, externships, appellate and trial competitions, and voluntary public service work. For example, more than 700 clients are served each year in the school’s Clinical Education Program, which was started in 1948. Externships offer substantive legal work with government agencies, private nonprofit or public interest institutions, and law firms. In fall 2008, the law school received a \$5 million

gift to fund an endowed chair to help coordinate and enhance the work of the Experiential Learning Program.

Undergraduate and graduate students working at the Laboratory for Atmospheric and Space Physics (LASP)⁸¹ have the opportunity to gain hands-on technical experience in working with flight hardware in labs, operating satellites and instruments from the LASP mission operations center, or analyzing scientific data from experiments flown in space. Students at LASP have helped operate eight different spacecraft, beginning with the Solar Mesosphere Explorer from 1981 to 1989. About one-third of LASP employees are students, including about 60 undergraduates.

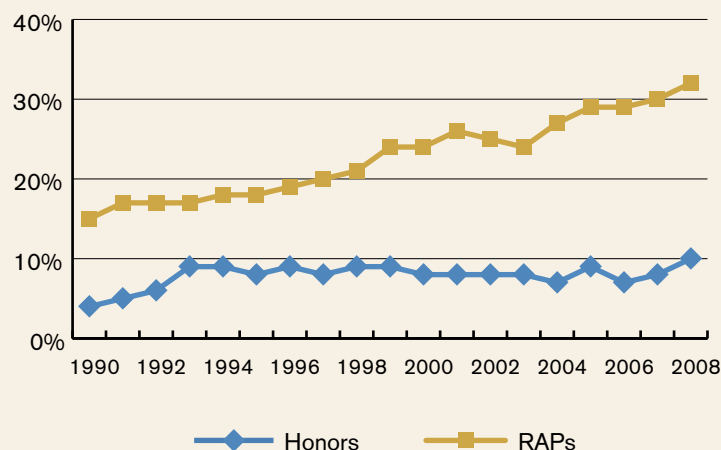
Students also gain valuable experience participating in the biennial Solar Decathlon competition, in which collegiate teams from the United States, Canada and Europe design, build, and operate a house powered completely by solar energy. The teams transport their homes to Washington, D.C., where they construct a “solar village” on the National Mall. Led by the College of Engineering and Applied Science, the program has involved students from engineering, architecture, business, and arts and sciences. CU-Boulder students won first place in 2002 and 2005 and placed seventh overall in 2007.

As noted in Chapter 2, students have excelled in national competitions over the last five years in such areas as solar home,⁸² design and construction, nanosatellite design,⁸³ aeronautics and astronautics,⁸⁴ social entrepreneurship,⁸⁵ business plans,⁸⁶ for solar technologies for Africa, print advertising,⁸⁷ and urban design.⁸⁸ These competitions offer strong external assessment of students’ application of disciplinary knowledge and skills.

Internships. At CU-Boulder, opportunities for credit and non-credit internships abound. In particular, many schools, colleges, and departments emphasize the value of formal for-credit internships in the learning experience. In the College of Arts and Sciences, for example, more than 20 departments offer internships for up to 6 credit hours. Requirements for such programs are rigorous, including various prerequisites, GPA standards, faculty sponsorship, work experiences relevant to academic goals, and minimum work requirements.⁸⁹ The college also recently authorized a “CUinDC” internship program for CU-Boulder interns in Washington, D.C., set to begin in summer 2010. The program is expected to offer internships to nearly 30 students each year in such disciplines as economics, history, international affairs, museum studies, and political science. On-site instruction and supervision will be led by a senior CU-Boulder faculty member on rotating assignment and staffed with instructors and support personnel. The CUinDC internship program was recommended by the *Flagship 2030* Undergraduate Education Task Force.

Internships are especially important for students in the School of Journalism and Mass Communication, where many students intern at Colorado media organizations. With the help of the school’s Internship and Career Office, for-credit

DISPLAY 6.5
New Freshman Participation in RAPs and Honors
1990 to 2008



Source: Office of Planning, Budget, and Analysis, program dataset

internships are arranged with weekly and daily newspapers, magazines, advertising and public relations firms, government and social service agencies, radio and television stations, cable television systems, video production houses, online media, and other operations.⁹⁰ The College of Architecture and Planning partners with top architectural firms and agencies to offer internships for academic credit to juniors and seniors in the college.⁹¹

Academic Neighborhoods

Residential learning. Over the past 40 years, the university has established a system of seven highly regarded academic neighborhoods called Residential Academic Programs (RAPs) that emphasize scholarly excellence and community responsibility. RAPs provide undergraduates with close social and intellectual communities as well as shared learning and living experiences in small-group settings. Participants take selected courses right in their residence hall, connecting with classmates who have shared interests, such as the environment, the arts, history and culture, the humanities, leadership, or international matters, among others.

In fall 2008, 1,850 new freshmen participated in the RAPs, most of which require a separate program fee. The number has increased dramatically in 10 years, from 1,082 in fall 1999. In the same period the percentage of new freshmen participating in RAPs has increased from 24 percent to 32 percent. Most of the programs are designed for freshmen, while others extend through the sophomore year. The programs are popular and slots often are filled early in the



Chancellor's Leadership Residential Academic Program students share projects with their peers during end-of-semester presentations. The success of Residential Academic Programs and Living and Learning Communities at CU-Boulder has helped inspire the university's "residential colleges" Flagship Initiative.

application period. Assessment⁹² of the RAPs' effectiveness is conducted through the university's Academic Review and Planning process. Examples of program activities include:

- The **Baker Hall RAP**, which focuses on natural and environmental sciences, now has the largest number of new freshman participating, and waitlists for entering the program are common. The Baker RAP centers on an interdisciplinary curriculum, with classes limited to 25 students. It also offers opportunities to explore the natural world outside the classroom, such as studying the Great Sand Dunes of Colorado or the behavior of elk during the annual bugling ritual. The program emphasizes the role of human societies in environmental change and the importance of being good stewards of the environment.
- Located in the Williams Village residential complex, the **Chancellor's Leadership RAP** helps develop community, civic, and business leaders for a multicultural world. Students in the program pursue one of two academic tracks: the Service Initiative (SI) or the Ethnic Living and Learning Community (ELLC). Each track offers leadership courses and a field practicum focusing on culturally competent leadership. The SI track emphasizes the practice of civic responsibility and service, with a field practicum built around social movement and social change. ELLC provides a supportive multicultural learning community and common experience focused on practicing leadership from a multicultural and global perspective. Both programs offer retreats, service projects, and volunteer opportunities, giving students the opportunity to engage in many types of communities and practice social and civic responsibility.⁹³
- The **Global Studies RAP**, formerly known as the Smith Hall International Program, attracts students interested in global topics and issues, in line with the *Flagship 2030* emphasis on building a global crossroads at CU-Boulder. This program promotes international understanding and recognition of global interdependence, helping first-year students learn about and appreciate the many countries and cultures of the world. The program encourages the study of foreign languages and international affairs and emphasizes the value of international educational exchange. All participating students take one of two designated courses with an international focus, engage in cocurricular programs that expand the mind, and participate in field trips and community-building events.

The university's other RAPs include Farrand Residential Academic Program,⁹⁴ with a focus on humanities and cultural studies; Kittredge Honors Program,⁹⁵ open to about 200 honors-qualified first- and second-year students; Libby Residential Academic Program,⁹⁶ focusing on the arts; and Sewall Residential Academic Program,⁹⁷ a liberal arts RAP with an emphasis on history and culture. New RAPs will open in engineering honors in fall 2009 and in communication and society (a collaboration between arts and sciences and journalism and mass

DISPLAY 6.6

New Freshman Participation in RAPs and Honors
1999 and 2008

| | Fall 1999 | Fall 2008 | 10-year change |
|---|--------------|--------------|-------------------|
| Number of new freshmen entering summer and fall | 4,589 | 5,860 | 28% |
| Residential academic programs (RAPs) | | | |
| Total participants | 1,082 | 1,850 | 71% |
| <i>As percent of all new freshmen</i> | 24% | 32% | 34% |
| Chancellors Leadership RAP, Williams Village | 38 | 176 | 363% |
| Environmental RAP, Baker Hall | 234 | 401 | 71% |
| Farrand RAP | 333 | 380 | 14% |
| Global Studies RAP, Smith Hall | 83 | 141 | 70% |
| Kittredge Honors RAP | 106 | 166 | 57% |
| Libby RAP | | 271 | NA |
| Sewall RAP | 295 | 324 | 10% |
| Honors courses (in first fall term) | 407 | 583 | 43% |
| <i>As percent of all new freshmen</i> | 9% | 10% | 12% |

Source: Office of Planning, Budget, and Analysis, program dataset

communication) in 2010. The College of Arts and Sciences will expand the Global Studies RAP by 100 students in 2011 and add a health professions RAP in 2012.

Most of the RAPs include community service components, such as assisting with early childhood education at area schools, helping at senior citizen centers, or working with nutrition programs. Cocurricular activities, such as theatrical participation or community-building, also are encouraged to extend the learning environment beyond the classroom.

In addition to the RAPs, a system of Living and Learning Communities (LLCs)⁹⁸ enhances the learning environment by offering themed housing opportunities for students sharing a particular academic interest. While most do not provide formalized courses, as offered in the RAPs, the LLCs present another option for students with common interests in learning. For example, four small residence halls comprising the Quadrangle Community on campus provide a living and learning environment for students in engineering, the applied sciences, or mathematics. This community offers on-site tutoring, access to a computer network configured to match the engineering computer labs, enhanced academic support services, wireless computer access, and calculus work groups in residence. The engineering college works closely with the Quadrangle Community, offering faculty and professional staff programs and assistance whenever requested.

The success of the RAPs and the LLCs laid the foundation for a major initiative in *Flagship 2030* called the “residential colleges” concept. Under this initiative, the university plans to offer a multi-year residential academic experience for every entering undergraduate by 2015.

Participants in the business LLC, associated with nearby Leeds School of Business, actively work together on projects within the business curriculum and have immediate access to advisors and faculty. Small-group courses and seminars in the residence hall focus on the role of business in society, including business ethics and leadership, as well as the role of business on the environment. The first-year student participants are connected with sophomore and junior mentors who share their experiences through a seminar series and other social and community-building activities. Other LLCs focus on the CU-Boulder experience, cultural diversity, leadership studies, substance-free living/learning environments, and ethnic leadership studies.

The success of the RAPs and the LLCs laid the foundation for a major initiative in *Flagship 2030* called the “residential colleges” concept. Under this initiative, the university plans to offer a multi-year residential academic experience for every entering undergraduate by 2015. Such a transformation requires fundamental changes in campus culture, facilities, and financial strategies—and initial steps already are under way. In 2006, a Residential Campus Study Group issued a report strongly recommending the adoption of such a model at CU-Boulder. The *Flagship 2030* Undergraduate Education Task Force also called for implementing the multi-year residential colleges concept. A comprehensive review of current residence halls has been completed, and renovation plans now incorporate the infrastructure needed to support the residential colleges initiative.

Goals for the residential colleges initiative include:

- Integrating intellectual and academic activities into residence hall programming
- Expanding existing RAPs
- Involving students in designing and leading the programs
- Developing civic engagement and service learning to enrich the academic curriculum
- Involving all schools and colleges in the model
- Constructing spaces that enhance student learning and academic engagement
- Recruiting faculty, including tenure-track, to participate in the programs
- Including upper-division and graduate students in the model

Campus leaders expect the residential colleges model will be implemented in phases over the next 15 years. The initial phase will include expanding the RAPs to provide residential academic opportunities to all freshmen, aiming eventually for a multi-year experience for all students.

Honors Program. The College of Arts and Sciences Honors Program⁹⁹ is the oldest of CU-Boulder’s academic enrichment programs, dating from 1931 when qualified students could earn Latin honors designations (*cum laude*, *magna cum laude*, or *summa cum laude*) by passing honors examinations. Over the years, the honors designation has evolved into a structured program designed to challenge the minds of highly motivated students. The Honors Program offers advising,

DISPLAY 6.7

**Academic and Community-Building Programs
in the Residence Halls**

Residential Academic Programs (RAPs)

Baker RAP—*natural and environmental sciences*

Chancellor's Leadership RAP

Chancellor's Leadership Studies Program (CLSP)—*leadership in local and international settings*

Ethnic Living and Learning Community (ELLC)—*leadership in a global and multicultural setting*

Farrand RAP—*humanities and cultural studies*

Global Studies RAP—*global/international topics and issues*

Kittredge Honors Program

Libby RAP—*the arts*

Sewall RAP—*liberal arts, for students interested in an emphasis on history and culture*

Living and Learning Communities (LLCs)

B³ Business LLC

CU Experience at Cheyenne Arapaho Hall—*perspectives on the university; enhancing integration into the campus community*

Hallett Hall Diversity Program—*promoting diversity, both socially and academically*

Quadrangle Community—*living/learning environment for students in engineering, the applied sciences, and mathematics*

Spectrum—*a supportive place for all who identify along the continuum of sexuality, including gay, lesbian, bisexual, transgender, queer people, and their allies*

Substance and Alcohol Free Environment (SAFE Halls)—*substance-free lifestyle: no smoking or other use of tobacco, no use of alcoholic beverages, no use of illegal drugs*

Sources:

www.colorado.edu/prospective/freshman/academics/residential.html

www.colorado.edu/prospective/freshman/academics/communities.html

close interaction with faculty and other honors students, and the opportunity to write an honors thesis.

Each semester, the program offers about 40 small-group honors seminars aimed at students who welcome academic and intellectual challenges. Honors courses encourage an interdisciplinary approach to learning and discovery, as well as placing a strong emphasis on reading widely and thinking critically. Courses in the program are limited in size to about 15 students and are taught by carefully selected faculty.



Associate Professor of Ethnic Studies Reiland Rabaka leading a class.

Today, the top 10 percent of the entering freshman class is invited to participate in honors, including top students in engineering, business, music, and journalism. All continuing students who maintain at least a 3.3 grade point average also are eligible to participate in honors. In addition, freshman participants are eligible to participate in the optional Kittredge Honors Program, one of the university's RAPs, which offers a common living space where honors students interact with and learn from other motivated students. The RAP includes a curriculum of honors seminars and about five symposium lectures each semester. Special colloquia are offered to support participants in completing honors requirements, producing a thesis, and continuing their studies with distinction.

The undergraduate colleges offer their students opportunities to graduate with honors. About 5 percent of bachelor's recipients earn honors in the major; almost 10 percent earn honors associated with the degree rather than the major. Honors at graduation may involve a senior thesis, grades only, a combination, or other scholarly achievements. In arts and sciences, more than 200 graduates per year earn Latin honors after completing a senior thesis, with an oral defense of their thesis in front of a faculty committee.

Special enrichment programs. A number of special enrichment programs provide advanced learning opportunities for highly motivated student achievers. These programs include the Undergraduate Research Opportunities Program discussed earlier, and the Norlin Scholars, Boettcher Scholars, and Top Scholarships Office, as described below.

Outstanding student achievement is supported through the **Norlin Scholars** program, which offers scholarships, small-group classes, and special learning experiences to academic high achievers. In particular, the program's activities emphasize critical thinking, collaboration, and communication skills. Participating students also gain experience through research and creative projects with faculty or honors theses. They have opportunities for professional training and development, as well as applying their learning to community service, internships, and overseas experience. Founded in 1999, the program annually includes about 125 students seeking CU-Boulder degrees.

High-achieving students named as **Boettcher Scholars** receive generous four-year merit scholarships from the Colorado-based Boettcher Foundation, allowing participants to attend any college or university in the state. The university contributes to the CU-Boulder Boettcher Scholars with additional scholarship funds and the services of a special support team. Since the program was founded in 1952, CU-Boulder has educated and conferred degrees on more than 700 Boettcher Scholars. These outstanding student scholars receive significant support from the university to enhance their educational experience and to challenge them to even higher achievement. In the **Top Scholarships Office**,¹⁰⁰ a new position was created to help high-achieving students develop competitive applications for national scholarships, fellowships, and awards. Information is provided on the range of prestigious scholarships available, the timelines and

deadlines for applications, and tips and advice on exploring scholarship options. In particular, the office assists students in completing competitive applications by offering direct writing support and mock interviews, as well as advising them on how to prepare a portfolio.

Other academic enrichment programs include the Presidents Leadership Class (PLC),¹⁰¹ an award-winning leadership program for high-achieving students; and the four branches of Reserve Officers Training Corps (ROTC),¹⁰² which help prepare students to become officers and leaders. The successful ROTC programs are among the oldest of CU-Boulder's academic enrichment programs. As discussed in Chapter 8, the Institute for Ethical and Civic Engagement (IECE) offers a scholarship program for high-achieving students called Puksta Scholars. The program focuses on civic engagement, including a year-long intensive project by the student scholars.

Inclusive Climate for Learning

Diversity at CU-Boulder is viewed in a broad context, ranging from ethnicity to economic status and from gender to intellectual viewpoints. The university community benefits from the richness of perspectives brought by people from diverse backgrounds and experiences. In an inclusive climate for learning, people value individual and group differences, respect the ideas of others, and communicate openly. The quality of education is enhanced by a supportive environment in which all students benefit from multicultural experiences. Toward that end, the university has developed a number of programs that provide inclusive and welcoming climates for learning, as described below.

CU-LEAD Alliance. The CU-LEAD Alliance consists of a network of multidisciplinary academic neighborhoods aimed at promoting access for students of color and first-generation students. The programs help build community by providing academic enrichment, leadership activities, scholarships, small-group classes and computer labs, personal links to faculty and staff, a gathering place, counseling and mentoring, and opportunities for community service.

Some CU-LEAD programs are specific to a particular school or college, while others serve students across disciplines. CU-LEAD programs within schools or colleges include Designers Without Boundaries (architecture and planning); Miramontes Arts and Sciences Program; Diverse Scholars Program (business); Education Diversity Scholars Program; Multicultural Engineering Program; Journalism Diversity Scholars Program; and Diverse Musicians Alliance Program.

Programs serving students across schools and colleges include the Ethnic Living and Learning Community (ELLC), Honors CU-LEAD Scholars Program, McNeill Academic Program, Ronald E. McNair Post-Baccalaureate Achievement Program, First Generation Scholars Program, and White Antelope Memorial Scholarship Program.

Center for Multicultural Affairs. For more than 30 years, the Center for Multicultural Affairs (CMA) has provided a welcoming place that promotes student success through a wide variety of programs and services. With a focus on the values of inclusion, the center supports access to higher education, helps students achieve their educational goals, and fosters individual expression and exchange of ideas. CMA also works to create an inclusive environment through community engagement, helps develop socially responsible students who are prepared to lead in the 21st century, and provides direction in support of the university's commitment to diversity. The center offers student advocacy, advising, mentoring, outreach, and other programs that help undergraduate and graduate students develop their full potential.

Miramontes Arts and Sciences Program. One of the CU-LEAD programs, the Miramontes Arts and Sciences Program (MASP), is recognized as one of the most effective multicultural programs on campus, focusing on the enrollment, retention, graduation, and post-graduation success of its students. The program, which is part of the College of Arts and Sciences, offers a series of semester-long, 1-credit co-seminars and seminars to expand students' understanding beyond concepts presented in classes. Participants receive academic and career advice and engage in a supportive environment to study and network with fellow MASP students. Financial aid, in the form of participation grants, is available to selected students.¹⁰³

Women's Resource Center. The Women's Resource Center (WRC) works to create a campus environment where women will thrive, according to the center's statement of purpose. WRC offers leadership opportunities for students, celebrates the contributions of women, works in collaboration with a variety of campus and community partners, and supports the principles of social justice and gender equity. The center welcomes participants in a number of activities and programs, such as the Intergenerational Retreat, film festivals, Sexual Assault Awareness Month, First Year Women's Circles, and many others. WRC also offers an extensive resource library accessible on the Web. In 2004, WRC published the "CU Women's Handbook," which helps orient new female students to the university and provides information about the wide range of resources available to them.¹⁰⁴

The Gay Lesbian Bisexual Transgender Resource Center. Launched in 1995, the GLBT Resource Center is committed to education, outreach, information referral and dissemination, and advocacy for GLBT issues. The center offers a wide variety of workshops, training, library materials, and campus-wide awareness events. For example, working with the Interactive Theatre Project, the center provides four-hour "Safe Zone Training" sessions to provide participants with the skills to create a safer space for GLBT students within the university community.¹⁰⁵

Veterans Affairs Office. The Office of Veterans Affairs was established in 2007 to serve the needs of all veterans on campus and prospective student

veterans, as well as military service members attending CU-Boulder. In this role, the office supplements other campus units with special emphasis on the recruitment and retention of veterans to the Boulder campus and provides a key point of contact for counseling and program information. It also develops and maintains productive relationships with agencies and other programs serving veterans. Veterans affairs works to provide a welcoming, encouraging, and supportive campus environment for all military veterans, including Reserve and National Guard members who are university employees.

Broadening Opportunity through Leadership and Diversity engineering programs. The College of Engineering and Applied Science has established a new umbrella center called Broadening Opportunity through Leadership and Diversity (BOLD), designed to coordinate and enhance diversity programs within the college. BOLD programs include Women in Engineering, the Multicultural Engineering Program, diverse engineering societies, the GoldShirt Transitional Program for graduating high school students, and the Student Success Center. The Women in Engineering Program (WIEP)¹⁰⁶ helps foster the success of women in engineering by recruiting, retaining, and encouraging women engineering students. Funded by the College of Engineering and Applied Science and by private donations, WIEP offers academic advising, personal counseling, and peer mentoring, as well as a limited number of scholarships for incoming first-year and transfer students. The program partners with middle and high schools to provide recruiting and encouragement initiatives. The Multicultural Engineering Program (MEP)¹⁰⁷ focuses on academic excellence and the success of multicultural and first-generation students who are historically underrepresented in engineering and applied science. In addition to program participation grants, MEP offers a summer bridge program, new student leadership course, academic excellence workshops, undergraduate research opportunities, advising and tutoring, internship and career placement assistance, and a student resource/study center. The Student Success Center, a free tutoring program, provides over 30 hours of assistance weekly with first- and second-year engineering courses.

Student Outreach Retention Center for Equity. The Student Outreach Retention Center for Equity (SORCE) was formed in 2000 by students interested in improving the campus climate for students from underrepresented groups, such as students of color; low-income students; nontraditional students; students with disabilities; and gay, lesbian, bisexual, and transgender students. SORCE aims to enhance the enrollment and retention of students from these groups through a variety of recruitment, outreach, support, leadership development, and community-building programs.

Interactive Theatre Project. Theatrical performances bring difficult community issues to light through the Interactive Theatre Project (ITP), a joint effort between Wardenburg Health Center and Housing & Dining Services. Established in 1999, ITP draws audiences into presentations on such issues as alcohol abuse, racism, date rape, freedom of speech, anti-Semitism, and others. More



Audience members lighten up before an Interactive Theatre Project production in the Black Box Theater in ATLAS.



A College of Engineering and Applied Science summer 2009 Broadening Opportunity through Leadership and Diversity (BOLD) bridge group poses outside Norlin Library. BOLD is designed to coordinate and enhance diversity programs within the college.

than 80 performances are presented each year, including programs designed for summer orientation audiences.

Student Academic Services Center. The Student Academic Service Center (SASC)¹⁰⁸ is a multicultural academic learning community that provides a place of belonging and connection among students, staff, and faculty. SASC works to provide equal opportunity for academic development and excellence for all students—especially those who are underrepresented, low income, first generation in college, educationally disadvantaged, physically or learning disabled, nontraditional, or affected by bias. The center facilitates student transitions and helps build community, increase retention and graduation rates, and foster a campus climate that is accepting of all students.

SASC serves participating students through such programs as the Academic Excellence Student Support Service Program, the Ronald E. McNair Post-Baccalaureate Achievement Program, and the McNeill Academic Program. These programs provide a number of services to help ensure student success, including academic and career guidance, financial aid, and courses. For example, the McNair Postbaccalaureate Achievement Program,¹⁰⁹ one of the federal TRIO programs on campus, encourages college students to prepare for graduate study. Selected low-income undergraduates from all ethnicities are positioned for graduate school through specialized multicultural orientation, research design seminars, internships, and teaching practica. The McNeill Academic Program¹¹⁰ supports students' academic, personal, and professional development throughout their time at CU-Boulder. It serves about 500 students with courses in writing and math, cocurricular courses and seminars, academic support, study and meeting areas, community events, and career and personal guidance. Graduation and retention rates for McNeill student participants are remarkable. Since 1999, the program has become an important pathway into CU-Boulder for first-generation college students from Denver metro and rural high schools serving many lower-income families. In fall 2007, 66 percent of students entering the McNeill program were first-generation college students.

Pre-College Services. A number of pre-collegiate programs help prepare middle- and high-school students in targeted schools for college entrance. Pre-College Services, part of the Office of Diversity, Equity, and Community Engagement, includes the Pre-Collegiate Development Program (PCDP), CU Upward Bound, and the Roaring Fork Pre-Collegiate program. Funded by the university, PCDP provides on-campus academic enhancement programs for first-generation students in pursuit of higher education. The federally supported CU Upward Bound program, a TRIO program, is designed to motivate and support low-income or potential first-generation college students, supplementing their existing education with a six-week summer program of academic enrichment and cocurricular activities.

Nurturing Effective Teaching

Core Component 3B. The organization values and supports effective teaching.

Effective teaching is central to the mission of the University of Colorado at Boulder. The university's commitment to teaching excellence is demonstrated by the numerous support programs, initiatives, policies, and activities described in this section. Support is offered through established programs, like the Faculty Course Questionnaire and Faculty Teaching Excellence Program (FTEP), which utilize input from students and other faculty to improve instruction. Innovative teaching methods are tested, proven, and applied in several science education programs offered at the university. Individual examples of innovative teaching methods can be found in all areas of the university. Also, CU-Boulder affirms great teaching through honors and prizes that recognize the best, such as the Hazel Barnes Prize. In addition, attention is paid to academic rigor and the quality of teaching, which is evaluated in several ways to encourage continuous improvement throughout faculty members' careers.

Promoting Exceptional Teaching

Faculty Course Questionnaire. At CU-Boulder, feedback from students serves to inform and improve teaching effectiveness. Every semester, students are asked to evaluate each of their courses and instructors through the standard Faculty Course Questionnaire.¹¹¹ The FCQ program has been in place at CU-Boulder more than 30 years and was adopted by the CU Board of Regents in 1986 as a model for the system. This long-standing tool for instructional improvement was revised¹¹² in 2006 by a faculty–student committee, drawing upon inputs from faculty and student governments and from the national literature on course evaluations.

FCQ questions cover such topics as the student's interest before enrollment, the instructor's effectiveness in encouraging interest, the instructor's availability for assistance, the intellectual challenge of the course, the instructor's respect and professional treatment of students, and how much was learned in the course. Students also are asked to rate the course and instructor overall and to estimate the average hours spent on the course per week. Some optional questions also may be included, such as rating the value of online tutoring or the benefits of participating in oral exams. Optional questions may be specified by the instructor, department, college, or the campus. The FCQ also asks students to "offer constructive comments to your instructor regarding your experience in this course."

Results, including student comments, are provided to individual instructors for use in improving their courses and teaching methodologies, as well as to department heads and deans for use in course assignments and in promotion, salary, and tenure decisions. Students also may access the numeric results to help them

choose courses. Numeric results are available electronically on the Web and in paper form in the Norlin Library Archives office.

The FCQ program itself underwent evaluation in 2004, resulting in a revised instrument that follows national guidelines for student ratings of courses. The revision process emphasized national literature and expert opinion about the FCQ structure, evaluation, and implementation. The new questionnaire reflects recommendations for such instruments in published scholarly work, as well as question formulations well vetted in higher education. It also was informed by professional advice and recommendations on general structure and format; vigorous discussion among faculty, students, and staff; and recommendations from a Boulder Faculty Assembly committee. The revised FCQ rating forms were used for the first time in fall 2006. There is general consensus among faculty that the instrument has improved significantly. The FCQ program is supervised by an associate vice chancellor for academic affairs and administered by the CU-Boulder Office of Planning, Budget, and Analysis.

Faculty Teaching Excellence Program. Based on the premise that good teaching is a learned skill rather than innate, CU-Boulder takes explicit steps to “teach the teachers”—calling upon the university’s own outstanding teachers to help other faculty improve their techniques. Established in 1986, the campus-wide **Faculty Teaching Excellence Program**¹¹³ operates on the principles that there is no one right way to teach and that faculty learn best from one another. The program encourages shifts in faculty members’ thinking about undergraduate learning and emphasizes constructing understanding as opposed to conveying knowledge.

Typically, about 380 faculty members participate in the program each year. More than 70 faculty volunteers are recruited to serve as guides and mentors in the art and craft of teaching. Through FTEP, faculty participants have access to a menu of voluntary, confidential services—both for individuals and groups. Participants may engage in in-class videotaping and observation, mentoring of assistant professors by senior faculty, special attention to integration of technology and teaching, a focus on creativity in teaching, and symposia on teaching and learning. The program enhances effective evidence-based learning among students and inquiry-based scholarly teaching among faculty—and the reciprocity of both.

The effects of FTEP are felt beyond the individual faculty participant as the program continues to grow. From August 2001 through November 2008, nearly 2,500 faculty from 89 departments were served by FTEP. In that period, faculty participants taught nearly 150,000 student course enrollments. Faculty evaluations of the program services have been positive, with an average rank of 4.53 on a scale of 1 to 5.

FTEP workshops by CU-Boulder faculty cover such topics as “Teaching the First Day of Class,” “Using Clickers Wisely,” “Scholarship of Teaching and

Learning,” and “Learning Enhancement through Mindfulness Practices.” Other services include the Classroom Learning Interview Process, in which FTET faculty associates facilitate a discussion among a faculty member’s students about their learning experiences in a particular class. Information gathered in this process, although confidential, may be used by the faculty member for critical self-reflection or as a measure of teaching requested by the department. A multi-day workshop also is offered annually on the use of technology in teaching. In addition, the 35-item Survey of Good Teaching Characteristics asks students to help an instructor in evaluating his or her teaching. An Early Career Faculty Program offers all assistant professors the opportunity to engage in a professional community, both socially and intellectually.

Assessing classroom learning is a strong focus of FTET. The program offers information on setting learning goals, collecting data, knowing whether learning goals are met, adjusting curriculum where needed, and archiving course syllabi in departments. The program also holds symposia for faculty on such assessment topics as writing learning goals and setting expectations for a course in the syllabus. Research on learning and cognition are important components of the FTET program. By sharing information on new pedagogies and research findings on how students learn, the program helps faculty continue to improve their teaching methods.

Graduate Teacher Program. Many graduate students gain valuable experience by teaching in laboratories, recitations, and classes at CU-Boulder. Helping guide their development as future faculty and other professionals is the award-winning Graduate Teacher Program (GTP),¹¹⁴ one of the earliest programs in the country to help graduate students become better teachers. Through workshops and teaching support programs, the program helps graduate students develop their identities as teachers and makes them more competitive on the academic job market when they graduate. GTP also offers a Graduate Teacher Certification program that requires classroom teaching experience, GTP workshop participation, discipline-specific workshops, videotape consultation, observation and evaluation, a teaching portfolio, and a final assessment.

Because graduate students contribute significantly to the university’s teaching mission, the Graduate Teacher Program helps enhance the overall teaching and learning environment at CU-Boulder. GTP has become a model program of its kind, drawing numerous visiting faculty and administrators from around the country to learn from its success. Based on learning improvements by undergraduates taught by GTP-trained teachers, the program received the highly prestigious Theodore M. Hesburgh Award from the American Council on Education in 2006, which included a \$25,000 cash prize.

One GTP program, the Lead Graduate Teacher Network,¹¹⁵ has demonstrated remarkable impacts both on the development of participants’ teaching skills and on the levels of student learning in their classes. Each year, the program selects 48 outstanding graduate students and two exceptional undergraduates as

GTP has become a model program of its kind, drawing numerous visiting faculty and administrators from around the country to learn from its success.

“leads,” who benefit from one-on-one teaching support and share their experiences with other teaching assistants in their departments. During their appointment, leads receive faculty mentoring, leadership training, workshops in course management software, advanced pedagogical training, and academic management training. In turn, they develop teaching workshops for their fellow teaching assistants and present “Pre-Prof Programs” to encourage undergraduates to pursue faculty careers. Based on their training in classroom technology, they advocate the use of the course management software, CULearn, for the 1,200 graduate teaching assistants across campus.

Assessments of the Lead Graduate Teacher Network program have been positive both for leads’ classroom teaching performance and their students’ grades. Substantial improvements are shown in three measures: the leads’ ratings on the student-completed Faculty Course Questionnaire (FCQ); their perceptions of their performance in classroom teaching in anonymous end-of-year evaluations, and their undergraduate students’ grades in general education courses with multiple sections. The program also has had a positive effect on teaching support offered in departments throughout the campus, with increases in pedagogy course offerings, teaching orientations, and use of GTP workshops. In 1992, no departments at the university offered regular workshops on professional development and college teaching; now all graduate departments offer such workshops. The Lead Graduate Teacher Network was launched with 20 departments participating; now more than 50 departments in seven schools and colleges utilize the program.

New faculty orientation. An orientation program held each fall introduces incoming faculty to a wide range of support programs and services available to them, including FTTP and the Leadership Education for Advancement and Promotion (LEAP) program. During the orientation, faculty learn about graduate programs, the Office of Contracts and Grants, instructional technology support, the Honor Code, and policies regarding student behavior. Senior faculty provide advice and counsel about their early years at CU-Boulder.

Mentoring junior faculty. Mentoring activities for junior faculty are coordinated by the Office of Faculty Affairs, which also has developed a reference guide for new faculty that is compiled from resources on the office’s website.¹¹⁶ Junior faculty members may request to be assigned a formal mentor within their home department or to consult with mentors outside their unit on matters of faculty life, such as dossier and curriculum vita preparation or teaching portfolios.

IMPART faculty fellowship program. Each year, a number of faculty members are honored with the Implementation of Multicultural Perspectives and Approaches in Research and Teaching (IMPART) fellowship, which supports efforts that encourage gender, ethnic, and cultural diversity through faculty scholarly work and teaching. IMPART provides fellowships of up to \$4,000 for

proposals that address ways of improving the campus environment in the area of diversity.¹¹⁷

President's Teaching Scholars. CU-Boulder joins the system's other two campuses in the President's Teaching Scholars program, aimed at recognizing outstanding teaching, scholarship, and creative work, as well as adding to the body of knowledge about teaching and learning. Beyond receiving public recognition, the group participates in the state's Classroom Assessment Studies (CLAS), a research project exploring how students best learn and how faculty can best teach. In 2005, the program launched the President's Teaching and Learning Collaborative, in which all faculty members may propose a research and scholarly project on learning and student engagement in a particular course. Participants often share the results of their work in campus presentations, and some have published articles in refereed journals. Through such programs, the President's Teaching Scholars have contributed to the scholarship of teaching and learning, benefiting other faculty on campus, throughout the system, and around the country.¹¹⁸

Summer Session instructional grants and FIRST. Special instructional grants are provided to CU-Boulder faculty interested in teaching a new course or modifying existing courses through Summer Session.¹¹⁹ In addition, the Faculty in Residence for Summer Term¹²⁰ (FIRST) program invites guest faculty from other universities to teach a summer course and partner with CU-Boulder faculty in collaborative writing, research, and other creative projects.

Tenure policies and teaching. CU-Boulder's emphasis on teaching effectiveness is reflected in the university's tenure policies. Under the Laws of the Regents, faculty may achieve tenure by demonstrating excellence in teaching or research or both, and each year, a number of faculty are granted tenure primarily on the basis of excellence in teaching or in both teaching and research. Multiple measures of teaching quality are used by the campus-level tenure review committee. These measures include student evaluations, peer evaluations, student interviews and letters, classroom documents, pedagogical publications, evidence of involvement in individual mentorship, evidence of a reputation as a teacher that extends beyond the campus, and others.

In the tenure review committee's discussions, equal time is granted to an investigation of the teaching record and research profile. If problems in teaching are identified, the committee makes concrete suggestions for improvement, which usually include participation in the FTET and may include mentorships, class assignment redistribution, or others. The committee has observed that, when these cases return for tenure review, FTET participants almost always demonstrate improvement based on faculty evaluation scores and other measures. The tenure review committee also has observed clear indications of an increased use of FCQs as an assessment tool to improve the quality and effectiveness of teaching.



Professor of Education Shelby Wolf leads a small-group project during a class.

As stated in university policy, tenure is awarded with the expectation of continued professional growth and ongoing productivity in teaching, research/creative work, and service. Post-tenure review,¹²¹ undertaken every five years after tenure is awarded, facilitates continued faculty development in all areas of tenured faculty members' professional performance, including teaching. If deficiencies are identified, a development plan is written with specific goals and actions designed to address problem areas. In a regular five-year review, the review committee examines annual evaluation reports, FCQs, peer reviews of teaching, other types of teaching evaluation, and other means of documenting performance.

Supporting Novel Approaches to Teaching

The Science Education Initiative and Physics Education Research Group, both discussed earlier, demonstrate the university's commitment to innovation and excellence in teaching. They also demonstrate the initiative and resolve of faculty members to promote great teaching. Other examples include the Geography Faculty Development Alliance and the Colorado-STEM Learning Assistant Program, as well as individual faculty initiatives for improving teaching and using technological aids in their teaching, as described below.

Geography Faculty Development Alliance. The Geography Faculty Development Alliance¹²² aims to improve the learning and teaching of geography in higher education. The alliance works with early-career faculty and advanced doctoral students to acquire the knowledge needed to excel in the lecture hall, seminar room, and laboratory. According to the alliance members, their key objectives are "to foster a culture of support and success for early-career faculty, to help them understand the fundamental interconnections between their teaching and research, and to advance the scholarship of teaching and learning across the entire discipline." The project includes such components as summer workshops, follow-up seminars, panel discussions, and paper sessions at national meetings. A longitudinal evaluation and research component considers the value of the training to participants during the tenure-review process. The project also publishes workshop materials to be used as a stand-alone course in graduate geography programs.

Colorado STEM Learning Assistant Program. Another program, based in the School of Education, is helping transform large introductory math and science classes at CU-Boulder, while addressing the national shortage of new K–12 science teachers. The Colorado Science, Technology, Engineering and Mathematics (STEM) Learning Assistant program¹²³ recruits and trains undergraduates to take leadership roles in improving the quality of science education, thereby attracting some of the top science and math students into teaching careers. The learning assistant model focuses on teacher recruitment and preparation and offers a seminar to help integrate content, pedagogy, and practice. It uses a collaborative educational research program to evaluate the effects of the model and involves CU-Boulder's science research faculty in the recruitment

and preparation of teachers. The program is supported by national grants, university allocations, and private donations.

Each semester, the learning assistant project hires and trains about 60 undergraduates who help science faculty improve the learning experience in large undergraduate courses using research-based teaching methods. Learning assistants play a key role in creating environments in which students interact with one another, engage in collaborative problem solving, and articulate and defend their ideas. To help prepare for the program, learning assistants take a special seminar on mathematics and science education taught by School of Education faculty and K–12 teachers. Since the learning assistant model was initiated in 2003, more than 30 undergraduate courses have been modified involving 46 faculty members from six departments. To date, 255 math and science majors have participated as learning assistants and 34 have joined teacher certificate programs. More than 7,000 undergraduate students benefit from the initiative each year.¹²⁴ National recognition has resulted in invitations to workshop presentations throughout the nation. In October 2007, about 30 physics faculty members from 14 universities visited CU-Boulder for a two-day workshop on implementing similar programs at their institutions.

Faculty innovation initiatives. Innovation in teaching is demonstrated in the syllabi and instructional methods of many faculty members throughout the university. Examples are plentiful, including the work by history Professor Susan Kent, who takes an ecological approach to teaching the history of Western civilization. As noted in the syllabus, her course examines the conventional subjects of “Western civ”—absolutism, the French Revolution, industrialization, world wars, and others—from an environmental perspective, making connections between political, social, economic, and cultural events and the physical environment in which they occur and upon which they have an impact. In addition, the course utilizes web resources, such as an online textbook and quizzes, as well as essay exams.

Web tools also are incorporated into a class on “Contemporary Art Survey” taught by Assistant Professor Kira van Lil of art history, who leads the class in examining and analyzing the work of five photographers. Classroom time is supplemented with a course blog, in which students interact, post papers and group projects, comment on each other’s work and class readings, and review the professor’s PowerPoint presentations and other materials. The blog serves as a second learning environment deliberately aimed at engaging students in a platform familiar to them.

A humanities-based English course called “Introduction to Digital Media” aims to help students acquire the skills to navigate the 21st-century world in which digital media “govern the storage, transmission, and reception of a whole range of textual material,” according to the course description. The course, taught by Assistant Professor Lori Emerson of English, offers an introduction to digital



Late Professor of Education and former Associate Vice Chancellor of Diversity and Equity Ofelia Miramontes led efforts to change the CU-Boulder cultural landscape by creating programs like the CU-LEAD Alliance that support community and promote academic excellence for underrepresented students on campus.



media structures, such as the digital archive and reading/writing software, methodologies for digital media scholarship in the humanities, and digital textualities ranging from text messaging, blogging, and games to digital fiction and poetry.

Two instructors in French and Italian combine languages and the performance arts in courses that challenge students to write and perform pieces for public presentation. Instructor Chiara Torriani teaches a theater class that has students write a play, which they then perform (in Italian) in the ATLAS Black Box theater at the end of the semester to standing-room-only audiences. Danica Trifunovic collaborates with theatre and music to offer a course that produces a musical (in French) for performance in the ATLAS building. In a course in theatre and dance, called “Colorado Shakespeare Festival Dramaturgy,” students work as production “dramaturgs” for the Colorado Shakespeare Festival (CSF), developing detailed textual, historical, and critical research for CSF productions, participating in education and outreach programs, and writing production-related articles for publication.

CU-Boulder is known for its history of excellence in collaborative research, but that collaboration also permeates the teaching conducted in many classrooms across campus. For example, faculty members Alex Sweetman of art and art history and Jean Hertzberg of engineering collaborate on a course in flow visualization in which students create and study images found in the process of making the physics of fluid flows (gases and liquids) visible. Art students work with engineering students to learn about the utility and importance of fluid flows, as well as their inherent beauty. Many of the images have been published, won prizes, and been shown in art galleries and flow visualization conferences around the world. Examples of their work can be seen on a popular [website](#) among Google searches.¹²⁵ The website includes a comment by an engineering graduate student: “I’ll never be able to ignore the sky again.”

Professors Robert Pasnau of philosophy and Elizabeth Robertson of English team-teach on “The Soul in Medieval Philosophy and Literature,” in which they juxtapose medieval philosophical texts with medieval English literature. In the course, they examine the relationship between the soul and body and the nature of moral responsibility. The two professors have written an article about the experience for the *English Language Notes* special issue on experimental literary education.

In another collaborative approach, faculty and students in three different courses are working together to create media art performance works. The three courses—in audio environments, advanced dance composition, and digital cinema—offer a collaborative, experimental approach to the creation of art for choreography, sound, and the moving image. Taught in the ATLAS performance space, the three classes focus on everyday experiences of sounds, images, and movements.

Faculty members also have been quick to adopt technological assists to instruction, particularly “clickers”¹²⁶ and the CULearn¹²⁷ web facility for students and instructors. These technologies have dramatically increased instructors’ ability to assess student understanding frequently and to deliver feedback to students quickly, even several times per class session. These tools have been the subject of study by faculty and the Faculty Teaching Excellence Program; they are now used in courses comprising over half of undergraduate enrollments. The tools also allow instructors to collect periodic student feedback on components of instruction that work or do not work well for them. The strategic planning process of Information Technology Services¹²⁸ guides implementation of these aids to the learning environment.

Affirming Great Teaching

The university has established numerous honors and prizes for recognizing excellent teaching among the faculty. Recognition is offered by the system, CU-Boulder, various departments, student organizations, and the CU-Boulder Alumni Association.

Hazel Barnes Prize. The Hazel Barnes Prize, named for a renowned CU-Boulder professor of philosophy, annually recognizes an outstanding CU-Boulder teacher who also has made significant contributions to research or creative work. The award includes a \$20,000 prize to be used as the recipient chooses. Since its establishment in 1991, 17 faculty members have been honored with the prestigious prize that celebrates the synergism of teaching and research. The honoree is recognized annually at commencement and other public events on campus.

Other teaching recognition programs. Within the College of Arts and Sciences, the title of College Professor of Distinction is conferred on scholars and artists of national and international distinction who also are teachers and colleagues of exceptional talent. From 2006 through 2008, 12 professors have earned this prestigious honor. Individual departments, such as the German and Slavic languages department, sponsor their own annual awards to further recognize teaching excellence.

The university also honors effective teaching and scholarly work through the CU Distinguished Professor designation, the highest faculty honor bestowed by the university system. More than 30 CU-Boulder faculty hold this prestigious title and are known for their outstanding teaching abilities. At the system level, more than 35 CU-Boulder faculty members have been named President’s Teaching Scholars, individuals selected for their skill in the classroom and their potential to improve education throughout the university. The President’s Teaching Scholars help promote an appreciation of the integration of teaching with research through individual, departmental, university, and system-wide projects.



Distinguished Professor of Molecular, Cellular, and Developmental Biology Norman Pace, an authority on the evolution of primitive underwater life forms, is a MacArthur Fellow and a member of the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Academy of Microbiology.



Distinguished Professor, Nobel laureate, and 2004 U.S. Professor of the Year Carl Wieman of physics. Among his many awards and recognitions, Professor Wieman is a member of the American Academy of Arts and Sciences, the National Academy of Sciences, and the National Academy of Education.

In 2004, Distinguished Professor and Nobel laureate Carl Wieman was named U.S. Professor of the Year by the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education, an honor that recognizes both teaching and scholarly excellence. In 1998, CU-Boulder Professor Dennis Van Gerven won the Colorado Professor of the Year designation.

Each spring, the Boulder Faculty Assembly presents up to four awards, including a \$3,000 prize, for excellence in classroom teaching, as well as similar awards in the categories of research and service. The Herd, an organization of student members of the alumni association, also honors four outstanding teaching faculty every year.¹²⁹ Faculty are recognized for their teaching excellence at formal occasions in the academic year, such as commencement, convocations, faculty gatherings, and orientations.

Outstanding graduate teaching assistants are honored through an annual awards program of the United Government of Graduate Students (UGGS). The award is designed to recognize the teaching abilities, skills, and practices of the university's top graduate student teaching assistants. Up to five awards, each of which includes a cash prize, are given each year.

Resources for Learning

Core Component 3D. The organization's learning resources support student learning and effective teaching.

Just as learning environments have expanded beyond the traditional classroom, so too have the resources that make learning possible. With the new millennium, the infrastructure that supports learning and teaching has undergone remarkable changes at CU-Boulder. Technology touches all aspects of the infrastructure, whether it be high-tech libraries, "smart" classrooms, online curriculum, "green" buildings, leading-edge laboratories, or simply registering for courses. This section provides an overview of the resources that form a framework for effective learning at CU-Boulder.

Redefining the Modern Library

The library is every student's "lab" for studying, collaborating, information-seeking, and researching. CU-Boulder students and faculty have access to a system of libraries,¹³⁰ including the main Norlin Library and five branch facilities in business, earth sciences, engineering, math/physics, and music. A separate law library is administered by the law school. The University Libraries system is the largest library collection in the Rocky Mountain region, with more than 12 million books and other materials, serving as an important regional resource.

Vision for the libraries. The University Libraries' strategic plan,¹³¹ developed in 2005–06, recognizes the need for library services and content to evolve in order to “continue to meet the needs of today's and tomorrow's students and faculty....”¹³² Now, that need is even greater as the university begins to implement the initiatives of *Flagship 2030*. The libraries long have been at the core of the institution and will continue to be central to the university community's discovery, communication, and use of knowledge as CU-Boulder evolves into the “new flagship” of 2030. Changes in the institution and the world will require a clear vision and plan for the role of the libraries over the next quarter-century.

Retooling the libraries. The University Libraries already have begun to respond to the changing needs of their clients, including students, faculty, researchers, and others. In recent years, Norlin Library has taken steps to enhance its learning environment by offering extended hours, up-to-date discovery tools, and a conducive atmosphere for study. In 2009, Norlin completed a major renovation,¹³³ the first in more than 30 years, to add a new 24-hour entry into a physical learning portal with facilities and services that respond to student needs. The renovation includes a 15,050-square-foot learning commons, a 7,770-square-foot research floor, and a new study space for graduate students.

A new learning commons,¹³⁴ a partnership between the libraries and Information Technology Services, features high-tech academic, study, and social areas that are open around the clock. Group study areas include furniture and equipment that can be reconfigured for specific student needs. Also, a new graduate student study area provides comfortable, usable space for research. Part of the funding for these projects was provided by undergraduate and graduate students themselves. These enhancements are the first of five phases in a plan for a major retrofit of the university's main library.

Other libraries on campus also have been built or renovated recently as part of major construction projects. The business library facility had become inadequate for serving the information requirements of business faculty and students. The library was expanded and renovated as part of the business school's major remodel in 2007. Also, the Law School's William A. Wise Law Library, built as part of the new Wolf Law Building, is the most comprehensive and technologically advanced in the 12-state Rocky Mountain region. The 59,000-square-foot library provides computer labs and learning areas, in addition to spaces for books, journals, and other printed materials.

Library technology advances. Technology has changed the way libraries serve their users, both internal and external. CU-Boulder's system of libraries is a state and national leader in the digitization of resources to enhance access, creating the standard and architecture for a statewide digitization project. The CU Digital Library serves as a gateway to digital collections from University



CU-Boulder Libraries

Libraries

- **Norlin Library**
- Business Library
- Earth Sciences Library
 - Map Library (located within the Earth Sciences Library)
- Engineering Library
- Math Physics Library
- Science Library

Library holdings as of June 30, 2008

- Volumes held: **3,928,431**
- Net volumes added during the fiscal year: **84,973**
- Current serial subscriptions: **55,519**
- Microforms: **6,993,960**
- Audiovisual materials (Audio, graphic, film, and video): **1,056,405**
- Total library operating expenditures for 2007–08: **\$21,337,928**

Libraries and academic units, as well as digital collections from other institutions. A program called Chinook provides access to the millions of holdings in the libraries, including all departments of the Norlin Library and all branch libraries. Through Chinook, users can access such resources as books, periodicals, compact disks, microfilm and microfiche, musical scores, videocassettes and DVDs, electronic databases, and others. Team technology rooms, which are centrally located and commonly have a mounted whiteboard and large display monitors for laptops, allow several students to interact and collaborate on group projects. Now completely wireless, the libraries provide most course reserves electronically.

Based on a shared commitment to supporting and providing access to the scholarship of graduate students, the library system has partnered with the Graduate School to enable access to all electronic theses and dissertations since fall 2004. These electronic documents provide a technologically advanced medium for expressing and disseminating ideas. Full-text versions of dissertations produced at any University of Colorado campus from 1997 to the present are available free via PDF download from the libraries' online catalog.

Addressing issues of funding and space. Funding represents a serious challenge for many university libraries, including CU-Boulder's, where peer comparisons show significant gaps in financial and staffing support. In recent years, the university has responded by increasing the libraries budget by 8 percent per year, and for fiscal year 2009, the increase was bumped to 10 percent. Also, funds have been made available by which new faculty in the humanities are provided a start-up account for library acquisitions. Tenure and tenure-track positions in the libraries have increased 33 percent between 2003 and 2008 (from 21 to 28).

Another serious issue is the amount of physical space required for the libraries' books, periodicals, and other materials. CU-Boulder has invested in a major expansion of the state-wide off-site storage facility called the Preservation and Access Service Center for Colorado Academic Libraries (PASCAL)¹³⁵ in the Denver metro area. Shared by four university library systems, the facility stores valuable but low-demand research materials in a temperature- and humidity-controlled environment to provide more usable space at the libraries' main sites. Materials are provided rapidly via courier upon request or via digital delivery to the desktop. The libraries also support student use of information technology through direct reference assistance, course-integrated instruction, information literacy initiatives, credit courses, and online guides. The libraries also are building a digital repository of the full range of intellectual assets of the campus, including faculty publications, theses and dissertations, creative work, and others.

New Technologies for Learning and Teaching

Once a novelty and now a virtual necessity, information technology (IT) plays a central role in the learning and teaching environment at CU-Boulder. Wired

and wireless connectivity is ubiquitous, with plans for even broader applications in the classroom and beyond. In 2004, the CU-Boulder student government approved a student capital construction fee that included funds for improvements in technology infrastructure as well as campus buildings. As a result, the university was able to significantly upgrade its academic technologies with up-to-date wiring and network system infrastructure.

Over the past decade, the campus has made organizational changes and investments to enhance technological support for learning. The 2006 IT strategic plan,¹³⁶ discussed in Chapter 5, was the impetus for many of the IT initiatives currently in process on the Boulder campus. Major initiatives fall within the broad categories of academic technology, IT architecture and security, communication technologies, research computing and support, and web presentation and content.

Academic technologies initiative. In particular, the academic technologies initiative in Information Technology Services¹³⁷ provides leadership and focus for the use and deployment of technology in support of teaching and learning. The unit helps shape and improve the campus's IT environment by evaluating academic technologies and conducting needs assessments to guide decision-making. For example, the academic technologies initiative has evaluated the use of “clickers,” querying both students and faculty about their experiences with the hand-held polling tool in the classroom.

The unit also evaluates faculty technological needs in such areas as the CULearn online learning management system, collaborative and social networking tools, smart classrooms, rich media, and large lecture classrooms. The academic technologies initiative also is working with the College of Music to evaluate the college's use of iTunesU to allow users to search, download, and play course content any time and anywhere. These and other evaluations help guide decisions on investments to meet the technology needs of faculty and students. In addition to technology evaluation, the academic technologies initiative also provides consultative support—teaching, training, and pedagogical brainstorming—for faculty using classroom technologies and multimedia in their teaching, research, creative work, and service.

Promoting uses of information technology. As the campus expands its IT capabilities, opportunities emerge for more and better uses of technology. For more than a decade, CU-Boulder has invested in “smart classrooms” that support technology-assisted teaching and learning. The classrooms' multimedia access and internet connections promote more innovative pedagogies and faculty–student engagement. There are 75 internet kiosks and more than 60 computer labs on campus, allowing convenient access to technological resources. Also, the Anderson Language Technology Center is a state-of-the-art facility supporting the study of foreign language and cultures with the help of multilingual multimedia resource collections.¹³⁸ As discussed earlier in this chapter, many classes already use “clickers” that provide instantaneous feedback to help the



instructor gauge the level of student understanding. In 2008, the campus began a systematic investigation of emerging technologies for teaching and learning. Results of this effort will be disseminated campus-wide so that standardized technological support for enhanced teaching methods, as well as more effective general use of classroom technology, can be developed for the entire campus.

Some of the most innovative and forward-thinking uses of technology in the learning environment can be found in the ATLAS building, located near the center of campus. ATLAS was launched in 1997 as a campus-wide initiative to integrate information technology with all disciplines, people, and communities. Designated as an institute in 2003, ATLAS extends the benefits of the networked information age through multidisciplinary curricular, research, creative, and outreach programs. Academic programs include the undergraduate certificate in Technology, Arts, and Media; the interdisciplinary PhD program; the Center for Arts, Media and Performance; the Assessment and Research Center; and the National Center for Women and Information Technology. Programs under development include a master of science degree in information and communication technology for development and a master of science degree in arts, media, and entrepreneurship. The institute's first doctorate degree was awarded in December 2008 to a student whose dissertation on advancement through interactive radio, or AIR, dealt with efforts to link disadvantaged women with local community radio stations and other community-based resources. In line with its goal of reaching out to diverse communities, ATLAS has established partnerships in technological education with two historically black universities, Tuskegee and Dillard.

The networked information age has transformed the way people learn and work throughout the campus. CU-Boulder students, faculty, and staff depend on the stability, access, convenience, and overall performance of the IT network. Many in the campus community conduct their university business via the secure [CUConnect](#)¹³⁹ web portal. Students use the portal to register for classes, check their grades, keep their calendars, and access e-mail and course tools. Faculty and staff also use the portal to conduct business, including posting class rosters and communicating with their students.

Almost every course offered at CU-Boulder has an online component, with most faculty utilizing [CULearn](#),¹⁴⁰ an online learning management system. Through CULearn, students have access to course content using web-based development tools, quizzes, assignments, and group management. They can interact with the instructor, collaborate with other students, and learn their grades—all within a secure online environment.

Technology infrastructure improvements. Keeping up with technology advances requires constant vigilance—and the necessary resources. Beginning in late 2006, a two-year campus rewire began for all wired buildings in anticipation of higher demand from academic and administrative areas. As a result, users in

DISPLAY 6.8

Information Technology Activity: Five-year Comparison

| | 2003-04 | 2008-09 |
|--|---------|---------|
| Academic Technologies & Spaces | | |
| Percent of new freshmen with their own computers | 95% | 99.5% |
| Number of centrally scheduled smart classrooms and smart lecture halls | 76 | 122 |
| Percent of students enrolled in at least one class with CUCConnect (online learning management system) interface (fall of fiscal year shown) | 58% | 90% |
| Percent of students who have a student response system (clicker device) | 0% | 86% |
| Number of campus computers/workstations available to all students (including labs) | 1,525 | 1,851 |
| Number of campus e-mail accounts—students, faculty, staff, and affiliates | 45,000 | 78,000 |
| Communication | | |
| Number of individuals signed up for emergency text service (RAVE) | 0 | 15,702 |
| Percent of faculty using faculty/staff portal | 0 | 89% |
| Percent of staff using faculty/staff portal | 0 | 83% |
| Infrastructure | | |
| Number of unique hardwired devices (fall semester) | 21,000 | 23,000 |
| Number of unique registered wireless devices (fall semester) | 2,500 | 39,000 |
| E-mail storage available for students | 20 MB | 10 GB |
| File storage available for students (in addition to e-mail storage) | NA | 100+ MB |

Source: Information Technology Services and www.colorado.edu/pba/perfmeas/indicators.htm

rewired buildings experienced a significant performance jump from 10 Mbps to 100 Mbps connections, with future plans for Ethernet support at 10 times that speed. In addition, enhancements to CU-Boulder's wireless network offer ease-of-access and convenience, covering more than eight million square feet, the largest in the tri-state region. Recent installations increased the number of wireless access points on campus from about 300 to nearly 1,800. The university network processes about 23,000 hardwired devices on campus at any given time. Added to that number are the 39,000 wireless devices connecting to the network, with some devices having both wired and wireless connections. These numbers clearly illustrate that the university's students, faculty, and staff depend on the vast amounts of data, information, and communication transmitted over the network. Wireless service also is provided for a large number of guest users, such as conference attendees and visiting faculty.



The University Memorial Center atrium, which was awarded LEED Silver certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design certification system for Existing Buildings (LEED-EB) in 2006.

Securing campus data. One of the key components of CU-Boulder's IT plan is to enhance the security and efficiency of IT systems. The effort includes centralizing much of the campus's sensitive data and strengthening access and authorization controls. In 2004, the university and the CU system eliminated the use of social security numbers as the primary identifier in all campus computer systems, and an array of technical and non-technical solutions was launched to better protect the campus. Examples include antivirus software available to all at no cost, a virtual private network allowing secure and encrypted connections, a campus border firewall, security awareness programs, risk assessments, and strengthened access policies. CU-Boulder has undertaken a process for eliminating unnecessary databases that might contain sensitive information; by fall 2008, the number of such databases had been reduced by two-thirds. Employee awareness and training has become a high priority, with 75 percent of all faculty and 89 percent of staff completing the courses by fall 2008. Nearly all the IT staff had completed the advanced courses. Investments in personnel, hardware, and software to ensure the security of sensitive data include direct costs of \$1.9 million and more than 7,800 hours in training and inventory.

The campus also uses technology for swift notification of faculty, staff, and students in cases of emergency, via a mobile phone and wireless text-messaging service. Launched in 2007, the RAVE Short Message Service was one of several enhancements to the university's emergency response and communication programs. By fall 2008, about 15,000 members of the campus community had enrolled in the service.

Improving the Physical Infrastructure

The physical infrastructure of the Boulder campus is one of the university's primary resources for learning and teaching. Major changes in CU-Boulder's physical infrastructure have occurred over the past decade, as discussed in Chapter 1. These changes include new buildings and expanded facilities for enhancing the learning experience for generations of students. For example, a new humanities building opened in 2000 on the last reserved building site on the historic Norlin Quadrangle. Housing four humanities departments, the building added many new classroom seats, "smart" classrooms, and high-tech lecture halls. Other major building projects have been completed in the intervening years.

Student support for facilities. Early in the decade, state financial difficulties threatened to halt plans for several new facilities at CU-Boulder. In 2004, the student government took the unprecedented step of voting to add a student capital construction fee to enable construction of academic buildings the state could not afford to fund. The student capital construction fee allowed construction of new "green" buildings to house ATLAS, law, and visual arts. The student fee also supported a major addition to the business school and improvements to technology infrastructure campus-wide. CU-Boulder increased its building space

with a net gain of 280,000 gross square feet between 2006 and 2008. In 2008-09, the university had more than \$200 million in capital construction under way, with another \$330 million in planning stages. The great majority of both was cash funded.

Flagship 2030 building needs. As noted earlier in this chapter, *Flagship 2030* calls for establishing a residential college model for living and learning on campus. Building on the highly popular RAPs, the university intends to offer that experience to all freshmen—and eventually to extend it beyond a single year. Not all students will choose to take that opportunity, but CU-Boulder is aiming for a significant increase in the number engaged in multi-year residential experiences. Three residence halls are already being renovated to add more beds and convert space for classrooms, meeting rooms, study spaces, and faculty offices.

Campus master plan. The university's campus master plan,¹⁴¹ now being updated, provides a blueprint for future construction. For example, in the next few years, CU-Boulder plans to open a new research and teaching facility to support campus initiatives in systems biotechnology. Located on the East Campus, the building will serve as an academic home for 60 faculty and more than 600 students and other researchers from engineering and life sciences. With an emphasis on collaborative work, the facility will provide classrooms, research and teaching laboratories, meeting spaces, offices, and new communication technology to bridge physical distances between the new building, the rest of the university, and the biotechnology industry.

Center for Community. A new Center for Community, now under construction, will provide a unique environment for student gathering and campus community building. The \$66 million facility combines dining services with student services in a “crossroads” location on campus. It will replace obsolete dining facilities now in two residence halls, achieve efficiencies through consolidation, and offer underground parking for several adjacent buildings. Also located in the Center for Community will be the Student Academic Services Center, the Office of Disability Services, Counseling and Psychological Services, the Ombuds Office, the Office of Victim Assistance, Career Services, the Office of International Education, and other services. The new facility will free up 80,000 square feet of residence hall space for classrooms, faculty offices, senior rooms, and faculty apartments for use by the residential colleges program. Construction of the Center for Community is funded with auxiliary revenues and private gifts, utilizing no state funds.¹⁴²

Enhancing instructional facilities. Other plans call for renovation of instructional buildings, such as Ketchum and Ekeley Halls, and the systematic renovation of residence halls and the addition of new residence halls at the Bear Creek complex. The university is accelerating the development of the East Campus as a research and academic complex to complement the main campus. Initial focus will be on initiatives in biotechnology, energy and sustainability,

“The Center for Community will transform the ways in which we serve our students, providing a wide array of services, an exciting new dining facility, and a hub for student activities that will serve both off-campus students and those living in the residence halls.”

— Julie Wong,
Vice Chancellor for
Student Affairs

geosciences, and computational science. In addition to the biotechnology building and geosciences building, the East Campus is planning a 10,000-square-foot university cyber infrastructure facility in support of the high-capacity computational research needs of the faculty. As the updated campus master plan is further implemented, campus facilities are expected to provide leading-edge spaces for the learning environment and *Flagship 2030* initiatives of the future.

Staff Support for the Learning Environment

CU-Boulder is committed to investing in new staff and providing opportunities for professional development and career advancement among staff personnel. The university's trained and effective staff members are critical to the mission of the institution, providing support for all aspects of learning, teaching, research, creative work, and service. They provide advising, information technology support, assistance to faculty, classroom maintenance, and a host of other activities related to the learning experience. Staff members often act as university representatives to the public, helping constituencies access and understand the resources of the institution.

Leadership and advocacy for staff development is provided by the human resources department,¹⁴³ as well as by individual managers and staff members. Human resources has been expanded to better serve the needs of all university personnel, including faculty and exempt professionals. The *Flagship 2030* plan calls for 300 new tenure-track faculty positions to be added over the next 10 years. In order to effectively support these new faculty lines, staff positions will be added in appropriate numbers. Also, a university-wide task force made recommendations to the provost concerning issues of interest to instructors and non-tenure-track faculty, resulting in numerous improvements. Recently added staff positions are providing support and infrastructure to help enhance the university's growth in research and student enrollment.

Summary

At CU-Boulder, general education and the core curriculum are central to undergraduate education, as demonstrated by the care and attention paid to their assessment and improvement. The same care and attention are applied to undergraduate education as a whole, in which learning goals are defined, faculty are challenged to expect more of students, and assessment activities span all levels of the institution. Key roles also are played by advising services, cocurricular activities, and student development. Creative learning environments abound, in such venues as high-touch laboratories, visual arts studios, and foreign language multimedia centers. The university seeks to cultivate an inclusive climate for excellence in which differences are celebrated and respectful communication is the norm. A broad array of programs provide multiple opportunities for students to connect with each other, faculty, and staff in the pursuit of learning.

Excellence in teaching remains a high priority for the University of Colorado at Boulder. Numerous initiatives offer avenues for improvement in instruction, from student input questionnaires, in-house assistance by outstanding faculty, and graduate student teaching programs. The university supports innovative approaches to teaching through several organized programs as well as individual faculty initiatives. CU-Boulder's great teachers are honored for their performance through several recognition programs.

Resources for learning and teaching have moved beyond traditional definitions to incorporate technology in all areas of the university's infrastructure, from using libraries, to conducting everyday business, to learning in smart classrooms. The physical infrastructure provides the backdrop and space for all the university's work, and important improvements have been made with the help of students, institutional investments, and private donors. Staff support is a vital part of CU-Boulder's success, making valued contributions to the mission of the institution.

In summary, the academic community of the University of Colorado at Boulder values excellence in teaching and student learning, as demonstrated by its commitment to continuous improvement and dedication to the institution's mission. This commitment is exemplified in a broad array of programs, activities, assessment practices, and individual initiatives.

Discussion

Key Strengths

- **Commitment to effective teaching.** The Faculty Teaching Excellence Program has developed a national reputation for modeling and developing great teaching. Participation rates are growing, indicating an increased emphasis on effective teaching in the culture of the institution. The Graduate Teaching Program, including the Lead Graduate Teacher Network, helps prepare future professors for their teaching mission. Innovative programs, such as the Science Education Initiative, have shown remarkable results in applying new teaching methods, especially in large introductory classes.
- **Array of innovative learning communities.** The university strives to provide learning enrichment opportunities for its large undergraduate population. The Residential Academic Programs offer unique learning environments for students with shared interests. Participants enjoy small classes held in residence halls, with cocurricular and social activities available. Many include opportunities for service learning and volunteer programs. Student achievement is promoted through undergraduate research, intellectual challenges, collaboration, and focus on communication skills. Inclusive climates for learning are enhanced through the work of coordinated programs supporting first-generation college students and others. Student development

models are used in creating supportive learning environments that help develop the whole student.

Challenges and Issues

- **Maintaining momentum in assessment of student learning.** Since the campus's last reaccreditation, numerous improvements have been made to assessment programs. The challenge now is to maintain the momentum of these improvements and to continue to promulgate a "culture of assessment" throughout the campus. CU-Boulder leaders recognize this ongoing challenge and intend to continue improvement with the help of the Assessment Oversight Committee, deans, department heads, faculty, and staff.
- **Evolution of the university library.** Changes in technology and usage patterns have placed new pressures on the role and nature of the modern library, requiring changes in facilities, staffing, and technological infrastructure. New strategic approaches and resources will be needed to respond as libraries evolve in the way they serve faculty, students, and the public.
- **Enhancing the physical campus.** While students recently took the initiative to help pay for several buildings on campus, they cannot—and should not have to—continue underwriting state facilities. The university must initiate successful partnerships with state leaders, including the governor and legislators, to identify the resources necessary to fund the new campus master plan.

Flagship 2030: Next Steps

- **Bolstering faculty/student interaction.** *Flagship 2030* calls for increasing the numbers of tenure-track faculty to help improve student/faculty ratios and help promote the learning experience. Progress already has been made toward meeting this goal, although current economic circumstances present significant obstacles.
- **Enhancing the curriculum.** The plan also proposes to redefine the way undergraduate education is delivered, including an examination of the current curriculum and teaching methodologies. By improving undergraduate education with the help of authentic assessment practices, the university aims better to prepare students for living and working in a changing world and enhancing the value of their degrees.

- **Building a residential college atmosphere.** CU-Boulder is well positioned to expand its successful and popular Residential Academic Programs, with the long-term goal of creating a residential college model. The university plans to begin by building the resources and infrastructure for offering Residential Academic Programs to all freshmen, then exploring ways of providing a multi-year residential academic experience for all students.
- **Enhancing the role of University Libraries.** With *Flagship 2030*, the university aims to transform itself as a leading model of the “new flagship,” and the libraries will play an important role in that transformation. The long-term vision and role for the library system will need to be clarified, in alignment with the goals of *Flagship 2030* and the changing needs of undergraduate and graduate students, faculty, researchers, and external clients. The university is committed to continued investment in academic technologies for enhancing the learning environment. Promotion of emerging initiatives in libraries and academic technologies holds great promise for improving student learning.

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CHAPTER 7

Acquisition, Discovery, and Application of Knowledge

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CHAPTER 7

Acquisition, Discovery, and Application of Knowledge

CRITERION 4:

The organization promotes a life of learning for its faculty, administration, staff, and students by fostering and supporting inquiry, creativity, practice, and social responsibility in ways consistent with its mission.

Research universities give people the extraordinary opportunity to engage in a life of learning, from the conception of ideas to their application in solving some of society's most vexing issues. At the University of Colorado at Boulder, a diverse academic community of internationally recognized scientists, engineers, artists, and humanists make important contributions to the world's body of knowledge, creating innovations that change people's lives. This chapter describes the myriad ways that CU-Boulder faculty and students engage in leading-edge scholarship and creative work and the integration of their work with undergraduate and graduate learning.

As described in this chapter, the university has developed a strong reputation for interdisciplinary work that draws expertise from all corners of the campus and beyond. Key initiatives in *Flagship 2030* are helping CU-Boulder leverage these strengths to higher levels of discovery and learning by providing strategic focus and institutional support. As proposed in the plan, a review of the university's curriculum, including its general education requirements, will help realign the learning experience with the needs of a changing world. The strategic plan provides a framework for extending the university's reach as an international institution while fostering responsibility and personal growth in the learning community at home.



CU-Boulder GOJETT (Graduate Organization Jet Engine Technology Team) group members look over a model of a mini jet engine at an aerospace engineering lab on the CU-Boulder campus.

Research and Creative Work: Pushing the Limits of Knowledge

Core Component 4A. The organization demonstrates, through the actions of its board, administrators, students, faculty, and staff, that it values a life of learning.

The research enterprise plays a central role in the learning community at the University of Colorado at Boulder, with its long tradition of excellence within the disciplines, an interdisciplinary focus, and its integration with education. Scholarship within the arts and humanities has enriched the human experience and added to the world's body of knowledge, while scientific discoveries have transformed whole fields of inquiry. This section focuses on the university's continued support of excellence in research and creative work, including strategic initiatives in *Flagship 2030* that promote future exploration. A sampling of scholarly achievements, including applications to the learning environment, demonstrates the range and depth of CU-Boulder's research enterprise.

The university, its faculty, and its students have earned international recognition for the high quality of research and learning that characterize CU-Boulder. In 2008, CU-Boulder ranked 26th in the country among top public research universities in the listing published by the highly regarded Center for Measuring University Performance,¹ located at Arizona State University. Recent analyses² by the center demonstrated several notable strengths and special characteristics of the University of Colorado at Boulder. For example, the 2008 report indicates that CU-Boulder has four measures (among nine) in the top 25 for public universities nationwide and two more in the top 50. The report clearly indicates that CU-Boulder's strengths lie squarely with faculty and research activity, particularly federally funded activity.

The university's research achievements also have been recognized regularly by surveys by the Institute for Higher Education at Jiao Tong University in Shanghai, China. As noted in Chapter 1, the institute's 2008 survey placed CU-Boulder among the top 10 public universities in the United States.

Outstanding research and creative work are honored through university awards, publications and websites, such as the *Just the Facts: Research and Graduate Education* brochure³ and the university's research website.⁴ In addition, faculty achievement in research, creative work, and teaching is recognized in an annual university publication entitled "A Celebration of Faculty Achievement," launched in fall 2008.⁵ In Colorado, the nation, and around the world, media coverage of faculty research achievements has underscored the value and role of the university's discovery enterprise.

Flagship 2030: Enhancing the Research Enterprise

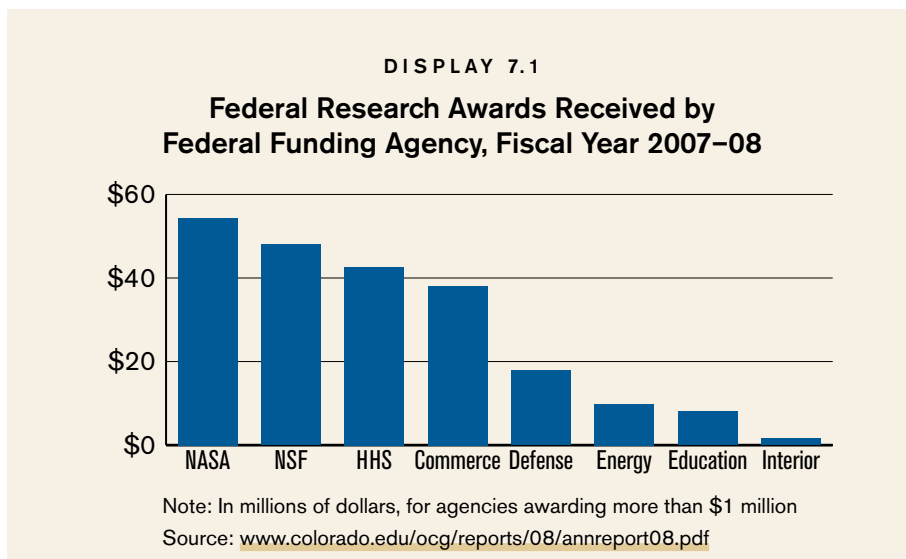
Flagship 2030 emphasizes the critical importance of the university's mission in research and creative work and strives to anticipate and plan for future challenges to that mission. CU-Boulder views research and creative work as an important learning experience for faculty and students. The university continues to demonstrate a strong commitment to involving both graduate students and undergraduate students in research and creative work, thereby creating unique opportunities for learning and discovery.

CU-Boulder's impressive research accomplishments to date have occurred with relatively modest institutional investments in infrastructure. According to the *Flagship 2030* Research, Scholarship, and Creative Works Task Force, the university's successes in research and creative work have occurred "largely because the campus administration has encouraged the entrepreneurial instincts of faculty members and reacted favorably when opportunities for institutional collaboration...have presented themselves."

The task force report noted that today's fierce competition for resources calls for greater strategic focus and institutional support than ever before for research and creative work. Without an infusion of support for the infrastructure of research—library and laboratory facilities, office space, maintenance, support staff, fellowships, and faculty retention—the task force concluded that CU-Boulder risks losing its standing as a place for world-class discovery and learning. Recommendations by the task force are being given serious consideration as the university moves to implement *Flagship 2030*.

Flagship 2030 research initiatives. Several key initiatives in *Flagship 2030* are aimed at enhancing the infrastructure and scope of research and creative work at CU-Boulder. In particular, the plan calls for significant investments in expanding the faculty, enhancing graduate education, adding and renovating facilities, and building on disciplinary and interdisciplinary research strengths.

In a major thrust designed to bring distinction both to CU-Boulder and Colorado, the university has begun to initiate a "research diamond" enterprise in collaboration with other regional research institutions, such as Colorado State University in Fort Collins, the Colorado School of Mines in Golden, and the University of Colorado Denver. The Research Diamond will engage business and industry, government leaders, and federal laboratories in a shared spirit of discovery in Colorado. In another initiative, CU-Boulder is working to become a global crossroads with a greater international presence through expanded partnerships, international studies, study abroad, student and faculty exchange programs, international sabbatical programs, and opportunities for visiting faculty.



Infrastructure for Research and Creative Work

Leadership for the research enterprise at CU-Boulder is provided by the vice chancellor for research, who reports directly to the provost. The work of the vice chancellor's office is aimed at enhancing the campus environment for research and creative work, especially those endeavors involving interdisciplinary collaboration. As discussed later in this chapter, CU-Boulder has a long history of interdisciplinary research achievements, supported by a strong system of research institutes, centers, and laboratories.

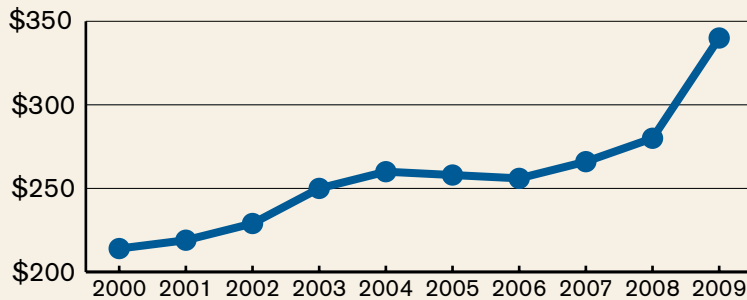
The university's collaborative tradition is buttressed by remarkable strengths within the disciplines, where faculty and graduate and undergraduate students engage in leading-edge research and creative work. Departments place a strong emphasis on scholarly work that involves the input of students and creates singular learning opportunities. More than 1,000 graduate students hold research assistantship appointments each year.

CU-Boulder is home to more than 1,180 research faculty, whose work is focused primarily on the discovery enterprise. Most of these individuals are located within the research institutes, as well as several natural sciences and engineering departments. These faculty include institute directors, 24 research and clinical professors at all ranks, more than 600 professional research assistants, and more than 500 research associates—PhD-level researchers who are neither students nor traditional tenure and tenure-track faculty. Most of CU-Boulder's 400-plus postdoctoral fellows are classified as research associates; they work under the supervision of a faculty member in an academic department or research institute. In 2003, the university strengthened its support program for post-docs, moving the program under the Graduate Teacher Program. A year later,

DISPLAY 7.2

Total Sponsored Research Awards Received Last 10 Years

In millions of dollars for fiscal years



Source: www.colorado.edu/pba/facstaff/research/index.htm

CU-Boulder helped initiate the Postdoctoral Association of Colorado (PAC) to help create opportunities for professional development, networking, and social activities to enhance the postdocs' experience in their current positions and to prepare them for academic and non-academic career paths.⁶

Achievements in Research and Creative Work

CU-Boulder scholars are remarkably successful in winning competitive sponsored research awards—more so than the faculty size would predict. In fiscal year 2008–09, the university received about \$340 million in such awards, surpassing the previous record by about \$60 million—despite a challenging economic environment. In 2008–09, CU-Boulder faculty submitted about 2,000 research proposals with a value approaching \$1.5 billion and received funding for 1,827 research awards during the fiscal year. As of July 2009, the awards included 28 proposals approved under the American Recovery and Reinvestment Act, totaling nearly \$12 million. Spread over many disciplines, research contracts and grants help support graduate and undergraduate students who engage with faculty on research that benefits the citizens of Colorado, the nation, and the world. The 2008 Annual Report on “The Top American Research Universities,” prepared by Arizona State University’s Center for Measuring University Performance, ranks CU-Boulder at No. 20 in federal research awards among public universities.⁷

Examples of life-changing research and creative work are found throughout the campus, from music and law to physics and aerospace engineering. Only a fraction of the research and creative work performed by CU-Boulder faculty and students could be noted in this chapter. The quality of the university’s research

DISPLAY 7.3
Sponsored Research Expenditures, Fiscal Year 2008,
by CU-Boulder Schools, Colleges, and Research Institutes
In millions of dollars

| | Expenditures in the unit | Expenditures allocated based on principal investigator's tenure locus | Total expenditures, in-unit plus allocated |
|--|-----------------------------|---|---|
| Schools and Colleges | | | |
| Arts and Sciences | | | |
| Arts and Humanities | 2.3 | -.1 | 2.2 |
| Natural Sciences | 63.2 | 68.3 | 131.6 |
| Social Sciences | 2.7 | 5.1 | 7.9 |
| Business (Leeds) | 2.6 | .0 | 2.6 |
| Education | 3.9 | .0 | 3.9 |
| Engineering | 39.7 | 3.5 | 43.2 |
| Journalism | .2 | .0 | .2 |
| Law | .2 | .0 | .2 |
| Music | .0 | .0 | .0 |
| Total Schools and Colleges | 114.9 | 76.9 | 191.8 |
| <i>As percentage of campus total</i> | <i>44%</i> | <i>30%</i> | <i>74%</i> |
| Other Units | | | |
| Research Institutes | | | |
| CIRES—Environmental sciences | 47.5 | -31.0 | 16.4 |
| ICS—Cognitive science | 4.8 | -2.3 | 2.5 |
| IBG—Behavioral genetics | 10.2 | -7.8 | 2.4 |
| IBS—Behavioral science | 6.1 | -4.3 | 1.7 |
| INSTAAR—Arctic and alpine | 5.9 | -3.9 | 2.0 |
| JILA | 19.9 | -13.6 | 6.4 |
| LASP—Atmospheric and space physics | 37.9 | -10.9 | 27.1 |
| Total Research Institutes | 132.2 | -73.8 | 58.4 |
| <i>As percentage of campus total</i> | <i>51%</i> | | <i>23%</i> |
| All Other | | | |
| Includes other institutes, centers not part of a school or college, and administrative units | 11.6 | -3.1 | 8.5 |
| Campus Total | 258.7 | .0 | 258.7 |

enterprise is perhaps best exemplified by its four Nobel Prize winners: John Hall of JILA and physics in 2005; Carl Wieman and Eric Cornell of JILA and physics in 2001; and Tom Cech of chemistry and biochemistry in 1989. Hall was honored for his contributions to the development of laser-based precision

DISPLAY 7.4

**Sponsored Research Expenditures, Fiscal Year 2008,
by CU-Boulder Academic Departments**

In millions of dollars

Departments with total expenditures exceeding \$6 million

| | Expenditures in the unit | Expenditures allocated based on principal investigator's tenure locus | Total expenditures, in-unit plus allocated |
|--|-----------------------------|---|---|
| Geography* | .5 | 26.7 | 27.2 |
| Astrophysical and Planetary Sciences | 7.0 | 14.9 | 21.9 |
| Physics | 8.3 | 7.3 | 15.7 |
| Psychology | 8.8 | 6.3 | 15.1 |
| Chemistry and Biochemistry | 13.3 | 1.7 | 15.0 |
| Molecular, Cellular, and Developmental Biology (MCDB) | 13.9 | .5 | 14.4 |
| Aerospace Engineering | 9.0 | .9 | 9.8 |
| Integrative Physiology | 4.5 | 3.9 | 8.5 |
| Chemical and Biological Engineering | 8.3 | .0 | 8.3 |
| Mechanical Engineering | 6.3 | .0 | 6.3 |
| Electrical and Computer Engineering | 6.2 | .0 | 6.2 |
| Computer Science | 4.0 | 2.1 | 6.1 |
| Total, these 12 departments | 90.2 | 64.2 | 154.4 |
| <i>As percentage of campus total</i> | <i>35%</i> | | <i>60%</i> |
| Campus Total | 258.7 | .0 | 258.7 |

Notes:

The allocation presented here is an analytic device; no financial system transactions were made.

Allocation is based on the tenure locus (an academic department) of the principal investigator (PI) on individual projects.

*Geography: Funds allocated based on PI tenure locus include Cooperative Institute for Research in Environmental Sciences (CIRES) operating budget.

Source: Sponsored research expenditures and awards by department, 1968 to present; Office of Planning, Budget, and Analysis, www.colorado.edu/pba/facstaff/research

spectroscopy. Wieman and Cornell received the Nobel Prize in physics for their landmark 1995 creation of the world's first Bose-Einstein condensate, a new form of matter created by cooling atoms to almost absolute zero; they shared the prize with Wolfgang Ketterle of the Massachusetts Institute of Technology. Cech was honored for his research team's discovery that RNA could catalyze biochemical reactions; he returned to CU-Boulder in spring 2009 to resume his teaching and research after serving as president of the Howard Hughes Medical Institute for eight years. In addition, scientists with CU-Boulder's National Snow and Ice Data Center shared in the 2007 Nobel Peace Prize with former Vice President Al Gore for their work on a collaborative report on climate change.

DISPLAY 7.5

**CU-Boulder Faculty Named as “Highly Cited Researchers” by ISIHighlyCited,
based on Citations 1984–2003**

| Name | ISI Thompson Category | CU-Boulder Affiliation |
|---------------------------|--------------------------|--|
| Cech, Thomas R. | Biology and biochemistry | Chemistry and biochemistry |
| Hynes, James T. | Chemistry | Chemistry and biochemistry |
| Michl, Josef | Chemistry | Chemistry and biochemistry |
| Ehrenfeucht, Andrzej | Computer science | Computer science |
| Gabow, Hal N. | Computer science | Computer science |
| Varanasi, Mahesh K. | Computer science | Electrical, computer and energy engineering |
| Markusen, James R. | Economics/business | Economics |
| Molnar, Peter | Geosciences | Geological sciences |
| Pielke Sr., Roger A. | Geosciences | Environmental studies |
| Toon, Owen Brian | Geosciences | Atmospheric and oceanic sciences |
| White, James W.C. | Geosciences | Geological sciences |
| Raj, Rishi | Materials science | Mechanical engineering |
| Beylkin, Gregory | Mathematics | Applied math |
| Manteuffel, Thomas Albert | Mathematics | Applied math |
| Ablowitz, Mark J. | Mathematics | Applied math |
| Pace, Norman R. | Microbiology | Molecular cellular and developmental biology |
| Cooper, John | Physics | Physics |
| Adams, William W. | Plant and animal science | Ecology and evolutionary biology |
| Demmig-Adams, Barbara | Plant and animal science | Ecology and evolutionary biology |
| Staehelin, L. Andrew | Plant and animal science | Molecular cellular and developmental biology |
| Jessor, Richard | Social sciences, general | Psychology |
| Baker, Daniel N. | Space sciences | Astrophysical and planetary sciences |
| Bally, John | Space sciences | Astrophysical and planetary sciences |
| Begelman, Mitchell C. | Space sciences | Astrophysical and planetary sciences |
| Conti, Peter S. | Space sciences | JILA |
| Shull, J. Michael | Space sciences | Astrophysical and planetary sciences |
| Stoeck, John T. | Space sciences | Astrophysical and planetary sciences |
| Linsky, Jeffrey L. | Space sciences | JILA |

Note: Many of these individuals are affiliated with both an academic department and a research institute. Where available, the academic department holding tenure is listed.

Source: ISI Thomson ISIHighlyCited.comsm, hcr3.isiknowledge.com/formBrowse.cgi

CU-Boulder faculty members are highly cited in professional journals and other literature, including 28 faculty members named as “highly cited researchers” by ISIHighlyCited.com of Thomson Reuters.⁸ This standing honors the most highly cited [authors] for the period from 1984 to 2003 within each of 21 broad subject categories in life sciences, medicine, physical sciences, engineering, and social sciences. These authors comprise less than 1/2 of 1 percent of all publishing researchers. The 28 CU-Boulder faculty are ranked in 12 diverse subject areas; they come from 14 academic departments, with affiliations in almost all research institutes. Overall, CU-Boulder faculty members are estimated to have

accrued a total of more than 547,500 lifetime citations. Researchers working in geosciences disciplines have the highest number of citations among all geoscientists in the United States, including all universities and government labs, with more than 30,000 citations.

Information from the Faculty Report of Professional Activities (FRPA) indicates an impressive record of faculty productivity in research and creative work. For example, the data show that about one in nine tenure-track faculty published a book, textbook, or monograph in 2007. On average, a “typical” CU-Boulder faculty member published about four research articles, review or conference proceedings, and about five presentations in national and/or international venues that year. One in 13 faculty filed patents in 2007, and a relatively small subset of CU-Boulder’s faculty accounted for more than 1,000 creative works, including recordings, films, performances, gallery exhibitions, plays, and other productions. In 2007, the faculty amassed a total of about 2,400 refereed journal articles or chapters, including law reviews. CU-Boulder faculty in the arts presented more than 475 theatrical, music, dance, or art performances in 2007. Other creative work ranges from directing or producing films, videos, and operas to presenting digital art and media designs.⁹

The quality of faculty achievements also is demonstrated by numerous national honors, such as 11 recipients of the prestigious Packard Fellowships, nine National Endowment for the Humanities Fellows since 2000, and 15 Guggenheim Memorial Foundation Fellowships since 1998. The university faculty includes 22 elected members of the National Academy of Sciences, 13 members of the National Academy of Engineering, two members of the Institute of Medicine, 19 members of the American Academy of Arts and Sciences, and four members of the National Academy of Education. In addition, four faculty members have won the National Medal of Science and seven have won the MacArthur “genius” grant.

CU-Boulder scholars engage in leading-edge research, ranging from studies of climate, to archaeology, to marketing, to music, to X-ray beams, among many others. A few examples of recent achievements include:

- Scientists in the Center for Astrophysics and Space Astronomy (CASA) designed a \$70 million instrument for installation on the Hubble Space Telescope to probe the galaxies.
- Classics Professor Diane Conlin is co-director of the archaeological excavation and field school activities in Rome at the site of the fourth-century villa of Maxentius, Roman emperor from 306 to 312 C.E. An internationally recognized expert on Roman art and architecture, Conlin helps students gain hands-on experience in uncovering and analyzing evidence of a major imperial site.



A graduate student participates in cutting-edge research at the CU-Boulder-led excavation of the Villa of Maxentius, a fourth-century palace built by Rome’s penultimate pagan emperor.

- NASA's Lunar Science Institute awarded CU-Boulder two grants totaling \$11 million in January 2009 to explore the cosmos from observatories on the moon and to conduct science and safety investigations on the lunar surface and its atmosphere.
- Researcher Cory Portnuff in speech, language, and hearing sciences helped produce the first-ever detailed guidelines for safe listening levels for iPods and other portable digital music players.
- In 2007, climate scientist Konrad Steffen found evidence of record-breaking summer ice melt on the Greenland ice sheet, with a 10 percent increase over the 2005 melt record.
- Faculty in the Department of Communication and the Peace and Conflict Studies Program are collaborating on the development of a Center for the Study of Conflict, Collaboration, and Creative Governance. The work of the center is expected to provide students as citizens and professionals with the competencies to operate successfully in the changing and increasingly diverse, interdependent, and tension-filled world.
- Compositions by Assistant Professor Daniel Kellogg of the College of Music have been commissioned and premiered by the National Symphony Orchestra, the San Diego Symphony, the Colorado Symphony, and the Aspen Music Festival.
- Researchers in the sociology department provide the bulk of the analytical expertise found in the Natural Hazards Center, a key program housed in the Institute for Behavioral Science. The center works to advance and communicate knowledge on hazards mitigation and disaster preparedness, response, and recovery. It develops and sustains some of the most significant databases on earthquakes, fires, hurricanes, and other natural hazards, wherever they occur.
- A 2008 issue of *Science Express* reported that scientists at JILA, CU-Boulder's joint institute with the National Institute of Standards and Technology, produced the first high-density gas of ultra-cold molecules, two different atoms bonded together, which are both stable and capable of strong interactions. The physics milestone has potential applications in quantum computing, precision measurement, and "designer" chemistry.
- Anthropology Professor Payson Sheets led a team to a site in El Salvador where they discovered an ancient field of calorie-rich tubers called manioc, the first evidence of cultivation of the tuber in the New World.

- A group of researchers headed by Distinguished Professor Margaret Murnane and Professor Henry Kapteyn of physics developed a new technique to generate laser-like X-ray beams, helping pave the way for more effective medical imaging.
- Scholars in the School of Education and math and science departments received a \$2.4 million National Math and Science Initiative grant to help improve teacher education in math and science, using the UTeach model developed at the University of Texas Austin in 1997.
- Distinguished Professor Richard Jessor of psychology and the Institute of Behavioral Science studies the development of youth, especially under conditions of adversity and disadvantage. His most recognized scientific contribution is problem behavior theory, which has been used by behavioral scientists worldwide.
- Associate Dean Richard Wobbekind of the Leeds School of Business presents an annual Colorado Business Economic Outlook Forum to summarize the overall state of Colorado's economy in 13 distinct economic sectors. The outlook includes snapshots from specific counties and regions of the state, as well as updates on international trade, population, labor force and personal income growth, and a general outlook on the national economy.
- The Takács Quartet, in residence at the College of Music, is acknowledged as one of the world's leading string quartets, winning a Grammy Award in 2003 in the "Best Chamber Music Performance" category as well as a 2001 Gramophone Award, the European equivalent of the Grammy, among many other honors.
- An award-winning book by history Professor Fred Anderson was the inspiration for the 2006 Public Broadcasting Service documentary series, "The War That Made America." His book, *Crucible of War: The Seven Years' War and the Fate of the British in North America, 1754–1766*, won the 2001 Francis Parkman Prize, given annually by the Society of American Historians to the "best book on American history."
- CU-Boulder writing instructor Steven Wingate of the Program for Writing and Rhetoric won the national Katherine Bakeless Nason Fiction Prize in 2007 for his short-story collection.
- James Andrew Cowell, professor of French and linguistics, has published the first grammar of the Arapaho language, along with native Arapaho speaker Alonzo Moss, Sr. Arapaho, an Algonguian language, has evolved significantly since splitting from the larger Algonguian group, both in its sound system and grammatical structure. The grammar documents these changes, raising important questions about the evolution of languages.



CU-Boulder's Grammy Award-winning Takács Quartet, in residence at the College of Music since 1983.



CU-Boulder Professor of Electrical and Computer Engineering Lucy Pao investigates new controls for wind turbines that will maximize their energy output.

- Professor Lucy Pao of electrical and computer engineering is one of several faculty members examining wind power as a more cost-efficient and safer source of energy. Pao is working on improving the efficiency of wind energy with advanced controls for turbines.
- The jazz studies program in the College of Music has won 15 *Down Beat* magazine national student awards since 2003. In 2006, graduate student Kevin Woods received the *Down Beat* magazine award as “College Co-Winner: Instrumental Jazz Soloist.”
- Betty Woodman, professor emerita of art and art history, became the first woman, as well as the first ceramicist, ever to have a retrospective featured at the New York City Metropolitan Museum of Art.
- A team led by political science Professor Ken Bickers worked with area high school teachers to develop curriculum modules designed to interest students in learning about politics through theories, hypotheses, and data. Topics of the modules included election systems, social experiments, and election campaigns. The purpose of the project was to help ease the transition from high school classwork to college-level political science courses.
- The work of business Professor Donald Lichtenstein, an expert on marketing and pricing research, was honored with the Fordham University Lifetime Achievement Award in Behavioral Pricing Research.
- In 2009, law Professor Phil Weiser, an expert in telecommunications law, was featured as one of *Portfolio Magazine*’s “Top Tech Policy People to Watch.” The list honored 12 people whose achievements and positions make them notable and influential in their fields. Weiser was recognized for his efforts to raise the profile of the law school’s Silicon Flatirons Center for Law, Technology, and Entrepreneurship; for his work as attorney for the U.S. Justice Department’s antitrust division; and for his appointment as co-chair to the Federal Trade Commission review team during the Obama-Biden transition, among other achievements.¹⁰

A Tradition of Interdisciplinary Work

Core Component 4A. The organization demonstrates, through the actions of its board, administrators, students, faculty, and staff, that it values a life of learning.

For more than 50 years, CU-Boulder has developed a tradition of interdisciplinary collaboration throughout the university community and beyond. Built upon a foundation of strong disciplinary programs, such collaborations have led to new ways of engaging in a life of learning. At the heart of this tradition is a

DISPLAY 7.6

Research Institutes, with Year Established

| | |
|---|------|
| CIRES: Cooperative Institute for Research in Environmental Sciences | 1967 |
| IBG: Institute for Behavioral Genetics | 1967 |
| IBS: Institute of Behavioral Science | 1957 |
| ICS: Institute of Cognitive Science | 1968 |
| INSTAAR: Institute of Arctic and Alpine Research | 1951 |
| JILA | 1962 |
| LASP: Laboratory for Atmospheric and Space Physics | 1948 |
| RASEI: Renewable and Sustainable Energy Institute | 2009 |

Source: www.colorado.edu/research/institutes

system of world-class research institutes and centers that create a dynamic environment for discovery and learning, as discussed in this section. The university's commitment to leading-edge research and creative work is further enhanced by a set of multi-disciplinary strategic initiatives that examine critical issues in a global context. Furthermore, as described in this section, CU-Boulder has reached beyond campus boundaries to form partnerships with national laboratories located in the Boulder area. Such partnerships exemplify the university's commitment to collaboration in learning and discovery.

Institutes and Centers

Learning and discovery are enriched at the university by its highly regarded interdisciplinary research institutes, centers, and laboratories.¹¹ Since the first institutes emerged a half-century ago, research teams of faculty, students, and external partners have tackled complex questions from multiple perspectives, leading to important advances in human knowledge. These learning enterprises offer common ground for scholars and students to collaborate on issues that confront the world—in such areas as climate; energy resources; atmosphere; outer space; human behavior; solar energy; the human mind; and atomic, molecular, and optics studies.

Research institutes. CU-Boulder's eight research institutes account for more than half of all sponsored research dollars at the university—and they employ some of the most productive researchers in the country. Institutes are permanent entities and their establishment requires approval by the CU Board of Regents. Institutes may appoint tenure and tenure-track faculty to half-time appointments, but the tenure locus remains with the department. Tenure and tenure-track faculty are principal investigators on projects accounting for about 60 percent of total institute expenditures.¹² With more than 900 researchers

“Human beings are not a small part of the environment any more. Humans are a key component, and we see it as necessary to get that message out. I think higher education has a huge responsibility to help guide society toward sustainability, and that is ultimately what INSTAAR is all about. We don’t pretend to do it all. We would just like to do our part as well as we can.”

—Jim White, Professor of Geological Sciences; Fellow and Director, Institute of Arctic and Alpine Research

and supporting staff, the institutes make a major contribution to the university’s research and education missions, as well as the local and area economy. Numerous graduate students are employed by the institutes, which contribute to the quality of graduate education at CU-Boulder. Clearly, the institutes will play a central role in the university’s future as envisioned in *Flagship 2030*. Following is a brief overview of their work:

- **The Institute of Arctic and Alpine Research (INSTAAR)**¹³ works to advance the world’s understanding of environmental processes by focusing scientific inquiry on the high-altitude and high-latitude regions, which are highly sensitive to environmental change. INSTAAR’s discovery and learning leadership extends into graduate education while providing opportunities for undergraduate engagement in the research process.
- Researchers in the **Institute for Behavioral Genetics (IBG)**¹⁴ explore the genetic and environmental underpinnings of behavioral differences. The institute engages in data collection and analysis for several highly regarded studies, such as the Colorado Adoption Project, the Colorado Twin Registry, the National Youth Survey Family Study, the Colorado Learning Disabilities Research Center, and the National Longitudinal Study of Adolescent Health. IBG houses one of the country’s largest DNA repositories for research on human behavior. Research areas include studies of aging, psychopathology, reading disability, cognition, substance abuse, behavioral development, and evolution.
- At the **Institute of Behavioral Science (IBS)**,¹⁵ researchers are addressing major problems of social behavior and social life on a global scale. Since its establishment in 1957, IBS has engaged faculty from the social and behavioral sciences to participate in collaborative research on a number of important social issues. Current initiatives include studies of adolescent problem behavior, use of natural resources, disaster preparedness, population changes, impact of HIV/AIDS in Africa, corporate downsizing, globalization, and social disparities in health. The institute houses five research programs and four centers, including the Natural Hazards Center, Population Aging Center, CU Population Center, and the Center for the Study and Prevention of Violence. Departments represented in IBS include anthropology, economics, geography, pediatrics, political science, psychology, and sociology. In July 2010, the institute is scheduled to move into a new building, which will bring together various IBS programs from nine different facilities into one location in the Grandview Terrace area at Grandview Avenue and 15th Street.
- Researchers at the **Institute of Cognitive Science (ICS)**¹⁶ examine the “science of the mind,” moving theory into practice by connecting research to important issues. ICS research activities can be categorized into three interdisciplinary research themes: training and education, including principles,

communities, and technologies; language processing, including psychological, computational, and technological approaches; and higher-level cognition, including cognitive neuroscience, computation, and theoretical perspectives. ICS researchers explore such topics as natural language processing and computational linguistics, and the nature of decision-making and risk-evaluation abilities in adolescents with implications for juvenile justice policies. In addition to informal research areas, ICS houses three formalized research centers, including the Center for Lifelong Learning and Design, the Center for Computational Language and Education Research, and the Center for Research on Training. The institute created CU's first joint PhD program in collaboration with other academic units and sponsors graduate and undergraduate certificate programs.

- The **Cooperative Institute for Research in Environmental Sciences** (CIRES)¹⁷ engages in research on all aspects of Earth system science, including cryospheric and polar processes, ecosystem science, environmental chemistry, solid earth sciences, oceanography, weather, and climate dynamics. CIRES also works to increase public understanding of the environmental challenges identified in its research. The institute is a joint organization of CU-Boulder and the National Oceanic and Atmospheric Administration (NOAA).
- Founded in 1962 as a joint institute of CU-Boulder and the National Institute of Standards and Technology (NIST), **JILA**¹⁸ pursues research on challenging questions about the fundamental nature of matter, quantum physics, design of precision optics and atom lasers, and processes that shape the stars and galaxies. JILA's faculty includes three Nobel laureates.
- Students work closely with world-class scientists at the **Laboratory for Atmospheric and Space Physics** (LASP)¹⁹ to identify and address important questions in planetary, atmospheric, solar influences, and space sciences. They have the unique opportunity to operate spacecraft, collect long-term data for evaluating climate change, and build space-bound instruments for learning more about the universe. With substantial sponsored research activity, LASP helped establish CU-Boulder as the top public university recipient of NASA funding. In 2006, a new \$13 million addition to the LASP Space Technology Building was dedicated, adding about 45,000 square feet of much needed room for space construction projects, mission operations, and research programs.
- The newest of the university's institutes is the **Renewable and Sustainable Energy Institute** (RASEI), approved by the CU Board of Regents in June 2009. The new institute evolved from the **Energy Initiative**,²⁰ discussed in further detail below. RASEI is a joint effort with the National Renewable Energy Laboratory (NREL) in Golden, Colorado, designed to encourage collaborative work between CU-Boulder and NREL in areas of mutual

“CIRES continues to be the world leader in environmental sciences, as we are committed to identifying and pursuing innovative research and to fostering public awareness of this research.”

—Konrad Steffen,
Professor of Geography;
Director, Cooperative
Institute for Research in
Environmental Sciences

“Colorado can become a national and even global leader in transforming the ways in which energy is produced and utilized. Through the Energy Initiative, we are building on an already impressive set of accomplishments. In addition to having great science and engineering, CU-Boulder is a great source of business and social expertise. Smart business models and methods to encourage social acceptance of new technologies are both critical components of the energy initiative.”

—Carl Koval, Professor of Chemistry and Biochemistry; Director, Renewable and Sustainable Energy Institute

interest. The two institutions work together in such areas as research in fields related to renewable and sustainable energy; training future generations of scientists, engineers, policy makers, communicators, and business people; and commercializing new energy technologies. As noted in the institute proposal, RASEI is expected to serve as both a catalyst and hub for multi-disciplinary approaches to meeting the challenges of climate change, global energy demands, and the ever-changing global energy economy. The new institute was formally proposed in March 2009 in the Report of the Renewable and Sustainable Energy Steering Committee,²¹ which included faculty from the colleges of arts and sciences and engineering and applied science, as well as the Graduate School, the law school, and the Leeds School of Business.

ATLAS Institute. As discussed in Chapter 6, the Alliance for Technology, Learning, and Society (ATLAS)²² is a campus-wide institute that integrates information technology with multidisciplinary curricular, research, and outreach programs. ATLAS engages a wide variety of academic disciplines, ranging from music, theatre, and dance to film studies and journalism. It offers a number of collaborative graduate, undergraduate, and certificate programs, as well as outreach partnerships with K–12 schools. The ATLAS building near the center of campus is a lively incubator for broadening the benefits of the networked information age.

Research centers. In addition to the large research institutes, there are nearly 90 research centers²³ housed within academic departments or as subsets of the research institutes themselves. Establishment of centers does not require approval by the CU Board of Regents. They can be found in all fields of the university, including humanities and the arts, social sciences, natural sciences, engineering, business, and law. The centers cover a broad range of topics, from multicultural education and astrophysics to glaciology and the prevention of violence.

CU-Boulder’s relationships with several nearby federal laboratories have stimulated extensive collaboration by the university’s centers on matters of atmospheric research, science and technology, and environmental research. For example, the National Snow and Ice Data Center²⁴ works closely with the National Oceanic and Atmospheric Administration on studies of sea ice conditions. The university also is home to two highly prized National Science Foundation (NSF)-funded research centers. The Extreme Ultraviolet NSF Engineering Research Center²⁵ is operated jointly with Colorado State University and the University of California at Berkeley. The Liquid Crystals Materials Research Center,²⁶ one of the leading centers of liquid crystal study in the world, fosters collaboration among CU-Boulder’s physics, chemistry, and chemical engineering departments.

CU-Boulder's centers help prepare students for productive careers and add to the body of knowledge about critical issues in a rapidly changing world. The Center for Environmental Journalism,²⁷ for example, helps enhance public understanding of environmental issues by adding to journalists' knowledge of the subject. The Natural Resources Law Center²⁸ has gained national recognition for objective research and programs that inform public policy on resource issues. The Silicon Flatirons Center for Law, Technology, and Entrepreneurship works to elevate the debate around technology policy issues, to promote entrepreneurship in the Colorado technology community, and to inspire student interest in technology law and entrepreneurship.²⁹

Centers in the arts and humanities enrich the university environment for students, faculty, staff, and the community while adding to the body of knowledge on important issues. The Center of the American West,³⁰ for example, brings together diverse experts for discussion and interaction on such issues as multiculturalism; community building; fire policy; and land, water, and energy use. The Center for Humanities and the Arts³¹ serves as a focal point for humanistic scholarship, creative work, and artistic performance at CU-Boulder, with year-long activities organized around a specific theme. At the Entrepreneurship Center for Music,³² musicians hone their entrepreneurial instincts with training in communication, business, and technical skills within a global music market.

The Anderson Language Technology Center (ALTEC)³³ provides facilities and advocacy for the study of foreign languages and cultures. ALTEC promotes access to the university's state-of-the-art multilingual multimedia resource collection, where students can view foreign language films, listen to language practice tapes, and download and record digital audio files, among many other activities. At the Center for British and Irish Studies,³⁴ faculty and students engage in research and teaching in all aspects of British and Irish life, culture, and history, with the aid of the exceptional collections of related materials held by University Libraries. The center also offers an undergraduate certificate program in British and Irish studies and has developed a set of interdisciplinary seminars for graduate students.

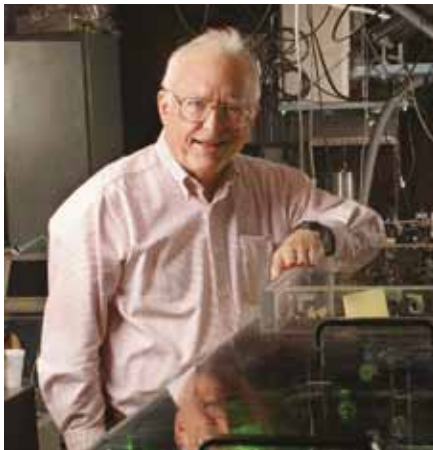
Academic Partnerships

Interdepartmental initiatives. Beyond the organized institutes and centers, faculty members and academic departments commonly reach across discipline lines to engage in collaborative scholarship and creative work. Such partnerships can be found in all academic disciplines on campus, in research institutes and centers, and in research and instructional collaborations among academic departments. Examples include:

- The theatre and dance faculty collaborate on hybrid performance pieces with the music, geology, and environmental science. They work on documentary films made with colleagues in biology, paleontology, computer

“...both the history of the American West and the history of higher education have been shaped by the economic pattern of boom-and-bust. Episodes of stark scarcity punctuate both histories, though they often disappear from view during recurrent episodes of amnesia brought on by periods of abundance.”

—Professor Patty Limerick of History, from her essay, “Forty Years in the Academic Saddle: The American West, Higher Education, and the Invitation to Innovation”



Nobel laureate John "Jan" Hall of the Department of Physics and JILA.

science, mathematics, and music. Also, they have worked with the Center for Energy Justice and the law school on a theatre for social change program.

- Collaborative projects for art and art history include multiple interactions with ATLAS, including development of the undergraduate certificate program and PhD program in technology, arts, and media. Art and art history faculty also have collaborated on a new series of research and teaching initiatives with the English department investigating the interrelationship between digital art; electronic literature; and experimental modes of publication, exhibition, and performance.
- The French and Italian department is working to expand its dual-degree programs with other departments. Currently, the department offers a dual master's degree in French and history and a certificate in French and Italian in conjunction with the College of Engineering and Applied Science. Discussions are under way to develop a dual master's in French and linguistics and dual undergraduate degrees in French or Italian and art history.
- The humanities department has an explicit mission of interdisciplinary approaches, with a major that incorporates interdisciplinary courses, a particular discipline, and a second field. Projects have included work on literature and film, the novel and the visual arts, literature and philosophy, and politics and aesthetics.
- *English Language Notes*, an award-winning journal sponsored by the English department, offers an interdisciplinary forum for debate and exchange among scholars around the world—involving such fields as theology, fine arts, history, geography, philosophy, and science.
- In religious studies, faculty engage in collaborations with many other departments and centers, ranging from philosophy to gender studies. For example, one faculty member has organized a conference to address textual representations of sexuality across Asia, involving such areas as India, China, and Japan and disciplines such as anthropology, religious studies, area studies, and history.
- Philosophy faculty members interact with scholars in various fields, such as education, environmental studies, law, and medicine. For example, one faculty member works closely with the School of Education on scholarship about children's literature. Another is engaged in the ethics of geo-engineering, climate change, and sustainable energy. Another works with the UC Denver School of Medicine on issues relating to biomedical ethics.

Interdisciplinary studies are further encouraged by strategic hiring initiatives, such as those in the College of Arts and Sciences in which new faculty positions

are sometimes proposed in “clusters.” Cluster hires are tied to academic initiatives, sometimes crossing disciplinary lines, rather than strictly by department. For example, cluster-hiring initiatives are under way in the areas of Asia and the Muslim world, democratization and globalization, environmental studies, and energy science. The college also has endorsed a new 30-member Center for Latin American Studies to organize strength in that area. In addition, the College of Arts and Sciences has begun a year-long proposal-and-review cycle to develop new initiative proposals, primarily faculty hiring proposals, to support the college’s goals.

Collaborations with national laboratories. Over the course of 50-plus years, the university has formed highly productive research partnerships with national laboratories located in the Boulder area. Collaborative efforts include large joint institutes with hundreds of scientists and university departmental appointments of adjunct faculty from the national laboratories. The national labs also provide numerous internships for undergraduate and graduate students, as well as postdoctoral traineeships and fellowships at CU-Boulder. These cooperative relationships have contributed to the university’s world-wide reputation in research.

Among the largest of CU-Boulder’s joint institutes is CIRES,³⁵ which was established in 1967 from a partnership between the university and the National Oceanic and Atmospheric Administration³⁶ laboratories in Boulder. CIRES scientists conduct research aimed at understanding the Earth, including its atmosphere, waters, solid body, and environment in space. In particular, NOAA’s Earth Systems Research Laboratory (ESRL) in Boulder has established extensive partnerships with university faculty, postdocs, and graduate students. Including the work at CIRES, it is estimated that about 60 faculty and 240 graduate students and postdocs work closely with counterparts at NOAA.

Another major joint institute is JILA,³⁷ created in 1962 as a joint institute of CU-Boulder and the National Institute of Standards and Technology.³⁸ JILA scientists explore challenging questions about quantum physics, the design of precision optics and atom lasers, the fundamental nature of matter, biotechnology, nanoscience, and processes that shape the stars and galaxies. The university’s partnership with NIST has been further strengthened through enhanced joint support for undergraduates, graduate students, and postdocs. About 80 faculty and 160 postdocs and students are engaged in regular collaborations with NIST, including the work at JILA.

Numerous CU-Boulder faculty and students work closely with counterparts at the National Center for Atmospheric Research (NCAR),³⁹ in a wide range of studies related to atmospheric and earth sciences. University–NCAR collaborations include large-scale computational modeling, atmospheric physics, geosciences, high-altitude observations, solar physics, weather modeling, remote sensing and balloon-satellite technology, and solar influences, to name a few.

Colorado’s estimated net economic benefit from university partnerships with federal laboratories located in the state was \$1.11 billion in 2007.

Source: 2008 Co-Labs Economic Impact Study (May 2008)¹⁰⁰

The university also is engaged in discussions with computational science and engineering groups at both NCAR and NOAA related to possible collaborations on high-end, high-performance computing and “gateway” computing for peta-scale supercomputing centers planned in Wyoming. Numerous CU-Boulder faculty work closely with NCAR scientists, and about 40 university postdocs and graduate students conduct a majority of their research at NCAR. NCAR is managed by the University Corporation for Atmospheric Research (UCAR),⁴⁰ a nonprofit consortium of 73 research universities and institutions, on behalf of the National Science Foundation and the university community. Located in Boulder, UCAR itself has several projects involving CU-Boulder faculty and graduate students.

The university promotes its strong interest in renewable energy through collaborations with the National Renewable Energy Laboratory⁴¹ in Golden, Colorado. In fact, CU-Boulder is a major partner in the Alliance for Sustainable Energy, which was selected in 2008 as the management contractor for NREL. CU-Boulder and other members of the alliance are engaged in basic and applied science, as well as translational efforts to develop third-generation solar photovoltaics, solar photoconversion, concentrated solar technology, biofuels, biorefining, wind energy, and carbon sequestration techniques, among many others. The university currently is in discussions with the NREL leadership about a proposal to locate an NREL “satellite” laboratory on CU-Boulder’s East Campus, where students, staff, faculty, and scientists will collaborate with NREL personnel on renewable and sustainable energy subjects. As described above, the closely aligned and campus-wide Energy Initiative, launched in fall 2005, was established as the Renewable and Sustainable Energy Institute in June 2009.

In other collaborations with national labs, the university is working with the United States Geological Survey (USGS)⁴² to expand its presence on the East Campus, leading to as many as 80 additional USGS scientists and staff on the campus. Headquarters for the National Ecological Observation Network, an NSF center, have been moved from the Washington, D.C. area to Boulder, with plans for joint graduate education, high-end computing, joint faculty hires, and adjoint professor appointments at the university.⁴³

Investing in Major University Initiatives

Core Component 4A. The organization demonstrates, through the actions of its board, administrators, students, faculty, and staff, that it values a life of learning.

The University of Colorado at Boulder has developed several strategic initiatives that draw upon the knowledge and skills of individuals in multiple fields to address critical needs of society. As described in this section, five new initiatives

are bringing together faculty and students, from CU-Boulder and other campuses, to join in intellectual inquiry and discovery as they confront issues affecting humankind. The five initiatives include biotechnology, energy, aerospace, geosciences, and computational science and engineering. Three of the five strategic initiatives (biotechnology, energy, and aerospace) mirror key priorities set by the Colorado governor for economic development in Colorado.⁴⁴

CU-Boulder's strategic initiatives build on the university's existing research strengths while taking advantage of emerging funding opportunities. A large number of faculty, departments, deans, the provost, and other academic leaders have been involved in establishing and coordinating interdisciplinary initiatives that help place CU-Boulder at the forefront of discovery.

Biotechnology Initiative

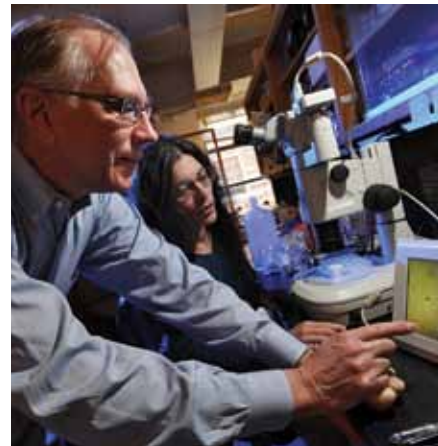
The **Colorado Initiative in Molecular Biotechnology** (CIMB)⁴⁵ was founded in 2003 to foster research, teaching, and technology development at the interfaces of the life sciences, physical sciences, math, computational sciences, and engineering. Advances in biology are creating an explosion of new information that is redefining the understanding of life at the molecular level. CIMB scientists work to harness that knowledge for diagnosing, treating, and preventing disease, among other purposes.

The molecular biotech initiative is led by CU-Boulder's Nobel laureate Tom Cech, who returned to the university in April 2009 after eight years as president of the Howard Hughes Medical Institute. Under his leadership, CIMB is strengthening ties between CU-Boulder and the University of Colorado Denver's Anschutz Medical Campus, meshing CU-Boulder's strengths in science and engineering with the clinical and medical expertise at UC Denver.

CIMB researchers in biomedical sciences, chemistry, physics, computer science, and engineering are poised for breakthrough contributions in the field of "system" biology by understanding the human condition from the top down and bottom up. Faculty involved in CIMB engage in such research projects as:

- Engineering tissues, such as heart valves and cartilage, that enable the body to self-heal and eliminate the need for synthetic implants
- Defining the genetic basis for severe heart disease and designing new therapies
- Discovering RNA enzymes and aptamers that can be used to create new pharmaceuticals to treat diseases such as macular degeneration
- Developing the world's first "flu chip" for influenza detection

In fall 2011, a new biotechnology building is scheduled to open on the East Campus, creating spaces for daily interactions by CIMB teams from chemical and biological engineering; biochemistry; and molecular, cellular, and



Led by a group of CU-Boulder's most distinguished professors, including Distinguished Professor and Nobel laureate Tom Cech (left), the Colorado Initiative in Molecular Biotechnology is combining science and medicine to accelerate breakthroughs in areas such as cancer research, chemical and biological engineering, gene therapy, vaccines, drug therapies, computerized flu diagnostics, and chronic pain treatment.

CU-Boulder Major Strategic Research Initiatives with Key Contacts

- AeroSpace Systems Science and Engineering Initiative (AS3E)—Jeff Forbes
- Colorado Initiative in Molecular Biotechnology (CIMB)—Tom Cech
- Renewable and Sustainable Energy Institute (RASEI) (formerly Energy Initiative)—Carl Koval
- Geosciences Initiative—Jim White
- Interdisciplinary Computational Science and Engineering Initiative (ICSE)—Mark Ablowitz

developmental biology. The \$115 million research and teaching facility, funded by both public and private sources, is expected to host 60 faculty and more than 600 researchers from a wide variety of disciplines. Also, the university has committed funding for new faculty lines and startup costs to support the initiative. CU-Boulder hosts the National Institutes of Health (NIH)-funded clinical and translational sciences research facility, a satellite of the parent facility at UC Denver's Anschutz Medical Campus. Of the 63 such facilities nationwide, CU-Boulder's satellite is one of only two existing on non-medical school campuses. Although the facility is not a formal part of CIMB, it provides a unique resource for the center and for life scientists on the Boulder campus. With momentum building, CIMB aims to place CU-Boulder at the forefront of the field.

Energy Initiative

Another CU-Boulder initiative gaining momentum is the **Energy Initiative**, now formalized as the Renewable and Sustainable Energy Institute.⁴⁶ The initiative was launched in 2005 to help find solutions for the world's urgent energy needs, and it became an institute in June 2009. With about 150 faculty and researchers engaged in some type of energy research, the initiative builds on existing strengths in climate and environmental science, behavioral studies, policy analysis, and entrepreneurship to seek answers to a growing global crisis.

RASEI acts as a catalyst to bring researchers from multiple fields together to address key problems and opportunities. Research efforts range from energy-efficient construction to energy storage, from solar and wind energy to hydrogen production. By 2008, the initiative had 43 funded research projects in renewable and sustainable energy. Examples include:

- Control of wind turbines
- Energy transformation
- Energy efficiency of electronics
- Energy policy and law
- Energy-efficient building design
- Intermittent renewable energy storage
- Renewable energy in the tourism industry
- Conversion of biomass to syngas or hydrogen⁴⁷

As part of RASEI, CU-Boulder helped create a research coalition called the Colorado Renewable Energy Collaboratory,⁴⁸ teaming up with the Colorado School of Mines, Colorado State University, and the National Renewable Energy Laboratory in Golden, Colorado. This unified effort serves as a new model for sharing research on new energy technologies for rapid transfer to the private sector. The Colorado Center for Biorefining and Biofuels, (C2B2), a center founded by the collaboratory, has provided \$1.1 million in seed grants since 2007 to research teams pursuing renewable energy research in such areas as feedstock engineering, plant biotechnology and crop science. In addition, RASEI receives

high-level governance and strategic direction from the its leadership council, formed from a select group of corporate leaders, policy makers, and academics.

New graduate and undergraduate curricula have emerged from RASEI, further integrating discovery into the learning experience. Undergraduate and graduate energy certificate programs serve students who want to expand their learning with a solid understanding of energy science, technology, policy, and markets. The work of the initiative extends across the university, as faculty and students from many fields examine such issues as energy policy and law, entrepreneurship and market research, educational programs, energy security, environmental journalism, tourism practices, cultural transformation into an “energy society,” and others.

In fall 2010, construction is expected to begin on a new 100,000-square-foot building to house RASEI as well as the Geosciences Initiative discussed below. The building will be part of the East Campus research park and will support the work of scientists, industry partners, and undergraduate and graduate students.

Aerospace Initiative

In 2008, CU-Boulder launched a wide-ranging research and education thrust through the **AeroSpace Systems Science and Engineering Initiative** (AS3E),⁴⁹ which seeks to address some of the most challenging and critical problems in earth and space science and to create stronger connections between engineering and the sciences. The initiative will combine climate and environmental research conducted from Earth orbit with space weather research, planetary exploration, astronomy, and astrophysics. AS3E brings together scientists from three departments—aerospace engineering sciences, astrophysical and planetary sciences, and atmospheric and oceanic sciences—under one interdisciplinary umbrella.⁵⁰

One of the key elements of the initiative is a planned \$40 million Aerospace and Energy Systems Building that will enable student–faculty and engineering–sciences interactions and provide an incubator for small-scale space system development. Graduate fellowship and educational programs in the initiative offer expanded opportunities for interdisciplinary graduate student research. Joint faculty appointments will be placed strategically to enhance cross-discipline interaction. An executive committee of leaders from each of the participating units oversees the development and outcomes of the initiative.

The aerospace initiative brings engineers, scientists, and students together to develop instruments, vehicles, and systems that provide a clearer view of the changing environments on Earth and in space. The initiative’s primary areas of focus include climate research, space weather, planetary exploration, and astrophysics. Science and engineering students are involved in multi-disciplinary, team-oriented projects that address identified problems. Partnerships are being established with federal labs and the aerospace industry to help promote



Aerospace Engineering
Sciences Professor Steve
Nerem uses satellites to monitor
the Earth's oceans.

collaborative development of new technologies and to involve industry and government in student education. Through such partnerships, students have access to valuable industrial/government experiences and perspectives.

Geosciences Initiative

CU-Boulder's **Geosciences Initiative** (GI), still in the early stages of development, addresses one of society's greatest challenges: environmental sustainability. The initiative reflects a general recognition that Earth is not limitless—that there are observable and accelerating changes in climate; the health of ecosystems; and the purity of air, water, and land. The effort builds upon a tradition of excellence in earth and atmospheric research in order to meet the challenges of sustainability and environmental change. Nearly 800 faculty and more than 1,000 graduate students are involved in related projects that reach beyond traditional academic boundaries.

By taking a collaborative approach, GI intends to bring the best minds to bear on complex problems. The initiative combines natural sciences research, which describes how Earth systems function, with social sciences, humanities, law, journalism, and business research and education—which describe how human societies function. It also seeks to form partnerships that draw upon federal and private-sector expertise to help solve the great environmental challenges of our time.

A GI steering group has begun work on identifying focus areas, potential unit members, issues to be addressed, and the production of a vision document. The initiative is viewed as an opportunity to invest in and build on internationally known campus strengths in the broad area of environmental studies. However, the steering group agrees that it should not—and cannot—encompass the full breadth of this topic; rather its success will depend on focusing on a few key areas. Suggested areas of emphasis are: climate variability and change, the water cycle, and land-use change—all under an overarching theme of “Geosciences: A Changing World.” Within each focus area, investments of faculty lines and other resources will be crucial to advance research and teaching across academic units, keeping GI in line with the campus tradition of strong interdisciplinary studies.

One of the key strengths of the Geosciences Initiative is its potential for broad participation and for substantial cross-campus synergies, spanning multiple institutes, centers, departments, and schools and colleges. Initial plans for GI have identified several university units that could be involved: INSTAAR; CIRES; environmental studies; atmospheric and oceanic sciences; geography; geology; ecology and evolutionary biology; journalism; LASP; law; business; the Center of the American West; IBS; and civil, environmental, and architectural engineering. This list is not considered exhaustive, and other partnerships may emerge.

Several issues also have been identified in the initiative's planning stages: development of graduate and undergraduate education programs, linkages with business and government, assessment protocols, hiring structures and faculty participation, fundraising, governance structures, stakeholder needs, and facilities needs. To move the initiative forward, a planning and writing team has been formed to craft a GI vision document, with a draft expected by fall 2009. Two review groups, one from inside the university and one from outside, will be named to officially review the GI planning document as it is drafted and finalized.

Interdisciplinary Computational Science and Engineering Initiative

Another initiative in the early stages of development is **Interdisciplinary Computational Science and Engineering (ICSE)**, a rapidly growing field of study with long-standing ties to applied mathematics, computer science, engineering, and the sciences. Focused development of the initiative began in 2007 with four faculty meetings followed by a Boulder campus town-hall meeting attended by more than 100 people in February 2008. An ICSE steering committee developed a set of recommendations for launching the new initiative in their report of October 2008.

As noted in the steering committee report, the underpinnings of this emerging field involve numerical mathematics, algorithm development, and software and program implementation, but the implications for a broad range of scientific inquiry are significant. Current research problems often require computer modeling, complex programming, and advanced visualization methodologies that demand high-performance computing power. At CU-Boulder, the potential already exists for applications of ICSE in such areas as climate and weather prediction; geosciences and Earth system science; aerospace, manufacturing, and engineering design; astrophysics and planetary sciences; bioinformatics and biology; material sciences; renewable energy; computational chemistry and molecular dynamics; fusion energy science; and computational physics, to name a few. Computation is utilized in all these fields, fueled by rapid advances in computing power, algorithm speed and reliability, and the emergence of complex visualization software tools, according to the ICSE report.

Beyond establishing new cross-discipline research applications, the ICSE steering committee envisions a program of graduate education that will offer a master's degree, bachelor's/master's degrees with participating departments, a professional master's degree, a PhD degree, and certificates. The group recommends hiring a substantial number of new faculty members over a period of time, initially 10 new faculty lines over six years. Many of these new faculty would be jointly rostered both in the ICSE unit and within a department. The program also would offer a number of teaching assistantships, fellowships, and postdoctoral instructorships.

Plans for launching the new initiative are based on a three-year timeline, starting with organizing the administrative structure, hiring faculty, and establishing graduate degree programs. The second-year activities would focus on recruiting graduate students and establishing a course structure. In the third year, graduate programs would begin, with courses offered and additional faculty hired. By the seventh year, the graduate program is expected to have about 40 students, several teaching assistants and graduate fellows, and appropriate staffing. The plan calls for a detailed evaluation of the ICSE program in the seventh year. Guiding the initiative's planning efforts are Stein Sture, interim provost, and Professor Mark Ablowitz of applied mathematics, who chaired the steering committee.

Other Key Initiatives

Beyond the five strategic initiatives described above, CU-Boulder's schools and colleges also have launched a number of key initiatives that are both discipline-specific and interdisciplinary. These strategies address societal needs at the state, national, and global levels in areas such as materials, health care, security, communications, energy, natural resources, and education. Examples include the international education program initiated by the College of Music, with cooperative study abroad arrangements with the Renmin University in Beijing and the Sydney Conservatorium in Australia.

With a theme of "Engineering for Global Society," the College of Engineering and Applied Science has launched key initiatives in material sciences and engineering, bioengineering and biotechnology, aerospace systems science and engineering, computational science and engineering, energy systems and environmental sustainability, and engineering education research and assessment. Many of these are incorporated into campus-wide initiatives.

Within the College of Arts and Sciences, several departmental initiatives have been established, including the anthropology department's focus on local and global dynamics in human development. The communications department is working toward the creation of an interdisciplinary Center for the Study of Conflict, Collaboration, and Creative Governance with a focus on communication to reduce conflict and enhance sustainability. In another endeavor, the Department of Speech, Language, and Hearing Sciences collaborates with the Colorado Department of Education, Colorado school districts, and other universities to address the immediate and critical need for well-trained speech-language pathologists to help people who face communication challenges.

An initiative housed in the School of Journalism and Mass Communication is examining the nature and evolution of religion in the media age. Religion is of growing social, cultural, and political importance, and all types of media are playing a central role. The Center for Media, Religion, and Culture—one of four such centers across the globe—involves faculty from a range of disciplines at CU-Boulder and links with scholars around the world. Faculty and student

research teams currently are studying the ways media and religion interact in gendered political identities and—in collaboration with the Center for Asian Studies—are conducting research on Islam in the Mountain West.

CU-Boulder's Program in Jewish Studies offers a new interdisciplinary undergraduate certificate and is planning a bachelor of arts major in Jewish studies, focusing on Jewish culture, history, society, and religion. The Center for Medieval and Early Modern Studies (MEMS) brings together more than 50 faculty members from a wide variety of departments and programs in the humanities and social sciences to explore medieval and early modern culture across the globe from 400—1800 C.E.

Applying New Knowledge Through Technology Transfer

Core Component 4D. The organization provides support to ensure that faculty, students, and staff acquire, discover, and apply knowledge responsibly.

With the acquisition of new knowledge through university research comes the possibility of applications that could make a difference in people's lives. This section explores the ways in which CU-Boulder and the entire university system support the successful and responsible transfer of intellectual property into the public sphere. University research has helped fuel an active technology transfer program that converts discoveries and inventions from all three University of Colorado campuses into marketable business technology.⁵¹ The system-wide Technology Transfer Office (TTO) collaborates with university faculty and the business community to commercialize CU technologies, either through licensing to an existing entity or creating a start-up company. As described below, the office works to actively support faculty researchers and inventors, protect university intellectual property, and pursue relationships with early adopters of commercial technology.

Accelerating Technology Transfer

In the past decade, the TTO has accelerated the movement of CU-Boulder research to the marketplace, some with the potential for improving the quality of life around the world. For example, one company is working to develop an aerosol live-measles virus vaccine that can be inhaled, rather than injected with needles. Such a development, based on the work of CU-Boulder scientists, would save countless lives in developing countries. Another company used university technologies to develop therapies for inflammations resulting from high-dose cancer therapy and bone marrow transplantation.

Companies Created in Fiscal Year 2008–09 Based on CU-Boulder Technology

LineRate Systems

Parallel processing technology for multicore computing

Ion Engineering

Novel material for cost effective carbon sequestration and natural gas sweetening

Tusaar

Adsorbent technology for removing metals from water for industrial and environmental applications

TechoShark

Mobile social networking software

QFlux

Novel low-cost method of producing uniform nanoparticles for energy applications

Phobos Energy

Photovoltaic power conversion method enabling more efficient solar panels

Source: University of Colorado Technology Transfer Office

To further enhance technology transfer activity, CU-Boulder has established a formal relationship with the Boulder Innovation Center, a nonprofit organization devoted to nurturing new businesses in Boulder. The innovation center works closely with TTO to identify university technologies with commercial possibilities and then collaborates with faculty to explore various market applications for their work. The center actively recruits successful entrepreneurs and educates them regarding the potential of university innovations.

Students benefit from technology transfer activity as well. Several CU-Boulder students serve as interns, working on commercial assessments and patentability evaluations and gaining hands-on experience with emerging technology in their areas of academic study. Also, technology transfer is built into practicum-type instructional contexts such as graduate and undergraduate business feasibility and business-plan cases, the law school's Entrepreneurial Law Clinic, and engineering's senior design "capstone" courses.

Promoting Responsible Application

Policies on intellectual property are established by the CU Board of Regents and implemented by the associate vice president for technology transfer, with major issues decided in consultation with the CU-Boulder chancellor and vice chancellor for research. Updated regental policies⁵² and administrative policy statements are available on the system website and through links from the Technology Transfer Office.⁵³ Issues and policies also are communicated through the work of a Committee on University Discoveries, regular meetings with campus administrators and Conflict of Interest Committee members, and presentations to incoming faculty members.

Milestones in Technology Transfer

As described in Chapter 1, CU-Boulder faculty members have significantly increased their involvement in technology transfer, including inventions disclosed, licenses executed, revenues received, and patents filed. Numerous start-up companies have been formed and new partnerships created. TTO has established a proof-of-concept fund, investing more than \$1.2 million in CU-Boulder projects between 2005 and 2008.

Faculty and student achievements in technology transfer are recognized at campus awards ceremonies and joint sessions with the Boulder Chamber of Commerce. Annual reports and monthly newsletters to the campus and business community highlight new license agreements, start-up companies, and products developed based on inventions from the university. With a record of solid growth in technology transfer and an active faculty committed to discovery, CU-Boulder is becoming a truly "entrepreneurial university."

Aligning Curriculum for the 21st Century

Core Component 4B. The organization demonstrates that acquisition of a breadth of knowledge and skills and the exercise of intellectual inquiry are integral to its educational programs.

Core Component 4C. The organization assesses the usefulness of its curricula to students who will live and work in a global, diverse, and technological society.

American higher education is known for its long-standing commitment to achieving a breadth of learning within its undergraduate degree programs. A baccalaureate degree, for example, means more than the successful accumulation of credits; it has long stood for a balance between studies related to a specific field and studies meant to provide a broad-based education. More recently, there is another understood premise: the educated person understands that learning will continue throughout life. To learn throughout life, people need to master the fundamental skills of intellectual inquiry acquired through excellent undergraduate education. This section describes how the University of Colorado at Boulder honors this premise by seeking to improve the curriculum and teaching methodologies necessary for preparing students for an increasingly complex world. Chapter 6 also includes a discussion of the role of the core curriculum, support for teaching, and the importance of learning resources in contributing to students' breadth of knowledge and skills.

Shaping Curriculum for the New Flagship

CU-Boulder is committed to the continuous alignment of academic curriculum with the needs of a rapidly changing world. Indeed, the university's curriculum is examined and reviewed through a number of processes, including a recently revised academic program review and ongoing curricular reviews within schools and colleges. Curricular changes are proposed and implemented every year based on recommendations from faculty committees.

Now, the *Flagship 2030* strategic plan calls for redefining the way the university delivers undergraduate education. The plan proposes a re-examination of the current curriculum in light of changing global demographics, the impact of technological advances, and the need for effective citizenship and leadership. *Flagship 2030* emphasizes that the "successful universities of the future will be most responsive to the changing landscape of learning and teaching." To that end, CU-Boulder is a founding member and active participant in "[The Reinvention Center](#)," a consortium headquartered at the University of Miami, which works to strengthen undergraduate education through networking, convening, and sharing.⁵⁴

CU-Boulder's mission as a research university is integrated into the curriculum at each level so that students become active partners in the creation

of knowledge and the critique of theory and opinion across the disciplinary spectrum. For example, the Undergraduate Research Opportunities Program (UROP) offers opportunities for hands-on participation by undergraduate students in discovery and creative work. The UROP program is discussed in further detail in Chapter 6.

Changing the curriculum is no small matter for a major research university. CU-Boulder offers more than 3,400 courses in more than 150 fields of study; degree programs include about 80 majors in 60 different bachelor's degree programs, about 70 majors in 50 master's degrees, and about 50 doctoral programs. Details of these programs and degrees, including requirements for major programs, are provided in the university catalog.⁵⁵ Extensive core curricula, including content and skills areas, are required of undergraduates in the College of Arts and Sciences, the School of Journalism and Mass Communication, the Leeds School of Business, and the College of Engineering and Applied Science.

CU-Boulder also offers a number of undergraduate certificate programs in several fields of study. For example, the College of Arts and Sciences sponsors certificate programs ranging from British and Irish studies and cognitive sciences to Western American studies and the foundations of Western civilization.

Curricular evaluation occurs throughout the institution, ranging from campus-wide review of the curriculum, to departmental shifts in coursework, to college-wide assessment protocols. One of the tools for curricular review is the newly revised *Academic Review and Planning* process.⁵⁶ Efforts by the schools and colleges to improve curricula through regular reviews are discussed further in Chapter 6.

In 2006, the university's long-standing program review process was thoroughly examined and revised to offer a more accountable and strategic process for improving academic programs, as described in Chapter 5. The new model, now called Academic Planning and Review (ARP), reviews "clusters" of departments with natural linkages to explore common challenges, needs, and opportunities. In one of ARP's four mandatory accountability measures, units must describe their assessment of learning outcomes and any curricular changes that resulted. Units also are asked to examine their curricula and practices with regard to both diversity and globalization; other efforts to promote inclusive learning in the curriculum are discussed in Chapter 6. Past program reviews have led to improvements in departmental curriculum, and the new model is expected to have such results as well.

Activities that once would have been considered extracurricular or cocurricular are becoming such an integral part of the learning experience that the definition of "curricular" may need rethinking. For example, the Institute for Ethical and Civic Engagement (IECE), discussed later in this chapter, encourages and mentors students who have interests in engaging with the local community. The Undergraduate Research Opportunities Program has been significantly expanded

to support several hundred students working in research labs, in creative studios, in fieldwork, and in library research. The Service Learning Office, described further in Chapter 8, supports faculty and student projects that emphasize learning in conjunction with service to communities outside the university. Additionally, several undergraduate programs, such as the Farrand Hall, Chancellor's Leadership, and Presidents Leadership Class Residential Academic Programs (RAPs), also have major emphases on service and experiential learning.

Involving Stakeholders in Student Learning

Building a curriculum relevant for tomorrow—and the world of 2030—means staying connected with external constituencies who know what skills, knowledge, and student characteristics are needed to succeed beyond the university. At CU-Boulder, feedback about curriculum and graduate capabilities is sought from community leaders, business executives, professionals, teachers, alumni, and other stakeholders. Examples include:

- In the College of Engineering and Applied Science, external feedback led to the creation of a graduate degree program in engineering management.⁵⁷ Endowed by Lockheed Martin, the program serves students seeking expanded opportunities in the engineering and technology arenas. The program was designed with corporate input for working professionals who want to develop their managerial and entrepreneurial skills. Students may choose between on-campus coursework or distance learning to earn the master's degree.
- The Graduate School Advisory Council, a group of external professionals and academic leaders, provides a bridge between the academic environment and the business professional world. In addition to its fundraising, recruiting, and alumni relations activities, the council offers input on skills and qualifications expected of graduate students. The group advises the Graduate School on developing programs that provide appropriate job-related skills
- Each of the schools and colleges also has an external advisory board whose members contribute their perspectives on curricular and other academic matters.

Integrating Discovery and Learning

The learning environment at CU-Boulder is elevated by vibrant connections between research and teaching—and between discovery and learning. Faculty scholars engage in leading-edge research and creative work resulting in new knowledge, which they weave into the teaching and learning experience. Students have unique opportunities to “learn by doing” through multiple programs for undergraduate research, creative activities, and experiential learning.

“I see education as the process of learning, not 'knowing.' Students enter my classroom with rich personal and intellectual resources including ideas about science, the nature of science, and ideas about teaching and learning. We develop these ideas collaboratively, so we must trust ourselves and each other throughout this process.”

— Valerie K. Otero,
Professor, School of
Education



A doctoral student works in Professor Ryan Gill's Colorado Center for Biorefining and Biofuels (C2B2) laboratory in the Discovery Learning Center on campus. C2B2 is a cooperative research and educational center devoted to the conversion of biomass to fuels and other products.

Synergies in research and teaching. In its classroom and laboratories, the CU-Boulder community values and supports the synergy between research and teaching. The university's faculty includes internationally known scholars who share their expertise and knowledge with undergraduate and graduate students. Award-winning musicians teach by their example of excellence in performance and creative works. Articles and books written by CU-Boulder faculty influence the teaching of subjects across the nation. As discussed in Chapter 6, the close ties between research and teaching are illustrated by the work of Nobel laureate Carl Wieman, who continues to promote innovative and effective teaching methods from his platform as an internationally recognized scientist.

Hands-on learning. CU-Boulder encourages its students, including undergraduates, to engage in research and creative work. The Undergraduate Research Opportunities Program,⁵⁸ as discussed in Chapter 6, helps create cocurricular partnerships between outstanding faculty and highly motivated undergraduate students, allowing them to engage in research and creative work together. The program funds undergraduate scholarly work by providing assistantships, individual and team grants, and research seminars. Undergraduate research projects range from traditional scientific experimentation to the creation of new artistic works. Some of the grants fund travel for research projects by undergraduates, such as the student who worked on alternative methods of teaching jazz at the Kennedy Center in Washington, D.C., or the student who traveled to Germany to study the impact of cattle disease on Bavaria.

Student engagement in research is the focus of the Discovery Learning Center⁵⁹ in the College of Engineering and Applied Science. The innovative laboratory makes research more accessible to students at all levels. In much of the space, students are involved in the assembly and testing of space flight experiments as well as the design and development of payloads and spacecraft. The building houses individual laboratories with videoconferencing, team meeting areas, and high-tech infrastructure throughout—providing students with an up-to-date incubator for ideas and design concepts.

Students in the College of Architecture and Planning's⁶⁰ undergraduate program at CU-Boulder gain hands-on experience by integrating knowledge from the classroom into design projects. In the School of Journalism and Mass Communication,⁶¹ students produce and anchor live newscasts on campus and engage in internships at local and national media outlets.

CU-Boulder's Mountain Research Station⁶² involves students in cutting-edge research through Research Experiences for Undergraduates,⁶³ a focused research program funded by the National Science Foundation. Students live and work at the alpine station, where they conduct research projects in ecology, evolution, and behavior. All participants develop an independent research project under the guidance of a faculty mentor. The program aims to train students in modern research methods and encourage undergraduates to consider graduate school in the biological sciences.

Students and faculty from throughout the university gain valuable industrial skills through CU-Boulder's Physics Trades Teaching Lab, which offers one-week, safety-intensive courses in machining and welding. Participants in the unusual program have continued access to the lab after completion for as long as they are affiliated with the university. Each year, about 200 students and faculty—in areas ranging from music to aerospace engineering—learn to design and manufacture unique components for a variety of research and creative work.⁶⁴

The university is continuing to expand its opportunities for undergraduate research experiences. In 2009, CU-Boulder was selected by the Howard Hughes Medical Institute to participate in the Science Education Alliance, a program designed to involve freshmen in scientific discovery on a national scale. The first project will allow students to help conduct cutting-edge research, analyzing and characterizing genome sequences.⁶⁵

Preparing for Lifelong Learning in a Global Society

CU-Boulder has long been recognized as an international institution, with significant international student and scholar populations and a wide range of international activities, including a strong study abroad program. These attributes are due more to the hard work of faculty and staff than to institutional design. *Flagship 2030*, however, calls for a greater commitment to internationalizing the university, extending global awareness in a more pervasive and coordinated manner. The full title of the strategic plan, *Flagship 2030: Serving Colorado, Engaged in the World*, challenges the university to expand its horizons beyond the campus boundaries.

Internationalization Task Force. Work already has begun toward the internationalization of the university. In July 2008, then-Provost Phil DiStefano appointed an Internationalization Task Force⁶⁶ to take the lead in developing a strategic plan for this goal. The provost asked the task force to develop recommendations for expanding study abroad, improving the number and quality of faculty and staff international professional development opportunities, expanding the international student and scholar populations at CU-Boulder, and identifying specific international grant initiatives.

Until recently, the university had no mechanism for regularly surveying faculty about the level and type of their international engagement to guide academic planning on global initiatives. In January 2009, the university established a new module in the Faculty Report of Professional Activities (FRPA) that solicits information about international connections, research, and scholarly work, as well as teaching activities. Data from the new module will be reviewed regularly by the Internationalization Task Force as it develops recommended strategies for the *Flagship 2030* initiative.

More than 25 percent of CU-Boulder bachelor's recipients participate in formal study abroad programs by the time of graduation.

The university also is drawing upon external expertise to enhance the planning process. CU-Boulder has joined with the American Council on Education's (ACE) Internationalization Collaborative,⁶⁷ a learning community of more than 60 institutions, which offers a forum for faculty and administrators in furthering their international agendas. Within the collaborative, a select group of institutions is identified annually as the Internationalization Laboratory,⁶⁸ which works closely with ACE over a 12- to 16-month period to enhance the internationalization review process. In 2008–09, CU-Boulder was selected to participate in the laboratory, which helps institutions review their current state of internationalization and to develop a strategic plan for its enhancement. This review and planning exercise will help inform the creation of CU-Boulder's strategic plan for comprehensive internationalization.

International degree proposal. For the past three years, CU-Boulder has joined with Dublin City University in Ireland and the University of Wollongong in Australia to pilot a proposed new “international” degree that utilizes live video classes between students and faculty at two of the three locations. The new degree is envisioned as jointly endorsed by all three universities simultaneously, with the home institution being the primary host. For example, Wollongong will award an “international bachelor of science” degree, with Dublin and CU-Boulder providing an endorsing statement.

The new degree will fall within current requirements of each university but will specify that at least one semester of residence at one of the other campuses is required. In addition, three video classes will be focused on international perspectives within current ordinary degree requirements. The goal is to admit a maximum of 10 students per year at each institution for a total cohort size of 30, beginning in fall 2010, at CU-Boulder. The formal degree proposal is expected to be submitted for approval by the CU Board of Regents by fall 2009.

Infrastructure for internationalization. The internationalization process at CU-Boulder starts from a solid foundation. The Office of International Education (OIE)⁶⁹ actively promotes international and intercultural understanding by facilitating the exchange of people and ideas. Working to “bring CU to the world and the world to CU,” the office oversees the International Student and Scholar Services (ISSS), the Study Abroad Programs, and the university's U.S. Fulbright Student Program. In 2008, the office was moved organizationally from student affairs to academic affairs, signaling the university's intent to infuse a global perspective throughout the teaching and learning environment.

CU-Boulder's Study Abroad Programs historically have attracted large numbers of undergraduate participants, providing them with a broader worldview and richer understanding of other cultures. Besides traveling and studying in other countries, many study abroad students engage in service learning and volunteer opportunities, ranging from international internships to structured community projects in the host country.

More than 25 percent of CU-Boulder bachelor's recipients participate in formal study abroad programs by the time of graduation.⁷⁰ Between 1998–99 and 2008–09, the total number of students participating in CU-Boulder's Study Abroad Programs grew by about 83 percent, from 553 students to 1,013. Toward the end of that period, however, the program's rate of growth slowed, especially in comparison with those at peer universities, due in part to the effects of budget and staffing limitations. From 2005–06 to 2008–09, the number of students studying abroad in CU-Boulder programs shrank somewhat; however, several peer institutions grew by more than 50 percent. Some peer universities have grown their programs by adding labor-intensive summer and short-term faculty-led programs, while CU-Boulder has focused on semester-long programs. Now, however, the university's Office of International Education is poised to develop and manage a larger portfolio of short-term programs, which is expected to enhance the international focus and increase study abroad participation.

Comparisons with peer institutions are based primarily on participation data from the Open Doors reports⁷¹ of the Institute of International Education in 2008. Open Doors publishes sufficient data to estimate the percentage of participants with programs lasting one semester (or quarter) or longer at 15 Association of American Universities (AAU) U.S. public universities. CU-Boulder reports 79 percent in-term or year-long programs. The universities of Wisconsin (Madison) and Washington report similar patterns, with 66 percent and 86 percent, respectively, in long programs. In contrast, in-term or year-long programs represent between 15 and 50 percent of participation at 12 schools including Michigan State, Ohio State, Purdue, Texas A&M, UCLA, Florida, Illinois, Kansas, Michigan, Minnesota, Texas, and Virginia. CU-Boulder's Open Doors "participation rate" of 20 percent (calculated as all enrolled participants divided by the number of bachelor's recipients in the year) is lower than the mean for all 34 AAU public institutions, which is 24 percent. Open Doors does not collect data on participation rates for a cohort of bachelor's recipients, but Wisconsin (Madison), with a program duration pattern similar to that at CU-Boulder, reports that 22 percent of bachelor's recipients participated in study abroad, slightly lower than CU-Boulder's 25 to 26 percent. These comparisons are consistent with the university's emphasis on greater participation and an increase in shorter programs.

Overall, the university's long-range goal is to increase enrollment in study abroad by an average of 6 percent per year from 2008 to 2012. The number grew by 8 percent from 2007–08 to 2008–09, from 936 to 1,013. These numbers do not include student study abroad through a non-CU-Boulder sponsored program. In 2007–08, another 156 students participated in non-CU-Boulder programs.



"A Universal Game of Tic Tac Toe" by Kristi Mohrbacher, 2007, submitted as part of the Office of International Education's International Education Photo Contest.



International Residential Academic Program. Students also engage in the study of other cultures, peoples, and languages through the Global Studies Residential Academic Program⁷² launched in 1997, when it was called the Smith Hall International Program. As a focused learning community, the Global Studies RAP introduces students to outstanding teaching faculty who work internationally and who bring that experience to the classroom. Students learn about different fields of study that demand “thinking internationally” and thinking about campus opportunities such as study abroad. Three major components include academic course work with an international focus, evening cocurricular activities, and student activities and field trips with international themes. The OIE strategic plan calls for expanding program capacity and installing a live-in faculty director by 2012.

International students and scholars. CU-Boulder’s international perspective is enriched and enhanced by the contributions of students and scholars from abroad. A number of services and programs are offered to ease the transition and enhance the experience of international visitors. International Student and Scholar Services,⁷³ which serves as institutional host for these visitors from abroad, offers assistance and support on such issues as legal status, housing, university life, cultural adjustment, and local information. The ISSS website also provides information to help prospective international students learn more about the caliber of CU-Boulder’s faculty, academic programs, and opportunities for intellectual growth. Assistance also is provided to departments seeking to attract and retain international faculty, postdocs, and researchers.

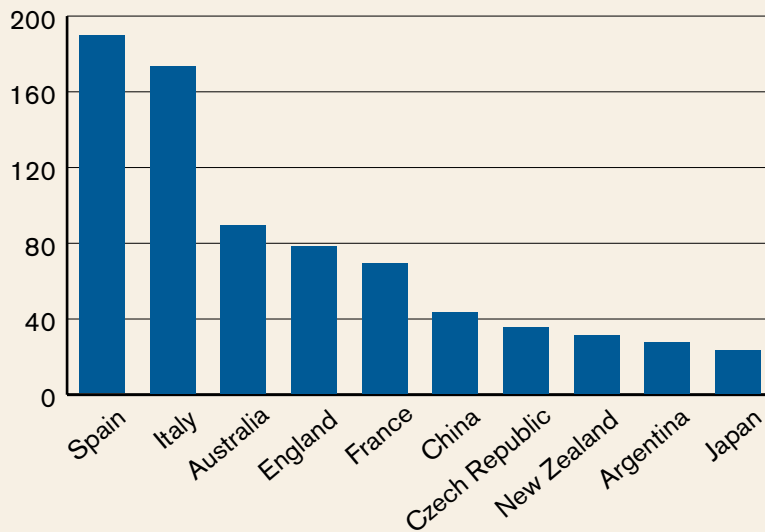
In recent years, however, the number of international visitors has declined, especially since the events of September 11, 2001. In 2006, the university’s percentage of international students was 3.9 percent, significantly lower than the percentages at most other AAU public universities. While the numbers now are slowly rising, the university intends to quicken the pace, as articulated in *Flagship 2030*, the Internationalization Task Force, and the OIE strategic plan. CU-Boulder aims to grow the international student population, including graduate and undergraduate students, to reach 10 percent of the total student population.

As part of the strategic plan for internationalizing CU-Boulder, a campus-wide recruitment and retention plan for international students and scholars is being developed and implemented. The university’s decision in 2006 to institute a tuition rate for graduate students on appointment is expected to bolster efforts to increase international graduate student enrollment. As discussed in Chapter 5, the new policy removed a longtime tuition cost distortion that discouraged departments from hiring nonresident graduate students, especially international students. Since the policy was implemented, graduate enrollment has seen steady increases.

DISPLAY 7.7

**Countries with More than 20 Study Abroad Enrollments,
Fiscal Year 2007–08**

Includes CU and Non-CU Study Abroad Programs



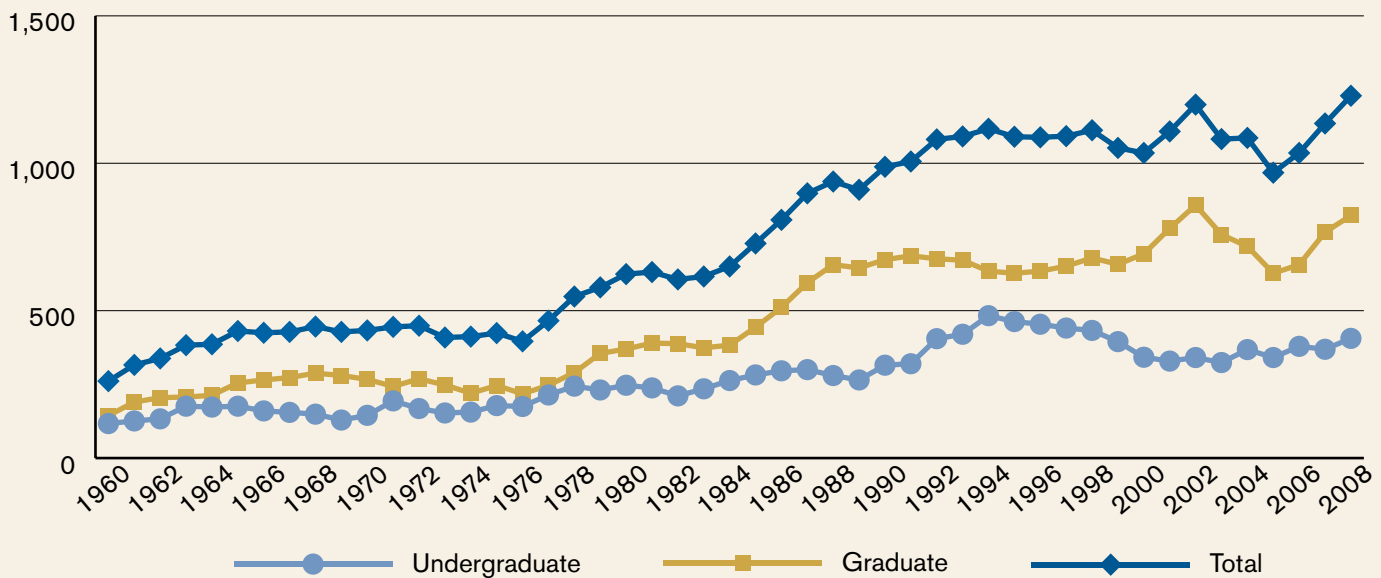
Source: Office of Planning, Budget, and Analysis, from Office of International Education database

International focus. CU-Boulder’s international perspective reaches across campus to classrooms, research centers, laboratories, and residence halls. The university’s faculty are active in international venues, conducting research and scholarship around the world and establishing partnerships with universities abroad. Foreign language is part of the university’s general education requirement, and the number of languages offered has grown in recent years. Also, record numbers of CU-Boulder students have applied their global view to service in the Peace Corps; the university ranks second among all U.S. colleges and universities in the number of alumni Peace Corps volunteers.

In 2008, the Colorado European Union Center of Excellence (CEUCE)⁷⁴ was launched at CU-Boulder to promote understanding of the European Union (EU) and transatlantic relations through teaching, research, and outreach activities in the Mountain West region. Funded by an EU grant, the center quickly engaged the Colorado business community by organizing a conference focused on understanding the skyrocketing EU market for state trade.

Individual faculty members also have incorporated international perspectives into their syllabi, sometimes including working with students abroad. For example, Professor George Rivera of art and art history teaches art classes that often include an international exhibition as part of the students’ pedagogical experience. Undergraduate and graduate students exhibit their work, publish it

DISPLAY 7.8
International Student Enrollment by Level
Fall 1960–2008



Source: Office of International Education

in a catalog and travel with the professor to Mexico and South America. Students have had exhibitions in Mexico City, Taxco, Colombia, Brazil, and Peru.

In the Jewish Studies Program, Director David Shneer encourages in-situ learning, which connects text to place to give students a deeper, more emotional relationship to the materials they study. For example, Schneer took a group of students to Spain to study “Jewish Spain.” They studied primary sources in the places where medieval writers generated those sources, including Cordoba and the Alhambra. Jewish studies currently is developing a new on-site course called “Jews and the City,” where learning will take place in historic cafés in which famous Jewish writers, artists, and thinkers gathered.

The Center for Asian Studies (CAS)⁷⁵ has been designated by the U.S. Department of Education as one of only three National Resource Centers for Asian Studies nationwide, a credit to the strength of CU-Boulder’s Asian language and area studies programs. Since it was founded in 1998, CAS has overseen significant increases in the numbers of Asia-related course offerings (from 70 to more than 200), students enrolled in Asia-related courses (2,700 to well over 6,000), and students with Asia-related majors (the number of Japanese majors more than doubled, from 39 to 89, and the number of Chinese majors showed a four-fold increase, from 19 to 76).

CAS also sponsors annual summer faculty-led on-site courses in East Asia, including one to China in summer 2009, led by Anya Lange, a senior instructor in the Herbst Program of Humanities for Engineers. Students explore issues of cultural identity as they study on the campus of Jiaotong University in the historic city of Xi'an. Earlier iterations of the course included one in Japan on the haiku poet, Basho, and one in China and Japan on contemporary societies' representations of the past. An on-site course on the Tibet-China border focused on the transformation of traditional cultures in the modern political climate.

With the long-range vision articulated in *Flagship 2030*, the university has set its sights on becoming a global crossroads—through increased teaching, research, and service in international education. Most importantly, CU-Boulder is focusing attention and resources on developing a comprehensive plan for creating a truly international university—one that promotes learning with a global perspective.

Graduate and Professional Education

Core Component 4B. The organization demonstrates that acquisition of a breadth of knowledge and skills and the exercise of intellectual inquiry are integral to its educational programs.

Graduate and professional education remains a central part of CU-Boulder's mission as a comprehensive research institution. Graduate students' learning, scholarship and teaching clearly have contributed to the university's successes in meeting that mission. Graduate students engage in leading-edge research and creative work in the natural and physical sciences, arts, humanities, social sciences, law, and business. They work with undergraduates in classrooms, laboratories, and other learning environments. They provide invaluable assistance to faculty members in their teaching, scholarship, and service roles. CU-Boulder understands and embraces its role in training future faculty members, researchers, and professionals—a role that had its roots in 1885 when the first master's degree was awarded. While undergraduate education is an essential role for the university, as discussed in Chapter 6, graduate and professional education speaks to the comprehensive nature of the institution.

Much of CU-Boulder's graduate education is provided through the Graduate School, working with individual academic departments in the schools and colleges. The exceptions are legal education through the law school and the master of business administration (MBA) through the Leeds School of Business. With a favorable student-to-faculty ratio, the law school offers students close interaction with faculty. Entrance to the school is competitive, with only 22 percent of applicants admitted in 2008. The Law School's graduates have achieved a bar exam pass rate of 93 percent on first attempt, placing the school in the top 25 schools for bar passage. More than a quarter of the Class of 2008 obtained

judicial clerkships. As discussed in Chapter 6, the law school has developed an active Experiential Learning Program and recently received a \$5 million gift to enhance the program. Nine legal clinics in the school offer students the opportunity to handle actual cases, turning legal theory into practice and providing free legal services to those who need assistance. Legal research and writing are emphasized in the law school curriculum, including academic requirements at all levels, opportunities with the school's three journals, and numerous writing competitions.

Students seeking the MBA degree take a combination of core courses and elective courses. Core courses provide a fundamental basis for approaching business issues, while electives allow students to build a "portfolio" tailored to their own professional goals. For example, students may choose from portfolios in consulting, entrepreneurship, finance, marketing, or real estate—or develop other unique portfolios, such as management, systems, or sustainability. The MBA program provides flexible options, with several multidisciplinary opportunities and eight dual-degree programs. Students benefit from the entrepreneurial atmosphere in the Boulder/Denver metro area, where many start-up companies have CU-Boulder ties.

Role of the Graduate School. The mission of CU-Boulder's Graduate School is to create and preserve knowledge; prepare a new generation of scholars, professionals, and informed citizens; promote interdisciplinary thinking and learning; and encourage constructive engagement with the public. Although much of graduate education is decentralized among individual academic departments, the Graduate School oversees campus-wide issues and develops guidelines on policies and procedures related to graduate education. For example, the school reviews graduate curricula, coordinates the development of new programs and degrees, and sets policies on graduate degree requirements. The school awards financial aid, although much of the financial support for graduate students, such as teaching and research assistantships, originates within schools and colleges. The Graduate School also provides a number of services to students, such as advising and teacher training, and identifies opportunities for collaborative work. The university's Graduate Teacher Program (GTP),⁷⁶ as described in Chapter 6, has earned national recognition for its effectiveness in improving teaching methods.

The Graduate School's Executive Advisory Council (EAC) advises the dean on matters relating to coordination and excellence of Graduate School programs throughout CU-Boulder. Members of EAC include the Graduate School dean; 12 members of the graduate faculty representing constituent schools and colleges, including the associate dean; and one student member. The dean appoints council members from nominations submitted by constituent groups. The council engages in numerous duties, including reviewing and recommending the appointment, reappointment, and promotion of all research professorships (the student member is excused from this duty). EAC also recommends proposals

for new degree programs, professional and interdisciplinary certificate programs, concurrent bachelor's/master's degree programs, and discontinuance of existing degree programs.

Curricular changes in graduate programs are proposed by departments and approved by the schools and colleges. Courses then are reviewed and approved by the associate dean of the Graduate School before revisions are made to the curriculum. Instruction of graduate students is the responsibility of a designated body of graduate faculty who are active in research or creative work. All graduate faculty appointments are reviewed and approved by the Graduate School.

Graduate faculty. CU-Boulder strives to maintain a high level of quality among faculty who are engaged in graduate education. Under university policies, only faculty appointed to the graduate faculty may work with graduate students as an instructor for a course; as an advisor; or as a member of an exam, thesis, or dissertation committee. Appointments to the graduate faculty are made at the request of the home department and must be approved at the college or school level before a final review by the Graduate School. These appointments are based on the scholarly and teaching record and qualifications, including research activity of the individual faculty member. By practice and Graduate School rules, the assessment of the work of individual students by comprehensive exams and thesis and dissertation committees draws upon qualified faculty outside the student's own instructors.

Assessment of graduate programs. Assessment of CU-Boulder's graduate-level programs is enhanced by comparisons with similar disciplines at peer institutions through data exchanges and participation in national data initiatives. The Graduate School⁷⁷ and the Office of Institutional Analysis⁷⁸ have jointly worked with the AAU data exchange and the AAU task force on graduate education data⁷⁹ to develop department or discipline-specific data for the management and improvement of graduate education. These data are comparable over time, across departments, and across institutions. They include graduation rates, time to degree, an exit survey, placement, financial support, and others. CU-Boulder data are published on the institutional analysis website and can be accessed by the public.

Improvements in individual graduate degree programs are ongoing and are shared with campus representatives through the academic review process. Assessment of programs relies on comparisons to similar disciplines at peer institutions—the goal of AAU and AAU data exchange work. In a related endeavor, CU-Boulder also has participated fully in data collection by the National Research Council (NRC) study of the research doctorate,⁸⁰ developing centralized, ongoing data sources. Results are expected in fall 2009 or later. Institutional analysis posts results from this activity on its website, including graduation rates⁸¹ and time to degree⁸² for master's and doctoral students.



CU-Boulder doctoral candidate Sophia Liu near an area burned in a 2009 brush fire in north Boulder. Liu, who lives near the area, studied first-hand how social media was used to disseminate information during the crisis.

The university continues to seek feedback from its students, including graduate students. The graduate student survey⁸³ process was centralized and the instrument revised, based in part on input from graduate chairs to the Assessment Oversight Committee. The survey has been administered in 2003, 2005, and 2009. The resulting data are used by programs and by the Graduate School for management purposes and for the improvement of graduate education.

Graduate programs. CU-Boulder offers graduate programs in a wide range of disciplines, including humanities, social sciences, physical and biological sciences, fine and performing arts, business, education, engineering, journalism, law, and music. Among its various schools and colleges, the university has more than 60 master's programs and about 50 doctoral programs.⁸⁴

New degree programs⁸⁵ established since 2000 include the doctor of audiology (delivering professional training); joint PhD programs in both cognitive science and neuroscience; and PhD programs in environmental studies; technology, media, and society; and biochemistry. Reconfiguration and renaming resulted in MS/PhD degrees in atmospheric and oceanic sciences and in astrophysical and planetary sciences, as well as bachelor's and master's degrees in art history and studio arts. New programs planned for the near future include master's and PhD programs in comparative ethnic studies, a PhD in Asian studies, a PhD in German studies, a master's in Russian studies, a master's in information and communications technology for development, and a master's in laws (LLM),⁸⁶ as well as a bachelor's program in neuroscience.

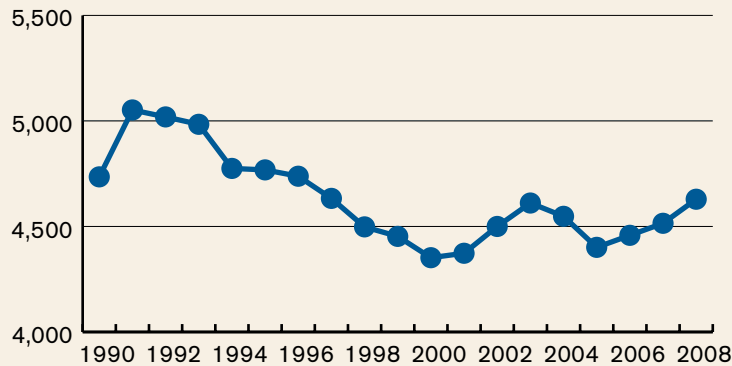
Students also may choose from more than 30 separate programs for earning bachelor's/master's degrees⁸⁷ concurrently in five years. Initiated in 1998, these programs now award degrees to more than 100 students each year. Fourteen dual master's degree programs offer competitive advantages for graduates in a rapidly changing world. Examples include dual combinations of an MBA and anthropology; MBA and theatre and dance; and engineering management and telecommunications. The law school offers multiple opportunities for interdisciplinary study through several dual-degree programs with other University of Colorado schools and colleges, both in Boulder and Denver, in addition to the University of Alberta. They include joint programs with business administration, public administration, telecommunications, environmental science, medicine, urban and regional planning, and international law. These programs encourage students to integrate their study of law with other fields while earning course credit toward both degrees simultaneously.

Joint PhD programs are offered in cognitive science and neuroscience, with an emphasis on the interdisciplinary nature of the fields. For example, students may pursue the joint doctorate in cognitive science and one of the member departments of the Institute of Cognitive Science.⁸⁸ The graduate PhD program in neuroscience is an interdepartmental program with eight tracks: behavioral genetics; behavioral neuroscience; clinical neuroscience; cognitive neuroscience;

DISPLAY 7.9

Graduate Enrollment, Fall 1990–2008

Main campus degree-seeking students at fall census



Source: www.colorado.edu/pba/records/time/enrl88plus.htm

social neuroscience; integrative physiology; molecular, cellular, and developmental neuroscience; or speech, language, and hearing neuroscience.⁸⁹

In addition, graduate students have access to numerous interdisciplinary and professional certificate programs. Interdisciplinary certificate programs allow graduate students to engage in multiple areas of study while pursuing a graduate degree in a specific department. Examples include certificates in atmospheric and oceanic sciences, biotechnology, human language technology, and women and gender studies, among others. Professional certification programs are aimed at professionals who wish to obtain certification in a field, apart from completing a degree, such as software engineering, leadership and ethical decision-making, managing innovation, or project management.

Graduate education initiatives. In *Flagship 2030*, the university recognizes the importance of a vibrant graduate education program with several initiatives that have implications for the Graduate School and graduate education. In particular, a Core Initiative called “Enhancing Graduate Education” sets an ambitious goal of increasing the graduate student population from the current 15.6 percent of total enrollment to 20 percent. Graduate enrollment has been under 20 percent since the mid-1990s, despite focused attempts to increase it, according to the *Flagship 2030 Graduate Education Task Force* report.⁹⁰ The *Enrollment Task Force*⁹¹ also noted the challenges of expanding the graduate population with limited resources.

In fall 2008, the total number of graduate-level degree-seeking students in regular campus programs was 4,629, or 15.6 percent of total degree-seeking enrollment. This compares to just over 5,000 graduate-level students and 20 percent of the total in 1991 and 1992, the all-time highs for both number and percentage. Graduate-level students are rostered in the Graduate School (3,931 in fall 2008), the law school (523), and the Leeds School of Business (175 MBA students).

Flagship 2030 offers a number of initiatives that have the potential for improving graduate students' experience in their roles as students *and* teachers, such as growing the overall faculty, expanding and enhancing the research enterprise, ensuring access and expanding diversity, investing in new technologies and library collections, initiating the "research diamond" concept, building incentives for interdisciplinary work, internationalizing the university, and expanding alternative degree tracks.

Progress made on all these strategic initiatives is expected to contribute to an expanded and enhanced graduate program over the next two decades. However, substantial investments and specific actions directed at graduate education also are needed, as noted by both the Graduate Education Task Force and the Enrollment Task Force. The top priorities, according to the Graduate Education Task Force, should be to improve graduate student financial support, create structures to enable program innovation and development, and clarify the role of the Graduate School. Increasing financial support and addressing heavy teaching loads are expected to aid in the recruitment and retention of graduate students.

The Enrollment Task Force suggested a phased-in approach by investing in more assistantships and fellowship, increasing the rate of pay, and making more multi-year offers. It also suggested further investments in concurrent bachelor's/master's degrees, terminal master's degrees, and professional master's degrees as a means of expanding graduate enrollment. Building on existing strengths, the group concluded, CU-Boulder should invest further in interdisciplinary programs that would attract graduate students at both the master's and doctoral level. Other strategies and action plans were proposed, including more attention to graduate enrollment management, enlarging national and international recruitment of master's and doctoral degree students, involving nontraditional faculty, offering departmental incentives for growing the graduate enrollment, increasing distance learning and professional certificates, and considering new departments and schools. All the recommendations by the two task forces are under consideration by the chancellor and his cabinet, who are in the process of prioritizing the next steps.

Fostering Responsibility in the Learning Community

Core Component 4D. The organization provides support to ensure that faculty, students, and staff acquire, discover, and apply knowledge responsibly.

CU-Boulder promotes social responsibility in the learning community through programs that support civic and personal growth, teach the principles of responsibility, and foster ethical conduct. Some of the programs described in this section are established administrative initiatives, and others are student-initiated, grassroots commitments. All are aimed at nurturing ethical citizenship in all levels of community, from the campus, to local, to global.

Supporting Civic and Personal Growth

Institute for Ethical and Civic Engagement. Founded in 2005, the Institute for Ethical and Civic Engagement (IECE)⁹² serves as a forum, catalyst, coordinator, and strong proponent for the university's commitment to the ethical and civic dimensions of education. Through a wide variety of programs, IECE collaborates with many on and off campus to help prepare students for a lifetime of service to society as thoughtful, just, and engaged citizens. In the process, the institute helps students gain a more meaningful learning experience and contributes to the many communities served from the local level to the global. As described in more detail in Chapter 8, IECE offers a civic engagement scholarship program called Puksta Scholars, in which scholarship recipients develop intensive civic engagement projects in a variety of venues.

IECE was created specifically to nurture and encourage ethical and civic education at CU-Boulder, building on momentum already established to make ethical and civic engagement a defining characteristic of the campus community. The institute helps colleges, schools, departments, and student organizations develop model projects, certificate programs, capstone projects, and courses. It also hosts speakers, conferences, workshops, and seminars to encourage the exchange of ideas related to ethical and civic engagement. With the leadership and support of IECE, the campus has begun a sustained effort, including making curricular changes, to better integrate ethical and civic learning with substantive knowledge and intellectual reasoning.

Student codes. As described in Chapter 4, the university has mechanisms in place to support students' personal growth in appropriate conduct and integrity. Initiated by students themselves, the Honor Code⁹³ establishes "a fundamental social contract within which the university community agrees to live," according to the code's vision statement. The Honor Code website provides information on violations, procedures for students and faculty, and a Seminar in Ethics and



Aerospace engineering students Noah Ledford and Stephanie Golmon participate in hands-on windmill research as part of CU-Boulder's collaboration with the National Renewable Energy Laboratory.

Academic Integrity for sanctioned students. The Student Conduct Policies and Procedures code⁹⁴ is designed to help students contribute to a learning community in which all people are treated with respect and courtesy.

Modeling and Teaching Social Responsibility

Commitment to community. In 2004, a group of students frustrated by perceptions of CU-Boulder as a “party school” developed the Colorado Creed, a statement of social responsibility. Seven guiding principles, highlighted below, form the core of the creed, which states:

“As a member of the Boulder community and the University of Colorado, I agree to: **act** with **honor**, **integrity**, and **accountability** in my interactions with students, faculty, staff and neighbors; **respect** the rights of others and **accept** their differences; and **contribute** to the greater good of this community. I will strive to uphold these principles in all aspects of my collegiate experience and beyond.”

The Colorado Creed Committee organizes events, publicity, and volunteer activities to raise awareness and encourage compliance with the creed. The committee has positioned plaques and embossed flagstone sidewalk slabs at key traffic areas on the Boulder campus. Campus promotional literature is included in admissions applications, course catalogs, and retail display stickers.

Commitment to the community also is evident in the growth of service learning programs offered throughout the university, as described in Chapter 8. Service learning opportunities are available through the Service Learning Office in the College of Arts and Sciences and in other academic units. Members of the university community also engage in organized volunteer activities that provide aid to others in the community, state, nation, and abroad.

Commitment to the environment. At CU-Boulder, sustainability starts at home. In a confluence of ideas and application, the university “practices what it preaches” about the urgency of sustainability. In 2007, as part of an initiative of the American College and University Presidents Climate Commitment (ACUPCC), CU-Boulder committed to establishing a schedule for attaining climate neutrality on campus. Environmental stewardship has long been a core value of the learning community—from strong programs in campus recycling and energy conservation to academic initiatives that inform the campus community and the world. Students have led the way and set the example. For example, CU-Boulder was the first in the nation with:

- A student-operated environmental center (1970)
- A student-sponsored recycling program (1976)
- A student-operated bus pass program (1991)
- Student-funded wind-energy purchase (2000)
- A student government commitment to climate neutrality (2007)

Over the years, the university has attracted many world-class researchers and professionals who have made important contributions toward preserving the environment. With leadership by the [CU Environmental Center](#),⁹⁵ research-based environmental practices are incorporated into the daily life of the campus. Starting with the 2008 football season, for example, the football program embarked on a recycling and composting program, dubbed Ralphie's Green Stampede, that is the first zero-waste program ever launched at an NCAA Division I Bowl Championship Series stadium. In the first year, the program broke all previous recycling records and reduced the environmental footprint of sports events. More than 40 tons of recyclables and compostables were collected from football games, nearly 200 percent more than the previous year.

Since 2000, CU-Boulder environmental practices have been guided by the "Blueprint for a Green Campus," as discussed in Chapter 5. Revised in 2006, this action plan builds on a history of environmental leadership, but challenges the campus to do much more toward reducing its ecological impact. Strategies are spelled out in the areas of climate, water, recycling, and campus health and safety. The plan supports the university's commitment to more sustainable building practices and sets new standards for environmental achievement. CU-Boulder is committed not only to the study of sustainability, as described earlier in this chapter, but to incorporating its principles into the operation of the campus.

Promoting Ethical Conduct

Commitment to ethical conduct is a core value of the Boulder campus community, whether in the laboratory, classroom, residence hall, or any other living/learning environment. For example, the [Office of Research Integrity \(ORI\)](#),⁹⁶ housed within the Office of the Vice Chancellor for Research, helps ensure that research activities meet the highest standards of ethical and regulatory compliance. An extensive website outlines the various oversight mechanisms, such as animal care and use, bio-safety, conflicts of interest and commitment, export controls, human research, radiation safety, and research misconduct. In most cases, these programs are supported by staff and standing faculty committees. To date, all functions have been found to be compliant with federal rules and regulations. In addition, a Standing Committee on Restricted, Proprietary, and Classified Research has approval and management authority over research with sponsorship conditions. The [Office of Contracts and Grants \(OCG\)](#)⁹⁷ works to ensure the proper financial oversight of sponsored projects, including processing research contracts and grants. The office also plays an active role in training staff and faculty in the area of sponsored projects.

In 1995, the Boulder Faculty Assembly adopted a set of professional ethics as set forth in the [Professional Rights and Duties of Faculty Members](#).⁹⁸ Updated in 2008, the document preamble describes its intent as "to protect academic freedom, to help preserve the highest standards of teaching and scholarship, and to advance the mission of the university as an institution of higher learning." Included in the document are sections on professional rights of faculty, ethical

principles, and professional duties of faculty members; roles and professional duties of department chairs; faculty review procedures; and sanctions for unprofessional conduct.

In addition, information about academic principles, professional rights and responsibilities, and related policies are provided as part of a system-wide faculty handbook.⁹⁹ The book includes administrative policy statements on a wide range of topics, from conflicts of interest to sexual harassment.

Summary

Research and creative work is a particular strength of the University of Colorado at Boulder, with faculty members garnering ever-increasing levels of federal contracts and grants. The faculty's research accomplishments are based both in disciplinary and interdisciplinary arenas and are recognized by many prestigious prizes and awards. The university leverages its research strengths by launching strategic initiatives that respond to state, national, and international priorities. With increasing research activity has come greater achievements in technology transfer, applying new knowledge to the needs of society.

CU-Boulder also has made strides in aligning its curriculum with the needs of a complex world, working to improve student learning on an ongoing basis and involving constituencies in molding the curriculum. In particular, the university has developed an array of programs that integrate learning and discovery, such as Undergraduate Research Opportunities, Discovery Learning Center, the Mountain Research Station, and many others. With the support of *Flagship 2030*, CU-Boulder has launched a focused effort to increase the university's international perspective and influence, with the guidance of the Internationalization Task Force. Initiatives include building a stronger infrastructure for international activities, a Global Studies Residential Academic Program, enhanced international student and scholar services, study abroad programs, and new centers with an international focus. The university's mission is further enhanced by improvements in graduate and professional education, including new joint degree programs, interdisciplinary certificate programs, and initiatives in graduate education supported by *Flagship 2030*. CU-Boulder demonstrates its commitment to social responsibility and ethics through programs that emphasize civic engagement, ethical conduct by all members of the university community, and stewardship of the environment. The university emphasizes the highest standards of ethical and regulatory compliance in all its activities, including the research enterprise.

Discussion

Key Strengths

- **Highly productive and innovative research enterprise.** CU-Boulder engages in highly productive research activities, with faculty earning international recognition for top-tier accomplishments in scholarship and discovery. Faculty are particularly adept at winning competitive contracts and grants, even in the face of federal budget constraints.
- **History of interdisciplinary engagement.** A strong system of research institutes, centers, and laboratories has nurtured a university culture of scholarship and creative work that transcends academic boundaries. University research and scholarship activities are enhanced by the application of multiple perspectives to the examination of complex questions.
- **Strategic and bold initiatives.** The university anticipates and responds to emerging global issues by marshalling resources and efforts through major strategic initiatives. Partnerships are formed with internal and external entities to promote and support the work of these collaborative endeavors.
- **Effective partnerships with federal laboratories.** For more than five decades, CU-Boulder has collaborated with national laboratories located in the Boulder area. These relationships have resulted in the formation of major joint institutes and many research collaborations involving students and faculty.
- **Growth in technology transfer.** Investments in the technology transfer infrastructure are resulting in significant increases in the applications of CU-Boulder research. A number of start-up companies and licensing opportunities have emerged from acceleration of technology transfer.

Challenges and Issues

- **Support for research.** Limited state support for research has required the university to make institutional investments to help build CU-Boulder's remarkable research enterprise. Future growth and success will require more substantial, broad-based, and strategic support.
- **Research infrastructure.** The university's current organization model for the research enterprise may not continue to provide the support needed to be competitive in the future. The *Flagship 2030* Research, Scholarship, and Creative Works Task Force has recommended a reorganization of the research enterprise, including a reconfiguration of the structures responsible for research administration.

- **Curricular review.** CU-Boulder’s school, colleges, and departments attend to curricular needs and opportunities in varying ways. Departments routinely revise curricula as part of assessment activities, and some colleges have established protocols for curriculum improvement. However, as the university looks toward the global society of 2030, the current curriculum will need more comprehensive evaluation, as noted in *Flagship 2030*.
- **Internationalizing the university.** Even with a strong history of international activity, CU-Boulder recognizes the need for a strategic, proactive approach to internationalizing the university. External challenges, such as changes in immigration regulations and economic realities, have created impediments for reaching international goals, illustrating the necessity for a focused and strategic approach.
- **Increasing graduate enrollment.** Despite efforts to increase the proportion of graduate students at CU-Boulder, little progress has been made in recent years. As noted in the *Flagship 2030* Graduate Education Task Force Report, support for graduate students is not competitive, and teaching loads are substantial.

Flagship 2030: Next Steps

- **Promoting the research enterprise.** Through *Flagship 2030*, the university has committed to enhancing the institution’s research mission and identifying more broad-based resources for that purpose. The plan calls for increased investments in the infrastructure supporting research and in the people who conduct it. It also proposes a “research diamond” collaboration with other regional universities, businesses, government, and federal laboratories. Recommendations by the *Flagship 2030* Research, Scholarship, and Creative Works Task Force offer a roadmap for transforming the institution’s culture through organizational change and enhanced investments in the research enterprise.
- **Enhancing graduate education.** The university has targeted an increase in the proportion of graduate students to reach 20 percent of total enrollment. Early steps include investments in graduate student support and identification of degree options and academic programs that encourage enrollment growth.
- **Improving the delivery of undergraduate education.** In addition to increasing the size of the university’s faculty, CU-Boulder has issued a call to re-examine its undergraduate education model. Under *Flagship 2030*, the university will review the current curriculum and teaching methodologies in order to better prepare students for a rapidly changing world. The Undergraduate Education Task Force proposes curricular and structural changes that would distinguish the university among public research institutions. It recommends increased investments in the Honors Program, assessment

protocols, residential college concepts, interdisciplinary programs, experiential programs, international exchange, and internships in the nation's capital. The university is considering the task force recommendations as it moves forward with the implementation of *Flagship 2030*.

- **Transcending traditional academic boundaries.** CU-Boulder already has a strong and successful tradition of interdisciplinary work, but more can be done. New initiatives that cut across departmental units are being launched in such areas as energy, biotechnology, aerospace, geosciences, and computational science and engineering. These and other broad-based endeavors require a new framework for keeping CU-Boulder at the forefront of collaborative achievement. The university also intends to build current strengths in multi- and interdisciplinary engagement more fully into the curriculum and degree offerings.

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CHAPTER 8

Engagement and Service

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Engagement and Service

CRITERION 5:

As called for by its mission, the organization identifies its constituencies and serves them in ways both value.

The breadth and scope of CU-Boulder's commitment to service, outreach, and engagement is underscored by key words in the title of the university's strategic plan: *Flagship 2030: Serving Colorado, Engaged in the World*. Service and engagement are not new concepts to CU-Boulder; examples abound, both past and present. For decades, CU-Boulder faculty, students and staff have demonstrated a strong orientation toward service, often reaching out in individual or small-group initiatives to engage with local communities, communities around the state, and national and international groups. Now, CU-Boulder is working to harness some of that initiative and energy with a coordinated, coherent strategy for outreach and engagement that features increased support, more focused planning, expanded reach, and broader recognition.

This chapter offers a discussion of several key traits of the engaged, responsive university—and the degree to which CU-Boulder fits that profile. Current literature and the university's experience suggest the following characteristics of the engaged institution:

- Mission-focused engagement
- Common understanding of terms
- Institutional support structures
- Pervasive, deliberate involvement
- Mutually beneficial partnerships
- Thoughtful internal and external assessment



Local K–8 students use plastic cups to form blades of a mock wind turbine during a Science Explorer workshop event at the University Memorial Center. Students rotated through three alternative/renewable energy project labs, including solar, wind, and alternative fuels.

By focusing on those central traits, CU-Boulder intends to further elevate the level of campus outreach and engagement with key constituencies in Boulder, Colorado, the nation, and the world. Service to those constituencies, both internal and external, is central to the *Flagship 2030* vision. Among the **internal constituencies** are students, faculty, staff, the CU system, and the CU Board of Regents. Ongoing engagement with these groups drives CU-Boulder's mission, as described in earlier chapters. The university also serves a number of **external constituencies**, including parents, alumni, donors, local communities, the state, and the national higher education community, Colorado K–12 schools, state government, business and industry, federal agencies, international organizations, and the general public. Numerous examples of the university's external engagement are included in this and earlier chapters. Guided by *Flagship 2030*, CU-Boulder remains intent on “serving Colorado, engaged in the world.”

Mission-Focused Engagement

Core Component 5A. The organization learns from the constituencies it serves and analyzes its capacity to serve their needs and expectations.

Core Component 5B. The organization has the capacity and the commitment to engage with its identified constituencies and communities.

CU-Boulder maintains close connections with its constituencies, engaging with them in the context of the university's mission as a public institution. In this section is a discussion of the ways in which engagement with communities and constituencies pervades the university's mission documents and planning processes, including the *Flagship 2030* strategic plan. Recommendations from the Outreach and Engagement Task Force demonstrate the level of interest and commitment to serving the university's various constituencies.

Planning for Engagement

Mission documents for CU-Boulder offer clear recognition of the institution's role in meeting the needs of “the people of Colorado, the nation, and the world,” in the words of the 1996 strategic plan. In the Laws of the Regents,¹ service is included among the expectations for faculty performance. The university community has responded with programs that have gained national prominence and offer opportunities for experiential learning. Strategic plans by schools and colleges include engagement and outreach as important elements. The mission of the College of Arts and Sciences includes “Fostering educational exchange within the university, the Colorado community, and society as a whole.”

Flagship 2030 and engagement. Building on a history of achievement, service and engagement are woven throughout the *Flagship 2030* strategic plan. In fact, they form a central theme of the “new flagship university” CU-Boulder intends to become. The plan’s vision statement refers to the university as “a place that exemplifies diversity, intercultural understanding, and community engagement.” In one of the Core Initiatives, “Serving Colorado, the Community, and our Graduates,” the university includes plans to expand outreach programming aimed at Colorado communities and to enhance opportunities for lifelong and distance learning. Another Core Initiative, “Supporting the Mission,” increases support for service and education, research and creative work, and university operations.

Furthermore, engagement with key constituencies at home and abroad cuts across many of the plan’s 10 transformative Flagship Initiatives. In one initiative, for example, the university plans to expand experiential learning experiences, such as internships and full-time community service projects. In other Flagship Initiatives, CU-Boulder will collaborate with government, business, state, national, and international partners on research efforts to address issues facing all levels of society.

Task Force recommendations. Recommendations by the *Flagship 2030* Outreach and Engagement Task Force provide a blueprint for enhanced service to university constituencies. First, the task force has called for creating a coordinated, coherent and deliberate campus strategy for outreach and engagement. This strategy would include developing a clear definition of outreach and engagement, establishing appropriate infrastructure and oversight, and fostering student involvement. Also included in the strategy would be establishing “welcoming centers” on campus, building community partnerships, supporting P–12 outreach activities, partnering with campus administrators, and implementing an integrated communication plan.

Secondly, the Outreach and Engagement Task Force recommended nurturing faculty participation and the development of evaluation, recognition, and reward systems for faculty outreach. Action items would include clarifying the role of faculty, providing appropriate funding, and adopting guidelines for the evaluation, recognition, and reward of faculty outreach.

Third, the task force called for expanding lifelong learning, professional development, and online learning opportunities. This effort would center primarily on implementing a new model program for bridging the development of programs between the university and alumni, business, and the community. The program would include a review of demographic and market trends in developing a long-term plan for lifelong learning programs offered on campus, off campus, and online. It would seek opportunities for expanding professional development programs that serve local and global workforce needs, as well as those of the university’s alumni. The program also would examine the merits and feasibility of

an online undergraduate degree completion program for adult learners. Furthermore, it would examine the academic and institutional feasibility of expanding the number of online professional master's degree and certificate programs.

The university administration currently is considering the task force's recommendations, including examining resource needs and prioritizing action items.

Constituency Involvement in Planning

The *Flagship 2030* strategic planning process itself engaged key constituencies in developing the plan's initiatives. Input was sought and received from hundreds of faculty, staff, students, parents, alumni, business leaders, community members, government officials, and other university stakeholders. The plan's steering committee included representatives of the local community and state leadership, among others. Subcommittees were asked to address questions about the needs of the community, state, and nation in 2030. In a statewide initiative, more than 70 community leaders around Colorado were interviewed, responding to key questions about the needs of the state and how CU-Boulder can best serve those needs. Ideas and suggestions from the community helped guide and inform the resulting *Flagship 2030* strategic plan.

Defining the Terms

Core Component 5A. The organization learns from the constituencies it serves and analyzes its capacity to serve their needs and expectations.

Core Component 5B. The organization has the capacity and the commitment to engage with its identified constituencies and communities.

While CU-Boulder faculty, staff, and students historically have engaged in extensive service and outreach, there has not been universal agreement on the vocabulary used to describe such engagement. This section discusses the university's efforts to arrive at a common understanding of the meaning of service, outreach, and engagement in the context of a research university. Articulation of that understanding helps the university better determine its capacity for serving the needs and expectations of constituencies, as well as laying the groundwork for planning, implementation, and assessment of activities.

In 2002, the university's Council of Deans specifically sought to define faculty outreach in the context of a research university and faculty's core responsibilities, and it endorsed the following statement:

“The University of Colorado at Boulder uses the term ‘outreach’ to describe the various ways in which the university extends its expertise for the direct benefit of Colorado communities and other external audiences. The university’s exceptional resources of knowledge lie in the strengths of its faculty, research institutes, student body, and academic programs.”²

The document notes that outreach traditionally has been considered a service activity. “However, within a research university, outreach can occur as scholarship that cuts across the university’s teaching, research, and service missions. Successful outreach is rooted in scholarship and highlights faculty expertise. It draws on knowledge developed through other forms of scholarship and contributes to the knowledge base.” The Council of Deans noted that federal research agencies such as National Science Foundation (NSF) and NASA increasingly require an outreach component in their research contracts and grants. The council emphasized that outreach activities provide “reciprocal benefits to both the community and the academy” and provided examples of such reciprocity. The document noted that, for example, community members might receive “valuable consultation from a faculty member that helps them solve a water contamination problem while the faculty member obtains valuable insights about contamination that help shape plans for a subsequent research project.” Other examples of reciprocal benefits include applied research, technical assistance, demonstration projects, impact evaluations, service learning, policy analysis, and off-campus credit and non-credit instruction.³

The concept of mutual benefits in service and engagement also is a key factor in the outcome of the Imagining America Tenure Team Initiative, a national consortium of more than 80 colleges and universities. In 2008, a team of distinguished scholars from around the nation took on the task of defining and describing what they called “publicly engaged academic work,” as part of the initiative. They arrived at the following definition:

“Publicly engaged academic work is scholarly or creative activity integral to a faculty member’s academic area. It encompasses different forms of making knowledge ‘about, for, and with’ diverse publics and communities. Through a coherent, purposeful sequence of activities, it contributes to the public good and yields artifacts of public and intellectual value.”

In the same year, CU-Boulder’s *Flagship 2030* Outreach and Engagement Task Force proposed adopting a clear definition of faculty outreach and engagement to further the plan’s initiatives. Such a definition would draw upon the university’s existing definition, successful on-campus practices, and prevailing national usage. The task force advocated a model, now under consideration, that:

- Complements and extends CU-Boulder’s role and mission as Colorado’s flagship institution and as a comprehensive national public research university



The Colorado Shakespeare Festival is a professional theatre company in residence at the University of Colorado at Boulder. With 51 years of distinguished history, the festival presents a selection of the Bard’s plays every summer in CU-Boulder’s historic outdoor Mary Rippon Theatre.

- Articulates the role and participation of its faculty, staff, and students
- Specifies the reciprocal nature of the relationship between the university and the public

In addition to faculty outreach and engagement, there are important opportunities for engagement by students and staff that help advance the university's relationship with the public. Examples of those activities are outlined later in this chapter.

Institutional Support Structures

Core Component 5B. The organization has the capacity and the commitment to engage with its identified constituencies and communities.

Core Component 5D. Internal and external constituencies value the services the organization provides.

CU-Boulder's outreach efforts draw upon the considerable strength of the university's faculty, research institutes, student body, staff, and academic programs to engage with a wide range of key constituencies to provide needed services. Traditionally, these efforts have tended to spring from individual initiative and enterprise—but the *Flagship 2030* plan calls for a more coordinated commitment to serving the needs of internal and external constituencies. This approach will build upon existing models described in this section, such as the Division of Continuing Education and Professional Studies, the Outreach Committee, the Institute for Ethical and Civic Engagement, and numerous successful engagement programs in schools, colleges, and other units. Engagement expertise also resides in the CU-Boulder Alumni Association, the Office of Parent Relations, the Office of University Communications, The Division of Student Affairs, and the Office of Admissions—all of which are heavily engaged with the university's target audiences.

Continuing Education

The university's reach is extended to a broad range of constituents by the Division of Continuing Education and Professional Studies (CEPS),⁴ which provides quality, innovative, lifelong learning opportunities. The division serves a diverse, nontraditional population with credit and non-credit courses, as well as programs that feature a variety of formats, locations, and technologies. CEPS surveys its constituents and works with faculty to offer undergraduate and graduate courses on the Boulder campus, off campus, and online. A self-funded unit, the division provides about 2,000 classes annually, generating about 15,000 enrollments (about 12,000 credit and 3,000 non-credit). Courses are evaluated using standard course questionnaires and other evaluation surveys and interviews to better understand students' satisfaction, preferences, and interests

to guide future planning. All credit offerings are overseen by regular academic departments.

CEPS serves a variety of students including: *high school students* interested in post-secondary coursework; *non-degree students* planning on matriculating into a degree program; *degree students* interested in taking courses at night, off campus, or online; *professionals* in need of advanced education, skills, or workforce training; *international students* needing English language training; and *community members* pursuing coursework for their own enrichment. For example:

- The ACCESS (Available Credit Courses for Eligible Special Students) program allows non-degree students to enroll CU-Boulder undergraduate and graduate courses.
- The Boulder evening program offers high-demand undergraduate courses at night on campus.
- The personal enrichment program presents non-credit courses in languages, writing, arts, music, and current events.
- The International English Center provides credit and non-credit ESL (English as a Second Language) courses.

Professional Continuing Education

CU-Boulder offers continuing education for professionals in law, business, engineering, and other fields through a variety of programs both on campus and at a distance. These programs help working professionals develop leadership and technical skills that benefit them and their organizations. Examples include:

- The Center for Advanced Engineering and Technology Education (CAETE) provides graduate certificate and master's degree programs in conjunction with the College of Engineering and Applied Science on campus and through distance learning. Graduates of the programs include working professionals from such firms as Lockheed Martin, IBM, Hewlett-Packard, Ball Aerospace, and many others.
- The Leeds School of Business executive education program⁵ includes certificate programs, leadership training, distance-learning modules, custom-designed programs, and international programs. Offerings range from two-day open-enrollment programs to year-long leadership development programs.
- The law school⁶ sponsors numerous courses and conferences each year for practicing lawyers to enhance and update their knowledge of various legal topics. Continuing legal education courses are offered each summer, taught by members of the faculty and other nationally recognized lawyers and legal scholars. For example, the Natural Resources Law Center offers courses each year to help natural resources lawyers stay current on developments in the field.



Programs in the Division of Continuing Education and Professional Studies support the university's strategic commitment to strengthening its connections with Colorado communities through outreach and lifelong learning opportunities.

“CU-Boulder is enhancing efforts to restore the ecology of local streams by collaborating with local volunteers.”

— Diane McKnight,
Professor, College of
Engineering and Applied
Science

Working in conjunction with each of the schools and colleges, CEPS also offers Summer Session, which serves the needs of on-campus degree-seeking undergraduate students and extends the university’s educational resources to other constituencies. More than 500 courses, in varying term lengths, are offered by the schools and colleges. The program serves about 7,700 degree and non-degree CU-Boulder students, visiting students from other institutions, high school students, K–12 teachers, other professionals, and community members.

University Outreach

The CU-Boulder [Outreach Committee](#)⁷ helps leverage faculty research, teaching, and creative work in service to communities throughout Colorado and other external audiences. Made up of faculty and community members from many disciplines and interests, the committee is funded by CEPS, along with contributions from the Office of the Chancellor and the Office of the Provost. The group annually funds about 30 outreach projects that serve K–12 students and teachers, Colorado communities, and citizens with limited access to the university, often in response to a direct request for assistance from a community or group.

The university’s outreach projects include a wide range of disciplines and highlight faculty research, creative work, and teaching. Projects often involve undergraduate and graduate students in experiential learning opportunities. The Outreach Committee’s [website](#) provides information on all programs awarded.⁸ Project examples include:

- **Learning Landscapes.** This project works with the Boulder Valley School District to help create 32 “learning landscapes” on area school grounds over three years. Through service learning courses taught at the Boulder campus, undergraduate students work with administrators, teachers, students, parents, and community members to co-develop detailed plans for each schoolyard.
- **Assessing the Extent of Mercury Contamination in the Reservoirs, Lakes, and Streams of Southwestern Colorado.** Professor Joe Ryan and CU-Boulder engineering students work with area agencies and the Southern Ute Tribe to help assess the sources, deposition, and risks of mercury in the region.
- **Dance Outreach Initiatives.** This project brings the work of the dance faculty directly to K–12 students across Colorado to encourage youth of many backgrounds to express creativity through dance, to educate K–12 teachers and students about the dance arts, and to nurture a vital level of interaction among various populations of Colorado.

Ethical and Civic Engagement

The Institute for Ethical and Civic Engagement (IECE)⁹ facilitates service and outreach engagement, especially among students. As discussed in Chapter 7, the institute's purpose is to nurture and encourage ethical and civic education and engagement at CU-Boulder; to prepare students for a lifetime of service to society as thoughtful, ethical, and engaged citizens; and to contribute to the vitality of the many communities served by the university.

IECE offers nine programs, including financial and program support for faculty and schools and colleges, to integrate engagement and service in courses and curricula. For example:

- The School of Journalism and Mass Communication is developing a multi-pronged approach to ethical and civic engagement, including a certificate program, course enhancements, research, and symposia.
- IECE is collaborating with the School of Education, Undergraduate Research Opportunities Program, and the Service Learning Office to develop a year-long education course on "Action Research for Youth and Community Development," focusing on community-based research.
- The College of Architecture and Planning has launched an initiative to enhance the scholarship of engagement among environmental design undergraduates through projects such as the college's Children, Youth, and Environments Center,¹⁰ which works with the design professions to improve the health, safety, and welfare of children and youth.¹¹

The institute also offers civic engagement scholarship programs, such as the Puksta Scholars,¹² and summer internship programs, such as the CU Public Interest Internship Experience Program (PIIE),¹³ with full-time stipends to students working in public and private nonprofit agencies. The Puksta Scholars program is an academic scholarship program for outstanding undergraduate students who have a deep commitment to civic engagement and want to further their knowledge and skills. The students, who receive a substantial scholarship, must develop a year-long intensive civic engagement project, either individually or with a small group. They also participate in an enriching program of seminars, speakers, service projects, retreats, and opportunities to collaborate and share insights.¹⁴ The PIIE program provides fellowship grants to selected undergraduate students who have obtained full-time unpaid summer internship positions with non-partisan public service and private nonprofit organizations in Colorado. During the summer internships, participating students are paired with a CU-Boulder alumnus in a mentee-mentor relationship that provides opportunities for learning, growth, and networking.¹⁵ Other IECE programs include efforts to assist underserved and low-income high school and middle school students, such as Access Colorado,¹⁶ and to provide education and training for faculty, students, and staff to enhance engagement and service.



Associate Professor of Anthropology Douglas Bamforth (left) with Boulder resident Patrick Mahaffy, whose 2008 landscaping project unearthed more than 80 artifacts in his yard. The artifacts, which appear to have been made during the Clovis period about 13,000 years ago, were neatly arranged in a cache, suggesting that the users of these instruments intended to reuse them.

With support from the university, the association is developing a lifetime alumni pathway called “Forever Buffs” that begins with admission, builds during the undergraduate years, flourishes after graduation, and continues well into the retirement years.

Building Alumni Partnerships

As noted in *Flagship 2030*, the university’s relationship with its more than 240,000 living alumni is critical to the institution’s long-term success. This relationship is viewed as so crucial, in fact, that the CU-Boulder Alumni Association¹⁷ was moved from the CU Foundation back within the university organization in 2007 to become part of the Division of Student Affairs. The mission of the alumni association is to stimulate loyalty, interest, and support for the university, which it accomplishes through a wide variety of programs and activities.

With support from the university, the association is developing a lifetime alumni pathway called “Forever Buffs” that begins with admission, builds during the undergraduate years, flourishes after graduation, and continues well into the retirement years. The intent is to foster within undergraduate students the expectation of becoming loyal, proud, engaged, and contributing alumni. Forever Buffs encourages alumni to become involved in helping recruit students, to provide networking opportunities for current students, and to interact with other alumni through more than 35 regional and five international alumni clubs. Also, the program provides innovative communications tools for alumni to keep in touch with the university and each other, a wide range of special events, numerous continuing education opportunities, and an extensive list of travel programs.

In 2008, the university further strengthened its ties to alumni by providing funding that replaces the need for membership dues, meaning that all current and former students are members of the alumni association. This move enhanced the university’s connection with all alumni and encouraged greater alumni–student interaction. The association itself works to connect generations of CU-Boulder graduates to the university and to each other, from welcoming new students at convocation to hosting an annual 50-year reunion and the annual alumni awards ceremony started in 1929. The organization developed a strategic plan, consistent with *Flagship 2030*, for promoting alumni support for the university. Its goals include engaging an increasingly diverse alumni population through effective communications, programs, services, and benefits. Currently, the *Coloradan* magazine, the Buffalum Notes newsletter, the broadcast e-mail program, and the alumni association website make an estimated five million contacts with alumni and friends annually.

The alumni association also provides educational programs, such as Alumni College, Senior Auditors, and Smart Lunches, which expose and connect alumni to CU-Boulder’s faculty. Several advisory groups, including the *Coloradan* Advisory Committee, the Alumni Board of Directors, and the Student Alumni Advisory Council, provide guidance and feedback on the programs and services provided to students and alumni.

Parent Relations

Parents of CU-Boulder students are another important constituency, sharing with the university their most prized treasures: their children. In return, CU-Boulder seeks to keep them informed, asks for their input, enlists them in volunteer activities, and helps them stay connected with their son or daughter's academic home. Housed in student affairs, the Office of Parent Relations¹⁸ organizes the annual Family Weekend, publishes a parent newsletter, issues electronic news briefs, and maintains a website as a parent "portal" to the university. The office organizes parent receptions around the country and on-campus orientation dinners with parents of new students. The CU-Boulder Parent Fund, coordinated through the University of Colorado Foundation, provides resources for enhancing important programs and initiatives that directly affect all students in such areas as campus safety, student development, experiential learning, parent programs, and the Center for Community. The CU Parents Association, which is managed by the Office of Parent Relations and a board of directors, is an active group of parent volunteers who meet monthly to organize programs and interact with university administrators. The Parent Relations Office regularly evaluates and revises the parent program, using formal surveys and frequent engagement with parent questions, concerns, and interests. Participation in the fall Family Weekend continues to grow, with more than 5,000 registered participants for the 2008 event.

Pervasive and Deliberate Engagement

Core Component 5B. The organization has the capacity and the commitment to engage with its identified constituencies and communities.

Core Component 5C. The organization demonstrates its responsiveness to those constituencies that depend on it for service.

As outlined in this chapter, CU-Boulder has a strong record of accomplishment in service and engagement. Through *Flagship 2030*, CU-Boulder aims to create a more coherent program of service and engagement that contributes to—and benefits from—purposeful interaction with external communities. Expanding the university's outreach programs in a thoughtful manner offers better opportunities for widespread involvement by students, faculty, staff, and administrators in responding to the needs of constituencies.

Engagement by Students

CU-Boulder students need little urging to get involved in community-oriented learning experiences. Approximately 13,400 students participate in some form of community service each year, including 3,500 who engage in academic service learning.

“Civic engagement is reaching out and doing something for the common good, and it can be anything from helping your neighbor to volunteering at your local food bank, working on political issues or policy issues, or even going to another country to volunteer through a program such as the Peace Corps. Our long-term goal is to have all of our 30,000 students civically engaged in one way or another.”

— Peter Simons, Director,
Institute for Ethical and
Civic Engagement



College of Architecture and Planning students help build a condominium for Flatirons Habitat for Humanity in North Boulder.

Volunteerism. The Volunteer Resource Center,¹⁹ a unit of student affairs, matches interested students with community service learning opportunities in the Boulder area and beyond, such as “alternative spring break trips” with a service focus. Students in the International and National Voluntary Service Training (INVST) Community Leadership Program²⁰ gain a deeper understanding of issues such as environmental stewardship, housing and healthcare access, human rights, energy, and globalization. They participate in summer cultural immersion experiences, both domestic and international; engage in service-learning internships during the academic year; and create their own community leadership projects. Students admitted to the INVST program engage in cultural immersion experiences during the summers to increase their understanding of multiple issues ranging from environmental stewardship to human rights. Students in their first immersion experience participate in a Domestic Summer Service Learning Experience that includes a week-long wilderness component, a week living and working with homeless individuals, and two weeks learning and serving with Native American families. In the second summer, students have the opportunity to serve in another country, which provides them with an international perspective on issues they will encounter as community leaders.

Service learning. Extensive service learning programs in most of CU-Boulder’s schools and colleges offer students opportunities to learn while applying their skills to helping others. As noted on the Service Learning Office website,²¹ “Service learning relates academic study to work in the community in ways that enhance both. We learn best and most deeply by constructing knowledge and rooting it in the immediacies of our personal experience.” Every year, the Service Learning Office awards grants of up to \$3,000 for faculty members and instructors interested in incorporating service learning into their courses. Located in the College of Arts and Sciences, the office provides on-going resources such as workshops, consultation, and literature to help guide and model a service program. Scholarships are available for students engaged in community service.

Combining community service with academic instruction, service learning emphasizes critical thinking, problem solving, values clarification, social and personal development, and civic and community responsibility. For example, one service learning class²² in the School of Journalism and Mass Communication teaches future journalists the value of social responsibility. Journalism students learn the importance of community awareness and involvement in such volunteer locations as the Emergency Family Services’ after-school program, the Good Samaritan nursing facility, and the Student-Worker Alliance Program (SWAP), in which the students teach English to non-English-speaking classified staff. There also is a heavy emphasis on service learning in residential programs, such as the Farrand Residential Academic Program, the Ethnic Living and Learning Community, and the Chancellor’s Leadership Residential Academic Program.

Service learning in the College of Engineering and Applied Science²³ takes many forms, including the Earn-Learn Apprenticeship Program and the Integrated Teaching and Learning K–12 Engineering Program,²⁴ among others. The

college has taken a leadership role in creating model service learning programs with a global reach and curricular foundations. A new undergraduate degree track in Engineering for Developing Communities (EDC) integrates sustainability, technology, renewable energy, international education and development, business, health, and humanities with the traditional curriculum in civil and environmental engineering.²⁵ Led by CU-Boulder Professor Bernard Amadei, EDC pursues appropriate and sustainable solutions to the problems of developing communities, with such projects as telemedicine/tele-education in Nepal and Peru, fuel briquette-making and business development in Kabul, and compressed earth block housing at the Crow Reservation in Montana. In 2009, the program received a \$5 million endowment gift to sustain its objectives in education, research, and service.²⁶ Professor Amadei also founded the humanitarian nonprofit Engineers Without Borders (EWB-USA) program in 2000, aimed at “building a better world one project at a time.” EWB-USA now has 206 chapters around the nation and more than 130 projects in 34 countries.

Service learning can be a life-changing experience, as well as a learning opportunity for university students. For example, students in one anthropology service learning class learn about African cultures as they help refugee children in Denver learn nonviolent collaboration. By engaging with the young children, the CU-Boulder students gain a better understanding of the challenges that African refugees face. Students in the class combine structured community work with readings, guest speakers, films, discussion, a personal reflection journal, and a final project. In 2007, CU-Boulder’s Presidents Leadership Class (PLC) joined with Habitat for Humanity in a partnership that helps students learn the inner workings of a nonprofit group. Besides helping build houses, the PLC participants hone real-world skills by working on grant proposals and marketing campaigns, website and newsletter development, and locating properties and eligible families for future projects, among other projects.

Experiential learning. Experiential learning—gaining knowledge through practice outside the classroom—is gathering momentum throughout the university. *Flagship 2030* calls for expanding current opportunities for such learning experiences to better prepare students for a world of rapid change and increasing complexity. In the law school’s Experiential Learning Program,²⁷ for example, students in the Clinical Education Program serve 700 clients each year. Externships offer substantive legal work with a government agency, private nonprofit or public interest institution, or private law firm. Also, under the law school’s voluntary Public Service Pledge Program, students pledge to volunteer at least 50 hours of law-related service during their time at school, receiving recognition on their transcripts for their efforts.

Since 1987, the Partners in Education (PIE)²⁸ program has fostered collaborations between Colorado school districts and the School of Education. First-year teachers obtain teaching positions in one of six partner school districts and start a master’s degree program through the School of Education. Master teachers from partner schools help mentor the first-year teachers, teach methods courses



Volunteer Resource Center students help build the “Drops in the River” entry in the university’s second-annual Buffalo Can Challenge. The canned food sculptures are voted on and the food is then donated to Boulder Community Food Share.

at the School of Education, and work on special district projects. In exchange for the partners' contributions, CU-Boulder faculty and doctoral candidates provide services to school districts, such as consultation on district program evaluations, in-service programs and workshops, resources to special-interest groups, and mutually beneficial research projects.

Faculty members are well qualified to engage students in experiential learning opportunities through fieldwork, community involvement, international experiences, and conventional classroom and laboratory learning environments, as noted in the report of the *Flagship 2030* Faculty Task Force. However, the task force found that experiential learning is both time- and labor-intensive, and sustaining momentum in this area will require a reduction of the current student-to-faculty ratio.

Engagement by Faculty

CU-Boulder's faculty are actively involved in service and engagement, both individually and in unit-based programs. Their engagement activities are funded in various ways, including Outreach Committee awards, research contracts, IECE grants, school or college program budgets, and campus or system contributions.

In addition to the work of the Outreach Committee, CU-Boulder's schools and colleges support numerous outreach and engagement efforts by faculty. These are summarized on a [webpage](#)²⁹ on the Division of Continuing Education and Professional Studies website. Among other activities, faculty lead numerous programs aimed at helping K–12 students and teachers access the resources of a major research university. For example:

- For more than 25 years, the [Science Discovery Program](#),³⁰ housed in the School of Education, has served Colorado K–12 students and teachers through outreach programs that offer high-quality, inquiry-based science experiences. Science discovery reaches between 25,000 and 30,000 students and about 1,500 teachers around the state each year, with programs such as after-school and summer classes, Wilderness Camps, the Science from CU Statewide Classroom Programs and Assemblies, the Science Explorers Statewide Professional Development Program, and the Outdoor Classroom Environmental Education Program.
- “Trailer Wrap,” a design/build [class project](#)³¹ launched by a faculty member in the College of Architecture and Planning, has received numerous awards for its innovative approach to issues of sustainable and affordable design in [the environment of the American trailer park](#).³²
- The [BUENO Center](#)³³ in the School of Education regularly offers cohort-based master's programs that lead to advanced endorsements in linguistically diverse education and special education generalist endorsements. The school

also hosts the annual Teachers of Color and Allies Summit, which draws about 200 teachers annually.

- The Colorado Math Circle assembles about 50 of Colorado's top middle and high school students for adventures in advanced mathematical problem solving with peers and faculty in applied mathematics.
- The Shakespeare Unplugged program takes theatre faculty and students on tours to local schools. These educational performances make Shakespeare's language and characters accessible to elementary students. The program includes a curriculum guide for teachers.
- From 2006 to 2009, the School of Journalism and Mass Communication partnered with a Denver metropolitan newspaper to enrich journalism education at two Denver high schools with struggling newspaper programs. A journalism faculty member mentored the high school journalism teachers while CU-Boulder students enrolled in "Practicum in Scholastic Journalism" assisted the instructors weekly in the high school classrooms.
- For more than 30 years, CU-Boulder's CU Wizards Program has provided an educational, entertaining and interactive introduction to the sciences for children of all ages. The yearly series of shows is held on campus one Saturday per month throughout the academic year. The CU Wizards are professors from the sciences who donate their knowledge, time, and energy to create engaging and informative shows for the public.
- College of Music faculty organized the CU Middle School Wind Ensemble, an 11-week program for about 60 middle school students from 12 schools in the surrounding area. In 2008, the *Boulder County Business Report* named the College of Music the fifth-largest cultural attraction in the county based on attendance.
- The College of Engineering and Applied Science's TEAM project is a strategic partnership with local school districts to enrich students' academic experiences in science and math and to better prepare them to engage in university-level engineering and technology. Undergraduate and graduate students work with younger students weekly, using engineering as a vehicle to integrate hands-on science and math instruction and to expose them to the creativity of engineering in an inquiry-based way.

Faculty also collaborate with other university constituency groups, such as business and industry, governmental agencies, diverse communities, and local groups, to provide important services and benefits. For example:

- In the Leeds School of Business, Professor Wayne Boss works with his students to provide diagnostic and strategic planning assistance requested by local companies and organizations.



Local middle school students learn origami while participating in a CU-Boulder math workshop.

- The College of Music faculty reach out to Denver audiences with an annual CU at Boettcher³⁴ concert at the Denver Center for the Performing Arts, showcasing student musicians, faculty, and alumni in various performances. The college annually organizes and presents outreach events locally and throughout the world, including master classes, clinics, performances, and in-service sessions.
- The Center for the Study and Prevention of Violence,³⁵ a research program of the Institute of Behavioral Science, offers online searchable databases and technical assistance to schools and communities seeking answers to issues related to violent behavior.
- The Center of the American West³⁶ supports faculty, students, staff, and community volunteers as it engages with the public in a coordinated program of presentations, discussions, local and regional education, outreach activities, and printed and electronic publications.
- Consistent with the university's commitment to sustainability, the law school received funding in 2008 to launch an interdisciplinary clinic course for law, business, and planning students to participate in real-world sustainable community economic development projects. The new Sustainable Community Development Clinic³⁷ provides free, comprehensive professional services for underdeveloped Colorado communities to pursue economically, socially, and environmentally sustainable opportunities.
- In 2002, the Alliance for Teaching, Learning, and Society (ATLAS) Initiative forged an educational technology partnership with historically black Dillard University in New Orleans. Both institutions brought significant strengths to the project that resulted in curriculum development, use of web-based technologies and videoconferencing, faculty training programs, and faculty and student exchange programs. Following the Hurricane Katrina disaster, in which Dillard was severely damaged, ATLAS students worked with high school students from a Denver Public Schools Computer Magnet Program to digitally model the campus reconstruction.
- The Success Institute in the College of Engineering and Applied Science provides a week-long summer workshop for underrepresented, female, and first-generation students entering grades 9 through 12. The workshop includes hands-on activities that demonstrate multiple applications of engineering, math, and science. In the process, students learn about the wide range of careers that are possible with an engineering degree.

Engagement by Staff and Administration

Staff and administrators, as well as faculty, regularly participate in engagement activities with key constituencies, such as diverse prospective students, parents, alumni, donors, Colorado schools, and other higher education communities.

Admissions recruitment. Staff members of the Office of Admissions³⁸ engage in a comprehensive program for recruiting a high-quality and diverse undergraduate student body with the help of a communication and marketing plan that reaches out to prospective students. Strategies include innovative printed and electronic tools, such as student-focused search publications, viewbooks, informational flyers, presentations, e-messages, MP3 files, websites, event notifications, and other media. In fall 2008, new freshmen came from 237 different high schools in Colorado and more than 1,400 schools in other states or countries.

Along with the schools and colleges, the admissions office also helps administer admission and transfer policies that create pathways to the university from high schools, community colleges, and other educational institutions. In fall 2003, CU-Boulder's two-year and four-year transfer articulation agreements among Colorado institutions of higher education were replaced by a statewide guaranteed transfer³⁹ of approved general education courses taken at any Colorado public institution of higher education. Information about transfer policies is highlighted in the university catalog,⁴⁰ as well as in websites for admissions and schools and colleges. Determination of approved courses for transfer is made by each CU-Boulder college and school.

The admissions staff aims to enhance student diversity through targeted communication and outreach programs, such as the Diversity Sampler campus visit program that introduces first-generation students and students of color to the breadth of university services and programs. Audience-specific recruitment plans and activities, such as those for each grade level between 9th and 12th grade, are designed to increase the size of the pipeline for prospective students. Activities within targeted schools provide opportunities for enhancing diversity among the study body. Staff members engage with prospective students and their parents through the prospective student call center, on-site prospective student appointments, application decisions, walk-in customers, daily information sessions, campus tours, special visits, the CU Ambassadors Program, transfer student programs, talented student programs, and international undergraduate student programs, among many other activities.

Administrative initiatives. Other examples of staff/administrator engagement and outreach include:

- Teams of senior administrators, staff, and faculty participate in a multi-market National Council program that engages with prospective students, parents of current students, alumni, and donors during coordinated visits to key markets throughout the nation.
- Staff members in the Office of University Communications organize campus visit programs for middle-school students, who participate in campus tours, peer role modeling, and engagement activities.



CU-Boulder communications and music major Connie Shi leads a group of high school students on a tour of the campus.



Mesa State College Professor of Engineering Gigi Richard (right) consults with CU-Boulder Professor of Engineering Al Bedard as part of the university's agreement to offer engineering courses at Mesa State in Grand Junction, Colorado.

- An assistant dean in the School of Education served on a state higher education work group that crafted a transfer agreement creating a pathway from local community colleges to CU-Boulder for potential elementary school teachers.
- Each year, the CU-Boulder chancellor leads a series of statewide summer tours reaching out to Colorado communities and sharing information about CU-Boulder programs and opportunities for incoming students. During the tours, the chancellor meets with alumni, business and community leaders, potential students and their parents, donors, and local media. In 2007, the chancellor visited communities in southwestern Colorado and, in 2008, met with constituencies in northwestern Colorado and the Western Slope. The 2007–08 tours targeted communities whose leaders participated in the formation of *Flagship 2030*. Feedback from community participants in the tour events has been uniformly positive, including media coverage of the program.
- The [CU4K12⁴¹](#) website, developed by the Office of University Communications, provides access to the wide variety of curricular and model content programs available to support Colorado elementary, middle, and high school teachers and students.
- The provost and senior vice chancellor play significant roles in building positive relationships with the Boulder community through sustained outreach and work with such groups as the Boulder City Council, Boulder Chamber of Commerce, and service organizations.
- Staff and administrators participate in cooperative efforts with the local community in the areas of education, economic development, land use, traffic, and safety. Joint city–university interactions have contributed to planning for the East Campus and CU Research Park.
- With the support of CU-Boulder and system leadership, the College of Engineering and Applied Science has developed a [partnership⁴²](#) with Mesa State College in Grand Junction, Colorado, creating the first distant course location where students can complete a CU-Boulder degree. Participating students take their first two years of classes from Mesa State faculty. In their last two years, they supplement Mesa State courses with upper-level mechanical engineering classes taught by CU-Boulder faculty at Mesa State; these classes will start in fall 2010. Western Colorado business leaders have expressed strong interest in such a partnership, which is expected to stimulate local economic growth and help keep local graduates working within the region.

Mutually Beneficial Partnerships

Core Component 5C. The organization demonstrates its responsiveness to those constituencies that depend on it for service.

Core Component 5D. Internal and external constituencies value the services the organization provides.

True partnerships imply mutual benefits for those involved—and CU-Boulder seeks to respond to the needs of its constituencies, as well as to opportunities for learning and discovery within the university community. The partnership succeeds only when both parties receive some value from the experience, as described in this section.

Reciprocal benefits. An important characteristic of effective service and engagement activities is that they benefit both the provider and the recipient of the service. CU-Boulder’s definition of outreach specifically refers to “reciprocal benefits” that might accrue to a faculty member’s research, teaching, and creative work, as well as addressing a community need. Among the benefits is the contribution to student learning, as students interact with community groups on real problems and issues. Another consideration is that such activities should be community-centered: they should arise from requests or observed needs. At CU-Boulder, mutually beneficial collaborations include such programs as:

- Faculty in the School of Education are involved in on-site courses and teaching practicum-linked courses at Colorado schools. They make regular visits to schools and work closely with teachers and principals to design field experiences that serve both the needs of the school and the learning goals of the teacher education program.
- The Math Year 3 program provides monthly professional development workshops for teachers, weekly after-school math workshops for students, resource support for the Talented and Gifted Program, and individual tutoring at an area bilingual elementary school. Directed by faculty in CU-Boulder’s mathematics department, the project impacts 100 fourth- and fifth-grade students and strengthens the math education of CU-Boulder students by providing experiential learning opportunities.
- A professor in the School of Education offered a year-long community-based research course that paired undergraduates with local community agencies to design and conduct a research project that answered a question of importance to the organization.
- Since 2006, the School of Journalism and Mass Communication has conducted three workshops per year in rural Colorado communities entitled “The Invisible Web” to teach local journalists, public information officers, community bloggers, and journalism educators advanced techniques in



Current and former Leeds School of Business students Todd Freedman, a management undergraduate student (center); Micah Strand, an MBA student (right); and Brian Lewandowski, an MBA graduate, have worked or will be working overseas for the Peace Corps. CU-Boulder is currently fifth all-time in the number of alumni who have served, with 2,157 volunteers.

reporting and information retrieval. An important feature of the project is that faculty and staff work with a local liaison in each community to customize the workshop syllabus to the learning preferences of each group.

- The law school's Entrepreneurial Law Clinic provides transactional legal services for Colorado small businesses and start-up organizations. The clinic partners with small-business development organizations to encourage the formation of new businesses in the Latino community. In the program's second phase, student lawyers provide transactional legal help for some of the start-up businesses. Not only do students learn from their interaction with entrepreneurs in the Denver community, but some have returned after graduation to provide *pro bono* service.
- In the psychology department's Attention, Behavior, and Learning Clinic, comprehensive evaluations are provided for children who are experiencing academic, behavioral, or emotional difficulties. The clinic operates on a sliding scale, which allows many low-income families to access these services at low to no cost. The clinic also provides a valuable education experience for graduate students working the clinic with clients, as well as informing faculty research.
- Students in the College of Music helped faculty and staff organize over 350 public concerts and recitals on campus, attracting 90,000 students, faculty, staff, and community members in the 2007–08 season. Over 95 percent of these performances are free of charge. Such involvement exposes the community to fine music—and the students to learning experiences about planning, organizing, marketing, and performing in concerts.

Another form of mutually beneficial outreach at CU-Boulder can be found at the three museums and six art galleries that interact with the public while engaging in research and scholarship. The [University of Colorado Museum](#),⁴³ for example, houses more than four million objects in its collections. The museum recently received a multi-year grant from the National Science Foundation (NSF) to examine effects of climate change on the diversity and abundance of grasshoppers by comparing recent collections with a 50-year-old collection by a CU-Boulder entomologist. The natural history museum hosts thousands of K–12 students during field trips and reaches another 10,000 people throughout the region with traveling exhibits developed by the museum.

The CU Art Museum houses more than 5,000 works from all over the world and from many periods of history. In early 2010, the art museum will move into the new Visual Arts Complex at the center of the campus, offering expanded public access to permanent and special exhibits. The facility will include 8,500 square feet of gallery space, including two permanent collections, a changing exhibition gallery, a gallery for thesis exhibitions, and a video gallery. In addition, space has been allocated for K–12 outreach activities.

Assessing Engagement Activities

Core Component 5D. Internal and external constituencies value the services the organization provides.

If service and engagement are important—and, clearly, the university community believes they are—then their outcomes should be analyzed and assessed. As described in this section, CU-Boulder utilizes a range of assessment tools for examining and evaluating collaborative partnerships, with varying degrees of consistency. *Flagship 2030* calls for a more coherent approach to service, engagement, and outreach, which will include a comprehensive outcomes assessment protocol. Positive feedback from constituencies inspires continued commitment to service and engagement, as shown by the examples noted in this section.

Outreach Reported by Faculty

One measure of faculty commitment to outreach is provided by the Faculty Report of Professional Activities (FRPA). The Division of Continuing Education and Professional Services worked with the Office of Faculty Affairs to create an online report of faculty outreach activities as a voluntary component of their annual FRPA report. More than half of all FRPA respondents detail outreach activities in their reports, and every CU-Boulder department is conducting outreach within the context of teaching, research, creative work, and service activities. Such information helps track the scope of outreach involvement and informs future planning for initiatives and investments.

In 2007, faculty members from all areas of the university reported more than 5,000 outreach activities in their annual FRPA reports. They reported on such examples as K–12 collaborations, community-based projects, advising business and government, service learning courses, creative performances, scholarly based volunteer work, and policy analysis and research.

Information about a faculty member's service or outreach is evaluated as part of the reappointment, tenure, and promotion processes. For example, the faculty member's dossier must include a narrative description highlighting major contributions or activities in the areas of service or outreach to the university, to professional organizations, or to the public. CU-Boulder's post-tenure review process also requires an evaluation of service activities, among others, to ensure continued professional growth.

Recognition for Engagement

The quality of CU-Boulder service and engagement also is indicated by a number of national and international honors recognizing the community involvement of students, faculty, alumni, and staff. Examples include:

CU-Boulder was one of three schools to receive the 2007 Presidential Award for General Community Service for extraordinary contributions to service in their communities, awarded in February 2008 by the federal Corporation for National and Community Service.



An Engineers Without Borders project in Muramba, Rwanda.

- CU-Boulder was one of three schools to receive the 2007 Presidential Award for General Community Service for extraordinary contributions to service in their communities, awarded in February 2008 by the federal Corporation for National and Community Service. More than 530 universities and colleges competed in the awards program. CU-Boulder student programs honored by the award included the Volunteer Resource Center, the Institute for Ethical and Civic Engagement, Engineers Without Borders, Puksta Scholars, INVST Community Leadership Program, the Simply the Best! program, and the Peace Corps recruitment program.⁴⁴
- In 2009, the CU-Boulder Peace Corps program ranked second in the nation for current graduates serving in the organization, with more than 100 undergraduate alumni serving as volunteers. Since the Peace Corps' inception, 2,157 CU-Boulder alumni have joined the ranks, making it the fifth-largest producer of volunteers of all time.
- CU-Boulder was featured in the book, *Colleges with a Conscience*, as one of 81 "great schools with outstanding community involvement" in the nation. Published in 2005, the book includes a two-page profile on each campus, focusing on programs and practices that support student engagement.
- A CU-Boulder professor and student were honored with the Environmental Protection Agency's 2006 National Notable Achievement Award for their roles in helping to clean up acid mine drainage in northwestern Boulder County.
- In 2005, the CU-Boulder chapter of Engineers Without Borders and its partners won the international Mondialogo Engineering Award for their work on a long-term sustainable engineering project in Muramba, Rwanda. The team of students and professionals worked together to improve water and lighting systems for the war-plagued village.
- The University of Colorado Museum's after-school science program for girls, called "Girls at the Museum Exploring Science" (GAMES), was awarded the 2005 Excellence in Programming Award by the Mountain-Plains Museum Association. GAMES builds interest and excitement about science among girls through weekly after-school visits to the museum, where they explore the sciences of archaeology, botany, entomology, paleontology, and zoology through hands-on activities.

Community Feedback

Feedback from partners and communities served by CU-Boulder, as well as student participants, provides another form of evaluating its outreach and engagement activities. In fact, outreach projects funded by the CU-Boulder Outreach Committee must demonstrate a strong connection with their participating

audiences and include an evaluation of the project's impact and effectiveness. Submitted annually and using a range of data sources, evaluations and status reports include information on the projects' impact on their intended audiences, CU-Boulder faculty, and students. Examples include:

- The Attention, Behavior, and Learning (ABL) Clinic outreach program provides comprehensive assessments to children, adolescents, and young adults experiencing academic, behavioral, and/or emotional difficulties. To evaluate their success, ABL staff members survey families, compare the number and type of needy clients served to previous years, and collect anecdotal information from faculty and participating CU-Boulder graduate students.
- The Contemporary Dance Works program travels throughout Colorado to perform and teach in rural schools and communities. Recently the team involved over 700 students and community members in northeastern Colorado. Contemporary Dance Works evaluates its efforts through surveys, post-performance audience discussions, and feedback from graduate students and instructors.
- CU in the Community public programs use a focus group process to assess community impact. Recently, a CU-Boulder outreach coordinator met with key community members involved in the project, including the local newspaper editor, community college communications director, representatives of nonprofit organizations, and president of the local CU-Boulder alumni chapter. The focus group roundtable discussions centered on what programs worked, suggestions for improvements, and future plans for the program.

The INVST Community Leadership Program described earlier in this chapter seeks out feedback from students, alumni, and community partners in the program. Examples include:

- "I often think of it as a great spring board—not the end, but the beginning—for my development as a 'community member,' a 'responsible leader,' and a 'global citizen'.... Its uniqueness, in my experience, is its emphasis on service, or the giving of one's self, as an act of social change..."

—Catherine Moravec, Class of 1993–95

- "It is clear that the INVST Community Leadership Program is providing students with the skills they need to be effective community leaders. The students who choose to intern with us are consistently dedicated and accountable, with an extraordinary willingness and ability to undertake projects."

—Jill Conrad, Board Chair of Project YES
(Youth Envisioning Social Change)

Summary

The CU-Boulder community has demonstrated a long-standing commitment to service and engagement consistent with the mission of the institution. The university's support structures enhance its capacity for service and engagement through such programs as continuing education, an active Outreach Committee, and the Institute for Ethical and Civic Engagement. Engagement with alumni and parents is a high priority for the university, as these constituents play an important role in CU-Boulder's long-term progress. All levels of the university community are involved in service and engagement activities that include student volunteerism, service and experiential learning, faculty collaboration with constituency groups and communities, web resources for Colorado K–12 teachers, and many more. At CU-Boulder, service and engagement projects are characterized by mutual and reciprocal benefits accruing to both recipient and provider. Assessment and analysis of these activities are conducted through formal and informal structures, such as the Faculty Report of Professional Activities (FRPA), world-wide recognitions, and feedback from service partners.

Discussion

Key Strengths

- **Strong commitment to engagement.** The CU-Boulder community is heavily involved in service, outreach, and engagement activities with internal and external constituencies. Such activities are consistent with the university's mission as a research and teaching institution. Efforts have been made to establish common understanding of the definitions of service, outreach, and engagement—and institutional structures exist to support them. Continuing education programs provide opportunities for lifelong and distance learning to a wide range of audiences.
- **Community service.** Various mechanisms bring CU-Boulder resources to communities across Colorado, and student service engagement is encouraged through ethical and civic education programs. Alumni and parents are recognized as important components of the university's success, with numerous activities designed to maintain continuous connections with them. Service learning and experiential learning are celebrated as effective means of educating students, while serving community needs. Programs have been developed to engage students, faculty, staff, and administrators in pervasive outreach to multiple constituencies, including Colorado K–12 communities, business and industry, multicultural communities, and state and local communities.

- **Reciprocal benefits.** CU-Boulder's service, outreach, and engagement efforts almost always offer reciprocal benefits for all partners in the activities. Students learn from their service, faculty incorporate engagement in teaching and research, and community partners receive valuable benefits from the process. The result is a richly rewarding interplay of contribution and benefit, as demonstrated commonly by positive feedback on all sides. National and international recognition of outstanding programs serve to identify models for future planning, particularly through *Flagship 2030*.

Challenges and Issues

- **Coordination and communication.** While pervasive, CU-Boulder's engagement activities often are entrepreneurial in nature and lack full institutional support and coordination. Numerous champions give voice to the value of service and engagement, but resources often are decentralized and sporadic. In some cases, indeed, there is the potential for duplication of effort, even in the face of scarce resources. The university's communications strategies sometimes are not closely linked with outreach and engagement activity.
- **Recognition in faculty processes.** Like other major universities, CU-Boulder wrestles with the issue of how best to recognize faculty outreach and engagement activities in merit allocation and other faculty processes. The notion of "public scholarship" is still being discussed and defined within the context of the research university.
- **Assessment methods.** Assessment of outreach and engagement continues to be uneven. While some programs utilize multiple tools for measuring levels of effectiveness, others rely more heavily on single methods, such as verbal feedback from audiences.

Flagship 2030: Next Steps

- **Flagship 2030 initiative.** Despite the challenges, opportunities exist for expanding the university's commitment to service and engagement. The university's strategic plan specifically calls for such expansion as well as taking a more coherent and coordinated approach. *Flagship 2030* task forces were even more specific. They called for a coordinated, deliberate campus strategy for outreach and engagement; faculty participation in the development of evaluation, recognition, and reward systems for faculty outreach; lifelong learning, professional development, and online learning opportunities; and increased integration of civic engagement and service learning models into the standard curriculum and graduation plans for undergraduates.



- **Strategies and action plans.** Under each of the Outreach and Engagement Task Force's primary recommendations were numerous action strategies, ranging from clarifying definitions to establishing appropriate infrastructure and oversight to providing appropriate funding. The task force suggested establishing an Office for Outreach and Engagement (OOE) to help support, coordinate, and communicate the outreach and engagement activities of the campus as a whole. Other suggested strategies included clarifying the role of faculty in outreach and engagement, along with providing for a tiered funding mechanism to support work at three levels: individual faculty, department or unit, and campus initiatives.
- **Lifelong learning.** The task force also recommended various actions to bridge the development programs between the university, alumni, business, and the community. The group suggested the need for a long-term plan to assure appropriate lifelong learning programs offered on campus, off campus, and online. Expanded professional development programs were recommended, consistent with market studies with key business and industry groups. In addition, the task force suggested the university examine the merits and feasibility of an online undergraduate degree completion program for adult learners who have not completed their undergraduate degrees. The group also recommended that CU-Boulder examine the potential for expanding the number of online professional master's degree and certificate programs.

Endnotes

- ¹ www.cu.edu/regents/Laws/Article5B.htm
- ² www.imaginingamerica.org/TTI/TTI_FINAL.pdf
- ³ www.colorado.edu/flagship2030/downloads/implementation/TaskForceOutreach.pdf
- ⁴ conted.colorado.edu
- ⁵ leeds.colorado.edu/Executive_Education/interior.aspx?id=1350
- ⁶ www.colorado.edu/law/academics/cle.htm
- ⁷ conted.colorado.edu/programs/outreach/outreach-committee
- ⁸ conted.colorado.edu/programs/outreach/outreach-awards
- ⁹ www.colorado.edu/iece/iece_programs.html
- ¹⁰ www.cudenver.edu/Academics/Colleges/ArchitecturePlanning/discover/centers/CYE/Pages
- ¹¹ www.cudenver.edu/academics/colleges/architectureplanning/discover/centers/pages
- ¹² www.colorado.edu/AcademicAffairs/UndergraduateEducation/pukstaweb
- ¹³ careerservices.colorado.edu/students/PIIE.aspx
- ¹⁴ www.colorado.edu/AcademicAffairs/UndergraduateEducation/pukstaweb

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- 16 www.colorado.edu/iece/iece_programs.html#access
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- 41 www.colorado.edu/cu4k12
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CHAPTER 9

Conclusion and Request for Continued Accreditation

The primary purpose of the self-study report is to assist the Higher Learning Commission team in evaluating the University of Colorado at Boulder for re-accreditation, but the process itself is helping define the future of the institution. By closely examining its own strengths, barriers, and opportunities, the university gains a better understanding of itself and, therefore, can more effectively plan for the future.

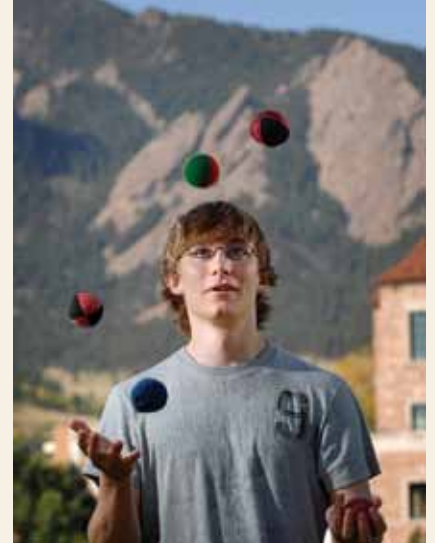
Self-Study and Planning

CU-Boulder views the North Central Association (NCA) re-accreditation process as part of a continuum of planning that engages the university community and multiple constituencies in realizing a new shared vision for the institution. Taken together, the self-study process and the *Flagship 2030* planning process have allowed the university to take an objective look at the environmental factors that help or hinder its progress—and have served to identify institutional qualities emerging from self-examination.

For CU-Boulder, the process pointed to a number of transformative qualities, some existing and some still developing, which can help the university position itself for global leadership in education, research, and creative work by the year 2030. To fully realize the *Flagship 2030* vision, the university will need to draw deeply upon its distinctive qualities of environmental stewardship, global reach in a diverse world, innovations in learning and teaching, collaborative discovery, and sustained vision and agility.

The *Flagship 2030* plan is ambitious and far-reaching. As its name indicates, the plan is intended to set a long-term course for the university to serve the needs of Colorado while extending its global reach. At the heart of the plan is a set of initiatives aimed at helping the university remain competitive in the short term while emerging as a distinctive and worldwide presence in education and discovery.

The eight Core Initiatives and 10 Flagship Initiatives in *Flagship 2030* will require substantial new and reallocated resources. Clearly, the university will need to form innovative partnerships and funding models to marshal those resources in today's fiscal environment. But the same distinguishing qualities that propelled the University of Colorado at Boulder to this moment in history can help shape the new flagship university of the 21st century.





Request for Continued Accreditation

The University of Colorado at Boulder requests continued accreditation by the Higher Learning Commission of the North Central Association. As demonstrated in this self-study and associated materials, the university has responded to areas of concerns raised by the NCA evaluating team in 2000 and provided evidence of meeting the Higher Learning Commission's criteria for accreditation.

The self-study process was strengthened and enhanced by the planning activities that led to the university's *Flagship 2030* strategic plan. The work of the *Flagship 2030* task forces reporting in 2008 served to inform the self-study review throughout the process. Materials and reports produced by the task forces are available online and in printed format for use by the evaluation team.

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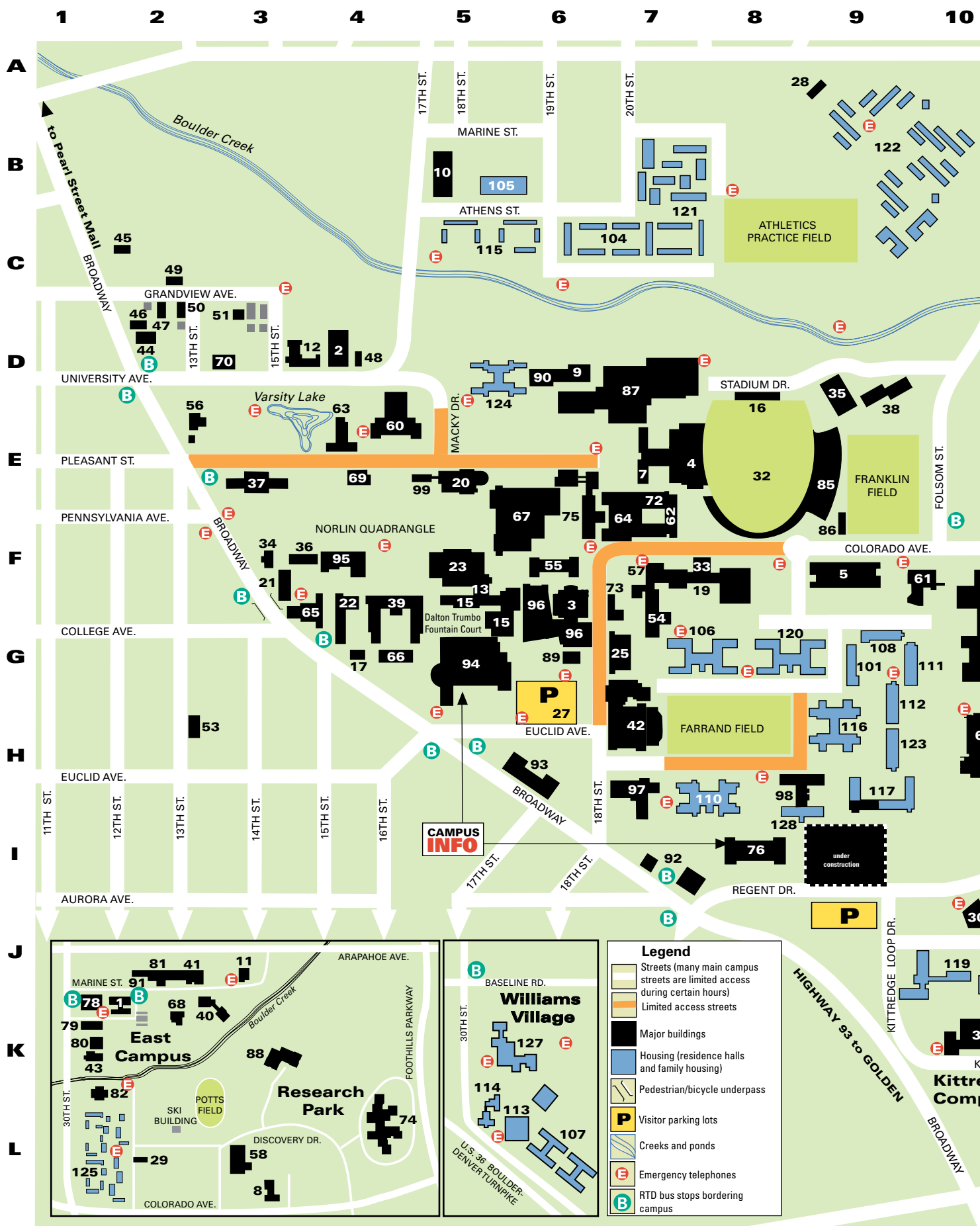
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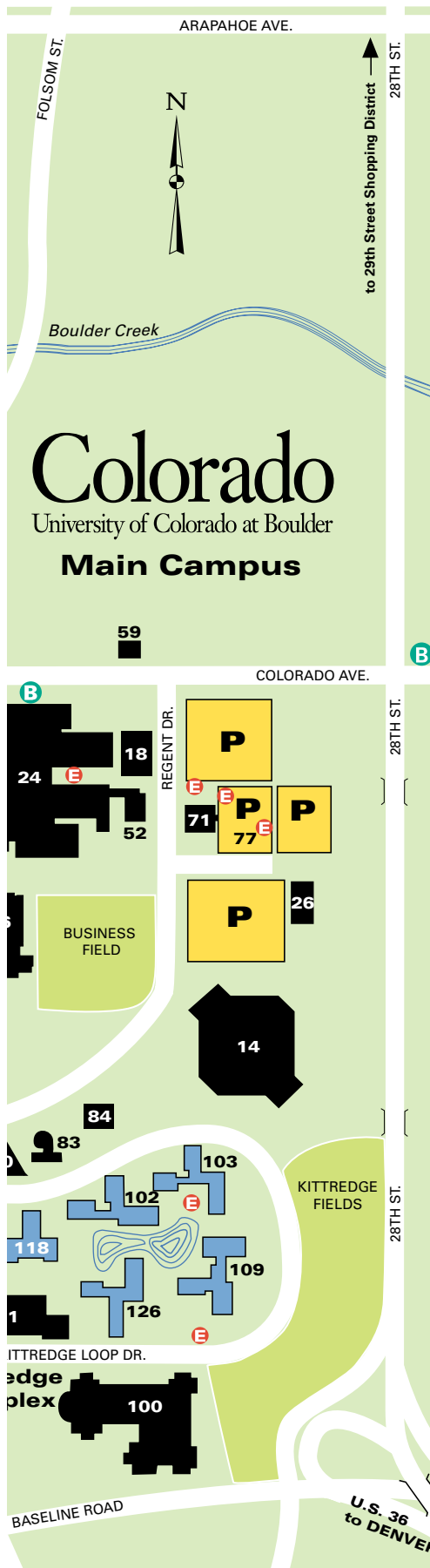
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APPENDIX A

Campus Map

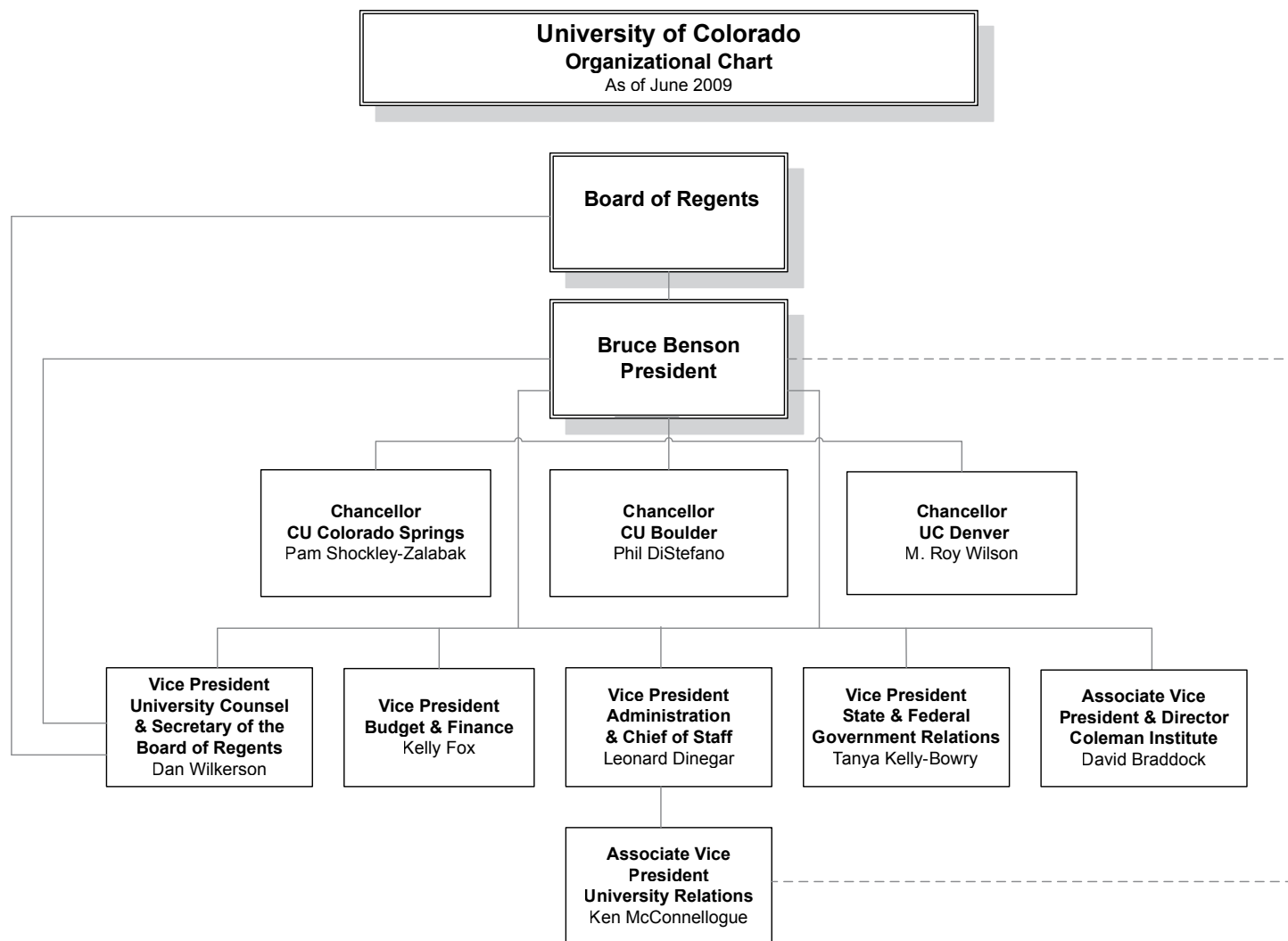
University Buildings

1. Administrative and Research Center—East Campus (J-2) (ARCE)
2. Armory (D-4) (ARMR)
3. ATLAS Building (Alliance for Technology, Learning, and Society) (G-6) (ATLS)
4. Balch Fieldhouse (E-7) (FH)
5. Benson Earth Sciences (F-9) (BESC)
- * Bruce Curtis Building. *See Museum Collections.*
6. Business, Leeds School of (H-10). *See Koelbel Building.*
7. Carlson Gymnasium (E-7) (CARL)
8. Center for Astrophysics and Space Astronomy (L-3) (CASA)
9. Clare Small Arts and Sciences (D-6) (CLRE)
- * Charlotte York Irey Studios (F-4). *See University Theatre.*
10. College Inn Conference Center (B-5) (CICC)
11. Computing Center (J-3) (COMP)
12. Continuing Education and Professional Studies (D-4) (CEDU)
13. Cooperative Institute for Research in Environmental Sciences (F-5) (CIRES)
14. Coors Events/Conference Center (I-12) (EVNT)
15. Cristol Chemistry and Biochemistry (G-5) (CHEM)
16. Dal Ward Athletic Center (D-8) (DALW)
17. Denison Arts and Sciences (G-4) (DEN)
18. Discovery Learning Center (F-11) (DLC)
- * Drescher Undergraduate Engineering. *See Integrated Teaching and Learning Laboratory.*
- * Duane Physical Laboratories (F-7). *See Duane Physics and Astrophysics, Gamow Tower, Laboratory for Atmospheric and Space Physics, and JILA.*
19. Duane Physics and Astrophysics (F-7) (DUAN)
20. Eaton Humanities Building (E-5) (HUMN)
21. Economics (F-3) (ECON)
22. Education (G-4) (EDUC)
23. Ekeley Sciences (F-5) (EKLC)
24. Engineering Center (F/G-10/11) (EC)
25. Environmental Design (G-7) (ENVN)
26. Environmental Health and Safety Center (H-13)
27. Euclid Avenue AutoPark (G-6) (EPRK)
28. Family Housing Children's Center—Main Offices (A-9) (DACR)
29. Family Housing Children's Center at Smiley Court (L-2)
30. Fiske Planetarium and Science Center (J-10) (FISK)
31. Fleming Building (K-10) (FLMG)
32. Folsom Stadium (E-8) (STAD)
33. Gamow Tower (F-7) (DUAN)
34. Gates Woodruff Women's Studies Cottage (F-3) (COTT)
35. Grounds and Service Center (D-9) (GRNS)
36. Guggenheim Geography (F-3) (GUGG)
37. Hale Science (E-3) (HALE)
38. Health Physics Laboratory (D-9) (HPHY)
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- * Henderson Building (G-4). *See Museum of Natural History.*
40. Housing System Maintenance Center (K-3) (HSMC)
41. Housing System Service Center (J-2) (HSSC)
42. Imig Music (H-7) (MUS)
43. Institute for Behavioral Genetics (K-1) (IBG)
44. Institute of Behavioral Science No. 1 (D-2) (IBS1)
45. IBS No. 2 (C-2) (IBS2)
46. IBS No. 3 (D-2) (IBS3)
47. IBS No. 4 (D-2) (IBS4)
48. IBS No. 5 (D-4) (IBS5)
49. IBS No. 6 (C-2) (IBS6)
50. IBS No. 7 (C-2) (IBS7)
51. IBS No. 8 (C-3) (IBS8)
52. Integrated Teaching and Learning Laboratory (G-11) (ITLL)
53. International English Center (G-2) (IEC)
54. JILA (G-7)
55. Ketchum Arts and Sciences (F-6) (KTCH)
- * Koelbel Building at the Leeds School of Business (H-10) (KOBL).
56. Koenig Alumni Center (E-2) (ALUM)
57. Laboratory for Atmospheric and Space Physics (F-7) (LASP)
58. LASP Space Technology Research Center (L-3) (LSTR)
59. Lesser House (F-11) (LESS)
- * Life Sciences Laboratories Complex (E-7). *See Muenzinger Psychology, Porter Biosciences, and Ramaley Biology.*
60. Macky Auditorium (D-4) (MCKY)
61. Mathematics Building (F-10) (MATH)
62. MCD Biology (E-7) (MCDB)
63. McKenna Languages (E-4) (MKNA)
64. Muenzinger Psychology (E-7) (MUEN)
65. Museum Collections (Bruce Curtis Building) (G-3) (MCOL)
66. Museum of Natural History, University of Colorado (G-4) (HEND)
67. Norlin Library (E-6) (LIBR)
68. Nuclear Physics Laboratory (K-2) (NPL)
69. Old Main (E-4) (MAIN)
70. Page Foundation Center (D-3) (PFDC)
71. Police and Parking Services (G-12) (PDPS)
72. Porter Biosciences (E-7) (PORT)
73. Power House (F-6) (POWR)
74. Qwest Research Park (L-4) (USW)
75. Ramaley Biology (E-6) (RAMY)
76. Regent Administrative Center (I-8) (RGNT)
77. Regent Drive AutoPark (G-12) (RPRK)
78. Research Laboratory, Litman RL1 (J-1) (LITR)
79. Research Laboratory (K-1) (RL2)
80. Research Laboratory, Life Science RL4 (K-1) (LSRL)
81. Research Laboratory, RL6 (Marine Street Science Center) (J-2) (MSSC)
82. Research Park Greenhouse (K-1) (GH-3)
83. Sommers-Bausch Observatory (I-11) (OBSV)
84. Speech, Language, and Hearing Sciences (I-11) (SLHS)
85. Stadium Building (E-8) (STAD)
86. Stadium Ticket Building (F-9) (STTB)
87. Student Recreation Center (D-6/7) (REC)
88. Sybase (K-3) (SYBS)
89. Telecommunications Building (G-6) (TCOM)
90. Temporary Building No.1 (D-6) (TB01)
91. Transportation Center (J-2) (TRAN)
92. University Administrative Center and Annex (I-7) (UCTR)
93. University Club (H-6) (CLUB)
94. University Memorial Center (G-5) (UMC)
95. University Theatre (including Charlotte York Irey Studios) (F-4) (THTR)
96. Visual Arts Complex (G-6) (VAC). *Under construction.*
97. Wardenburg Health Center (H-7) (WARD)
98. Willard Administrative Center (H-8) (WCTR)
99. Woodbury Arts and Sciences (E-5) (WDBY)
100. Wolf Law Building (L-12) (WFL)

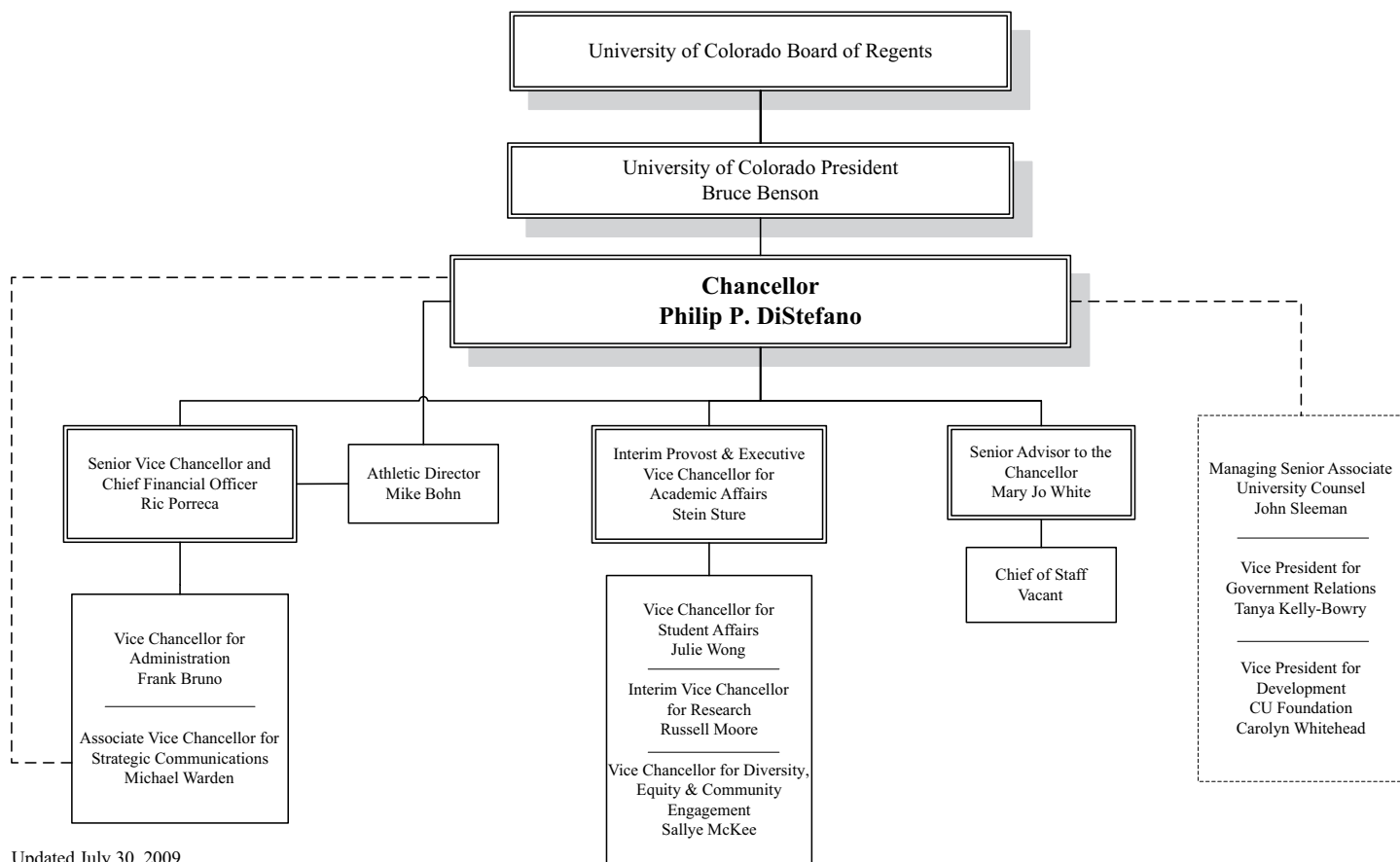
University Housing

101. Aden Hall—Quadrangle (G-9) (ADEN)
102. Andrews Hall—Kittredge Complex (J-11) (ANDS)
103. Arnett Hall—Kittredge Complex (J-12) (ARNT)
104. Athens Court (B/C-6/7) (ATCT)
105. Athens North Court (B-6) (ATHN)
106. Baker Hall (G-7) (BKER)
107. Bear Creek Apartments—Williams Village (W-BC)
108. Brackett Hall—Quadrangle (G-9) (BRKT)
109. Buckingham Hall—Kittredge Complex (K-12) (BUCK)
110. Cheyenne Arapaho Hall (H-7) (CHEY)
111. Cockerell Hall—Quadrangle (G-10) (CKRL)
112. Crosman Hall—Quadrangle (G-10) (CROS)
113. Darley Commons—Williams Village (L-6) (DLYC)
114. Darley Towers—Williams Village (K-5) (DLTY)
115. Faculty Staff Court (C-5/6) (FACT)
116. Farrand Hall (H-9) (FRND)
117. Hallett Hall (H-9) (HLET)
118. Kittredge Commons—Kittredge Complex (J-10) (KITT)
- * Kittredge Complex. *See Kittredge Commons, Andrews, Arnett, Buckingham, Kittredge West, and Smith Halls.*
119. Kittredge West Hall—Kittredge Complex (J-10) (KITW)
120. Libby Hall (G-8) (LIBY)
121. Marine Court (B-7) (MRCT)
122. Newton Court (B/C-9/10) (NTCT)
- * Quadrangle (Engineering Quadrangle). *See Aden, Brackett, Cockerell, and Crosman Halls.*
123. Reed Hall (H-10) (REED)
124. Sewall Hall (D-5) (SWLL)
125. Smiley Court (L-1) (SMCT)
126. Smith Hall—Kittredge Complex (K-11) (SMTH)
127. Stearns Towers—Williams Village (K-6) (STRN)
128. Willard Hall—South Wing (H-8) (WLRD)
- * Williams Village. *See Bear Creek Apartments, Darley Commons, Darley Towers, and Stearns Towers.*

University of Colorado System and CU-Boulder Organization Charts

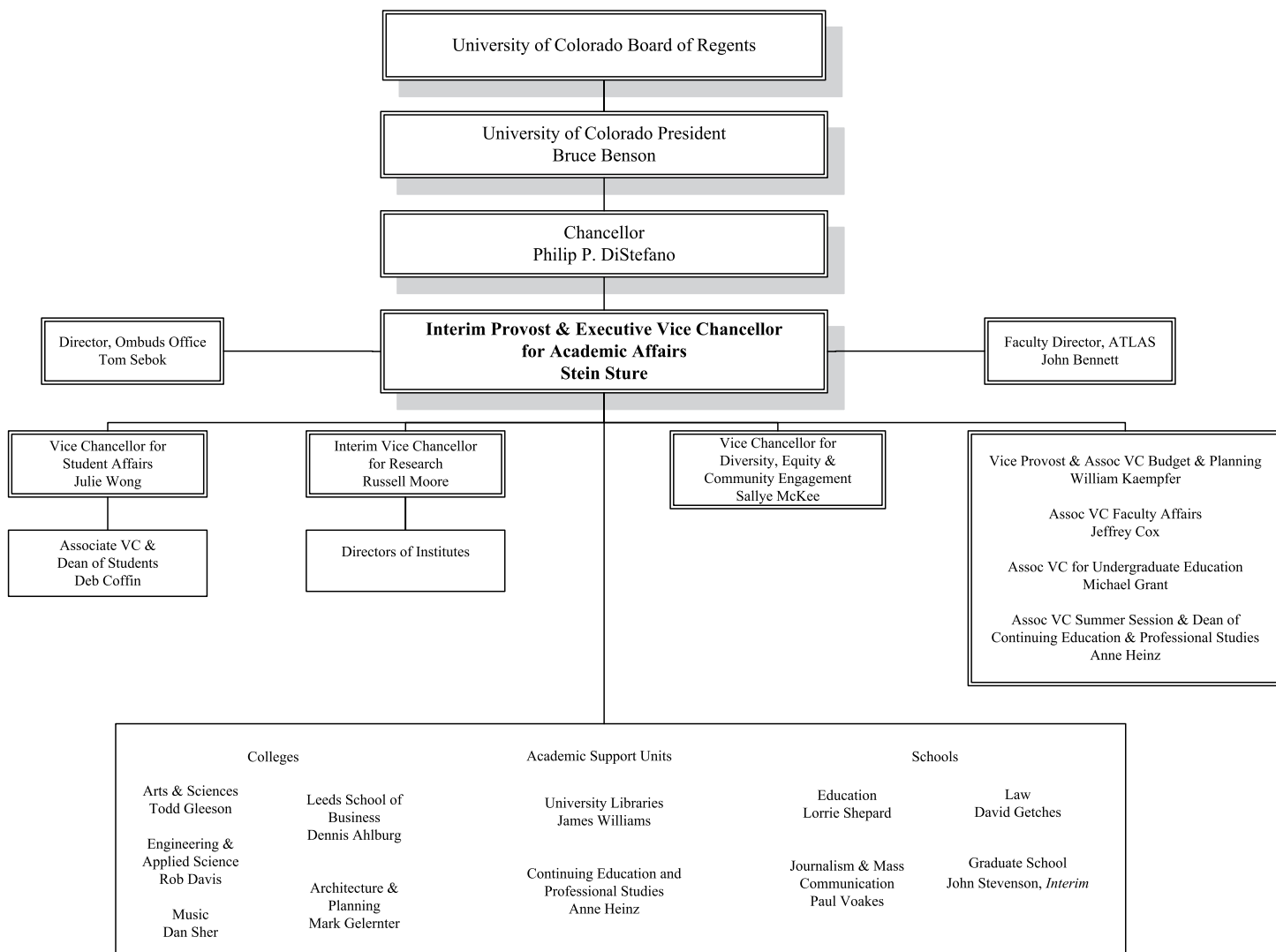


University of Colorado at Boulder Office of the Chancellor



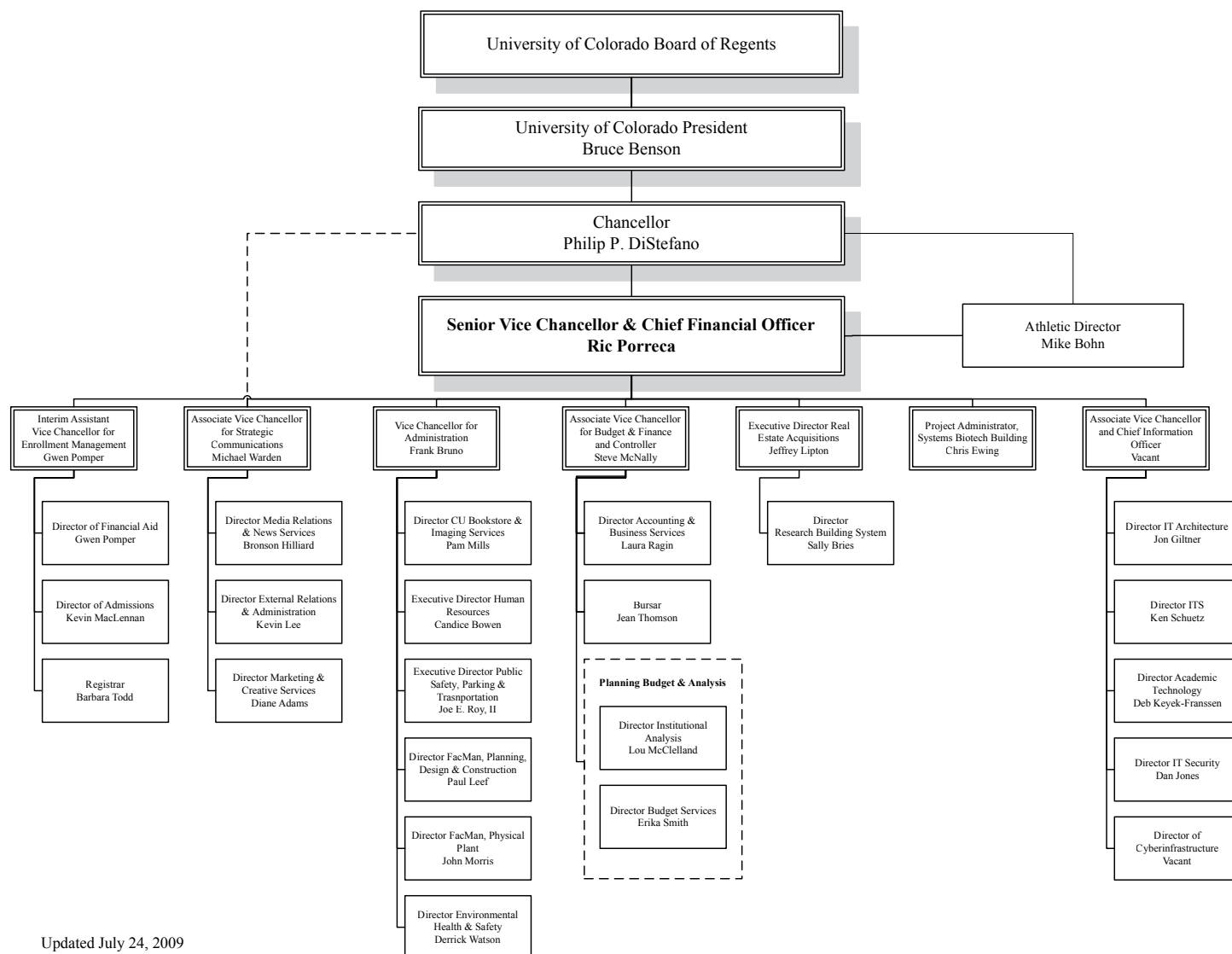
Updated July 30, 2009

University of Colorado at Boulder Office of the Provost



Updated July 24, 2009
Corrected September 23, 2009

University of Colorado at Boulder Office of the Senior Vice Chancellor & Chief Financial Officer



Updated July 24, 2009

Federal Compliance Summary

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Credits, Program Length, and Tuition

Credit-hour assignments and degree program lengths are within the range of good practice in higher education, and there is a rational basis for any program-specific tuition.

Credits and program length. The University of Colorado at Boulder operates year round on a semester system, with fall and spring semesters of 16 weeks each, the 10-week Summer Session, and a three-week “Maymester” academic period between spring semester and Summer Session. The semester length and the assignment of credit-hours are established according to practices that are common in higher education, especially among peer institutions. Faculty guidelines typically award 1 credit for 15 hours of lecture, 15 to 30 hours of discussion, or 30 to 45 hours of laboratory, consistent with the Colorado Commission on Higher Education (CCHE) [guidelines](#).¹ The campus academic calendar is available in the catalog and on the CU-Boulder website at www.colorado.edu/academics/calendar.html.²

Program requirements and length have been reviewed by CCHE, are consistent with similar programs at peer institutions (120 to 128 credits for undergraduate programs), and conform to policies set by program accrediting agencies where applicable. Details about program requirements and length are communicated to students through descriptions in the catalog and on school and college websites. Degree program requirements, including length and curricular details, are determined and approved by program and school or college faculty.

CU-Boulder is a member of the American Association of Universities (AAU), the American Association of Universities Data Exchange (AAUDE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and other regional and national organizations that provide venues for information exchanges that allow CU-Boulder to compare standards of academic policies and practices with other similar institutions.

Tuition and fees. Tuition rates for all campuses of the University of Colorado are set each year and approved by CU Board of Regents action. A [website about tuition](#),³ updated annually, provides general information about tuition and fee rates by school or college, residency status, and student level (graduate or undergraduate); changes in rates; and major features of tuition and financial aid.

Detailed tables of tuition and required fees are provided on the [Bursar's Office website](#).⁴ Tuition rates are also published in the catalog (prior year rates for planning purposes), as well as information on regulations governing tuition and fees.

Tuition differentials by college and school have been in place for many years. The revenue from the differentials helps to support the cost of education in each college or school—faculty, student programs, and other expenses. The differentials reflect variances in the cost of education, the market worth of the degree, and the popularity of the college or school. In each dimension, law, business, and engineering top other CU-Boulder colleges and schools, and their tuition rates are accordingly higher by several thousand dollars:

- The cost is higher because faculty salaries in these fields are higher; both at CU-Boulder and nationally, law, business, and engineering faculty members often have viable employment opportunities outside academia at higher rates of pay.
- The market worth of the degree is higher, with higher starting salaries for graduates.
- The popularity of these degree programs is greater, with more applicants per entering-class slot than in other colleges and schools.

Tuition rates for nonresident undergraduates have operated under a [nonresident undergraduate tuition guarantee](#)⁵ program since 2005–06. Each tuition guarantee group has a guaranteed tuition rate table for four calendar years. The tuition guarantee (also known as flat tuition) makes CU-Boulder's costs more predictable and serves as an additional incentive for students to graduate in four years.

Student Complaints

There is a process in place for addressing student complaints.

Three main units deal with student complaints: the Office of Undergraduate Education, the Ombuds Office, and the Office of Judicial Affairs. Complaints received by the offices of the president, the chancellor, or the provost are typically channeled to one or more of these units. Informal means of filing complaints supplement these avenues. Details on how the university addresses complaints and concerns are presented in Chapter 4.

It is an express CU-Boulder policy that all students at all times have the right to lodge a complaint or grievance without fear of retaliation of any sort or any other adverse consequence. A [website for students](#)⁶ explains this policy and provides instructions for lodging a complaint or an appeal, with guidelines for specific issues and/or complaints ranging from violations of the Student Conduct Code to tuition and fees. The Office of Undergraduate Education also sends out an e-memo to all faculty members three times per year asking them to include specific information about appeals and complaints in their course syllabi.

The Office of Undergraduate Education logs all student complaints it receives, typically about 60 per year.

For academic concerns, students are directed to initiate a complaint with the instructor, to make appeals to the department chair, and then—if their concerns are not addressed adequately—to bring the issue to the dean of the college or school. The website reporting results of student evaluations of courses and instructors has a [webpage](#)⁷ on “how to contact department heads with comments on instructors.”

For further discussion of how the university handles complaints see Chapter 4, “Addressing grievances.” The log of complaints received by the Office of Undergraduate Education will be available in the resource room.

Transfer Policies

The university is appropriately disclosing its transfer policies to students and to the public. Policies contain information about the criteria the university uses to make transfer decisions.

The CU-Boulder catalog [section on undergraduate admission](#)⁸ contains a detailed explanation of policies on transfer of college-level credit. It includes material on time limit for transfer of credit; number of credit-hours required for graduation; minimum grades for transfer; credit from two-year colleges; credit from four-year institutions; credit for correspondence and online work, college-level work taken during high school, advanced placement exams, college-level examination programs, and international baccalaureate exams (IB); military credit; credit by examination; transfer coursework not accepted by the university; and transfer credit conversion.

The section on minimum grades for transfer reads: “Only courses taken at a recognized, accredited college or university with grades of C- or better are accepted for transfer. Grades of pass, satisfactory, and honors are accepted for transfer; however, each college and school at CU-Boulder may place a limitation on the number of pass hours that may be applied toward a degree.”

The catalog states that “The dean’s office of each college or school has ultimate responsibility for supervising the student’s degree program and makes the final determination on applicability of transfer credits toward degree requirements.”

Similar material is on the prospective student website under [transfer credit guidelines](#).⁹

Students transferring from Colorado public colleges and universities, including community colleges, are covered by a statewide guaranteed transfer program. Details are presented both on the [College of Arts and Sciences website for prospective transfers](#)¹⁰ and at the [website on guaranteed transfer of the Colorado Department of Higher Education](#).¹¹

Verification of Student Identity

The university verifies the identity of students who participate in courses or programs provided to the student through distance or correspondence education.

The university does offer some courses by distance education or correspondence through the [Division of Continuing Education and Professional Studies](#).¹²

All examinations held at physical locations (e.g., test centers) have proctoring, collect student registration data, and require a photo ID.

All online courses are password protected and require the student to submit their private [IdentiKey](#)¹³ information. The University of Colorado Administrative Policy Statements on “Providing and Using Information Technology” and “Use of Electronic Mail” both state: “Only University faculty, staff, and students and other persons who have received permission under the appropriate university authority are authorized users of the university’s electronic mail systems and resources. CU-Boulder grants permission to individuals to have access to portions of its computing and network resources by issuing a password. The password is the mechanism by which a system permits a specific, authorized individual to have access to that system and/or data. Each user who obtains a password is required to keep it secure. This policy prohibits a password holder from disclosing a password to another person, either intentionally or through carelessness.

The Office of the Registrar and Information Technology Services (ITS) are considering additional methods to authenticate student identity, including biometrics to authenticate identity (e.g., fingerprint, iris scan, voice prints) and challenge questions (e.g., personal history).

Title IV Program and Related Responsibilities

The university carries out its Title IV responsibilities.

General program requirements. CU-Boulder has demonstrated the administrative and financial capabilities necessary to participate in such federal financial aid programs as Pell Grant, Direct Loan, Perkins Loan, Supplemental Education Opportunity Grant Program, and College Work Study.

The campus has participated continuously in the Federal Direct Loan Program since its 1994 pilot.

The Office of Financial Aid assures and maintains the university’s compliance with the U.S. Department of Education regulations relating to financial aid. It holds current copies of all required documentation including

**University of Colorado
at Boulder
Direct Lending Student
Federal Loan Cohort
Default Rates Over Time**

| Fiscal Year | Draft | Official |
|-------------|-------|----------|
| 1993 | 4.2 | 4.7 |
| 1994 | 4.1 | 3.9 |
| 1995 | 3.9 | 3.8 |
| 1996 | 4.9 | 5.0 |
| 1997 | 4.8 | 5.2 |
| 1998 | 3.7 | 3.8 |
| 1999 | 3.4 | 3.4 |
| 2000 | 2.7 | 2.8 |
| 2001 | 2.5 | 2.5 |
| 2002 | 3.0 | 3.0 |
| 2003 | 2.0 | 2.0 |
| 2004 | 1.9 | 1.8 |
| 2005 | 1.5 | 1.4 |
| 2006 | 2.2 | 1.7 |
| 2007 | 2.2 | 1.8 |

- Program Participation Agreement (PPA)—valid until 9/30/2012
- Eligibility and Certification Approval Report (ECAR)
- Fiscal Operations Report and Application to Participate (FISAP)

In fiscal year 2009, CU-Boulder awarded Title IV aid of approximately \$150 million to about 12,000 students. The average award per student was \$12,500. The following programs are certified as Title IV eligible: bachelor's degree, master's degree, law degree (JD), doctoral degree, and post-baccalaureate teacher licensure.

The office ensures compliance with the Higher Education Opportunity Act reauthorization of 2008 (HEOA 2008), Higher Education Reauthorization Act of 1998, Ensuring Continued Access to Student Loans Act of 2008 (ECASLA), Higher Education Reconciliation Act (HERA) of 2006, and College Opportunity and Affordability Act (CCRAA) of 2007.

CU-Boulder financial aid is an integral part of the university's annual external financial audit. Prior to 2006–07, only minor audit findings were discovered, which were corrected within the required timeframe. Since 2006–07, there have been no financial aid audit findings.

The Office of Financial Aid also submits to the Colorado Department of Higher Education an annual electronic file on students applying for or receiving financial aid in the fiscal year; this is the Student Unit Record Data System (SURDS) financial aid file.

Financial responsibility requirements. See Chapter 4, section on internal and external audits, for discussion of financial controls and compliance. CU-Boulder complies with numerous federal requirements related to research contracts and grants, such as OMB Circular A-21 (Cost Principles for Education Institutions), OMB Circular A-110 (Uniform Administrative Requirements), and a host of others.

An annual financial audit of the University of Colorado System (all campuses) is performed by external auditors contracted through the Colorado state auditor's office. The fiscal year 2008 audit¹⁴ is available on the state site. It includes a section on state-funded student financial assistance. The fiscal year 2008 audit made one recommendation: to establish additional controls over individuals able to update tuition and fee tables in the billing system. The university agreed with this recommendation. All outstanding prior-year recommendations had been resolved.

The State of Colorado Statewide Single Audit for fiscal year 2008¹⁵ covers the Department of Higher Education and thereby the University of Colorado and the Boulder campus. This constitutes an audit in accordance with U.S. Office of Management and Budget (OMB) Circular A-133. Appendix A, the Federal Single Audit Recommendation Locator, does not list any recommendations for the University of Colorado.

Default rates. CU-Boulder's federal direct lending student loan cohort default rate has decreased steadily over the past 10 years, from about 5 percent in 1998 to below 2.5 percent for 2003 and later years. The fiscal year 2007 rate of 1.8 percent compares to a national average of 6.7 percent.¹⁶ CU-Boulder publishes both draft and official default rates on a webpage¹⁷ with other information on financial aid.

The CU-Boulder Perkins loan default rate was 3.97 percent as of 6/30/2008¹⁸ and 3.6 percent as of 6/30/2009.

CU-Boulder helps students understand the payment process for Perkins¹⁹ and other loans. The bursar's staff handles exit interviews and billing for all loans except those in the federal direct loan program, and the student loan servicing staff work with former students whose loans other than direct lending become delinquent.

Campus crime information and related disclosure of consumer information.

CU-Boulder complies with federal requirements for the **disclosure of rates of campus crime**. Ralphie's Guide to Student Life has an extensive feature webpage on safety,²⁰ with sections on access to campus facilities, CU NightRide, maintenance of facilities and security, University Police, emergencies on campus, crime prevention, and crime statistics. The crime statistics section features university policy and states that the police department records information on all crimes reported, which are "maintained in the University Police Department's records sections and are used to compile year-end statistics for the FBI's Uniform Crime Report and Clery report."

The Clery report, or annual Campus Safety Report²¹, is available upon request by phone or by download. Background information is posted on the human resources website.²²

The Committee on Personal Safety, composed of students and representatives from across campus, works to promote safety issues on campus and to make the campus a safe and pleasant environment. Providing adequate lighting, police protection, crime prevention, and educational programs are among important steps taken.

CU-Boulder publishes "student right to know"²³ information in compliance with the Crime Awareness and Campus Security Act of 1990 and the Higher Education Amendments of 1992 and 1998. Links to information on all topics, including graduation rates, disability services, withdrawal, athletic programs, and costs, are on a single webpage.

CU-Boulder is responding to the new provisions of the **Higher Education Opportunity Act** (HEOA) 2008 that establish new requirements for reporting to the Department of Education through the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS), additional requirements for public disclosure, and new financial aid provisions. CU-Boulder has an established pattern of high levels of disclosure of institutional data and information and is planning for the requested information to be made available in a timely manner. University personnel also make use of groups of national peers to share information and to develop a common standard of compliance.

The registrar's office publishes information on the Family Educational Rights and Privacy Act (FERPA)²⁴; it also trains employees across campus in FERPA responsibilities and ensures compliance with requirements.

The Office of Institutional Analysis reports data about CU-Boulder²⁵ through **IPEDS** and publishes portions of most IPEDS reports on a single webpage.

Satisfactory academic progress and attendance policies. University policies on satisfactory academic progress for financial aid and last date of attendance are published by the [Office of Financial Aid website](#) ²⁶ and in the [catalog section on financial aid](#).²⁷ Both are consistent with policies at peer institutions and satisfy federal requirements.

Contractual relationships. The university does not have any contracts with non-accredited third-party providers of 25 percent or more of the academic content of any degree or certificate programs.

Institutional Disclosures and Advertising and Recruitment Materials

The university provides information to current and prospective students and the public about its accreditation status with the Higher Learning Commission, as well as about its programs, locations, and policies.

The catalog section of general information includes the statement “CU-Boulder is accredited by the Higher Learning Commission and is a member of the North Central Association (www.ncahigherlearningcommission.org; 312-263-0456),” as does the [accreditation website](#).²⁸

The catalog; the [prospective student website](#)²⁹; the entire CU-Boulder website; and print materials created by the office of undergraduate admissions, the schools and colleges, the Graduate School, and others serve to tell current students, prospective students, and the public about university programs, locations, and policies.

Relationship with Other Accrediting Agencies and with State Regulatory Boards

The university is not under sanction or show-cause with, and has not received an adverse action from, any other federally recognized specialized or institutional accreditor in the past five years.

Specialized accreditations are shown in Appendix D, with no sanctions or adverse actions in the past five years. The state regulatory board is the Colorado Commission on Higher Education of the Colorado Department of Higher Education (CDHE), discussed in Chapter 4. The university reports to the state on budgets, enrollment, admissions, completions, financial aid, teacher education, and its performance contract via direct and University of Colorado System submissions to CDHE. All reporting is routinely submitted as required.

Public Notification of an Evaluation Visit and Third-Party Comment

By the time of the Higher Learning Commission team visit, the university will have made an appropriate and timely effort to solicit third-party comments.

Endnotes

- ¹ higherred.colorado.gov/Publications/Policies/Current/v-partb-Guidelines.pdf
- ² www.colorado.edu/academics/calendar.html
- ³ www.colorado.edu/pba/budget/tuitionfees
- ⁴ www.colorado.edu/bursar/now/tuitfeebill.html
- ⁵ www.colorado.edu/pba/budget/tuitionfees/guarantee.html
- ⁶ www.colorado.edu/policies/appealsguide.html
- ⁷ www.colorado.edu/fcq/contact.html
- ⁸ www.colorado.edu/catalog/catalog09-10/general/undergraduateadmission.html
- ⁹ www.colorado.edu/prospective/transfer/admission/credit.html
- ¹⁰ www.colorado.edu/ArtsSciences/prospective/transfer_current.html
- ¹¹ higherred.colorado.gov/Academics/Transfers/Students.html
- ¹² conted.colorado.edu
- ¹³ www.colorado.edu/its/docs/accounts/identikey.html
- ¹⁴ [www.leg.state.co.us/OSA/coauditor1.nsf/All/F3B7370A8102EA148725751C007410DB/\\$FILE/1932%20CU%20Fin%20Compl%20June%2008%20rel%20dec%2008.pdf](http://www.leg.state.co.us/OSA/coauditor1.nsf/All/F3B7370A8102EA148725751C007410DB/$FILE/1932%20CU%20Fin%20Compl%20June%2008%20rel%20dec%2008.pdf)
- ¹⁵ www.colorado.gov/dpa/dfp/sco/audit/audit08.pdf
- ¹⁶ www.ed.gov/offices/OSFAP/defaultmanagement/defaultrates.html
- ¹⁷ www.colorado.edu/pba/adm
- ¹⁸ ifap.ed.gov/perkinscdrguide/attachments/0708PerkinsCDR.pdf
- ¹⁹ www.colorado.edu/bursar/sdm/perkins.html
- ²⁰ www.colorado.edu/ralphie/features/safety
- ²¹ www.colorado.edu/ralphie/wordpress/wp-content/uploads/2009/06/Criminal-Offenses.pdf
- ²² www.colorado.edu/humres/policies/CleryAct.html
- ²³ www.colorado.edu/administration/righttoknow/list.html
- ²⁴ registrar.colorado.edu/regulations/ferpa_and_campus_safety.html
- ²⁵ www.colorado.edu/pba/ipeds
- ²⁶ www.colorado.edu/finaid/sap.html
- ²⁷ www.colorado.edu/catalog/catalog09-10/general/financialaid.html
- ²⁸ www.colorado.edu/accreditation
- ²⁹ www.colorado.edu/prospective

Specialized Accreditations

| Program(s) with first year accredited if available | Agency | Link to Agency | Last Review | Next Review |
|---|--|----------------|-------------|-------------|
| University of Colorado at Boulder (general accreditation, 1913) | North Central Association of Colleges and Schools (NCA) | NCA | 2000 | 2010 |
| Business: School and Undergraduate and Graduate Programs | The Association to Advance Collegiate Schools of Business (AACSB) | AACSB | Feb 2007 | 2012 |
| Clinical Psychology: Graduate | American Psychological Association (APA) | APA | 2005 | 2012 |
| Education Teacher Licensure Programs | Colorado Department of Higher Education (CDHE)/ Colorado Commission on Higher Education (CCHE) | CDHE | 2008–09 | 2012–13 |
| | Colorado Department of Education (CDE) | CDE | 2008–09 | 2012–13 |
| | National Council for Accreditation of Teacher Education (NCATE) | NCATE | 2003–04 | 2011–12 |
| | North Central Association of Colleges and Schools (NCA) | NCA | | 2009–10 |
| Engineering, Aerospace Engineering Science (BS) [1948] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Architectural Engineering (BS) [1936] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Chemical Engineering (BS) [1950] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Civil Engineering (BS) [1936] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Electrical and Computer Engineering (BS) [1982] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Electrical Engineering (BS) [1936] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Environmental Engineering (BS) [2003] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |
| Engineering, Mechanical Engineering (BS) [1936] | Accreditation Board for Engineering and Technology (ABET) | ABET | 2005–06 | 2011–12 |

| Program(s) with first year accredited if available | Agency | Link to Agency | Last Review | Next Review |
|--|--|----------------|----------------------|--------------|
| Engineering, Computer Science (BS) [seeking accreditation 2009] | Accreditation Board for Engineering and Technology (ABET) | ABET | First review 2009–10 | 2011–12 |
| Engineering, Chemical and Biological Engineering (BS) [seeking accreditation 2009] | Accreditation Board for Engineering and Technology (ABET) | ABET | First review 2009–10 | 2011–12 |
| International English Center (IEC) | Commission on English Language Program Accreditation (CEA) | CEA | Dec 2005 | Dec 2015 |
| Journalism | Accrediting Council on Education in Journalism and Mass Communications (ACEJMC) | ACEJMC | 2005 | 2011 |
| Law School (1923) | American Bar Association (ABA) | ABA | 2008–09 | 2015–16 |
| Law School (charter member) | American Association of Law Schools (AALS) | AALS | 2009 | 2016 |
| Music: Undergraduate and Graduate Programs | National Association of Schools of Music (NASM) | NASM | 2007 | 2017–18 |
| Speech Language and Hearing Sciences: Graduate programs in Speech-Language Pathology and Audiology | American Speech Language Hearing Association (ASHA) | ASHA | 2006 | 2013 |
| | Colorado Department of Education (CDE) | CDE | 2008–09 | 2012–13 |
| University of Colorado Museum | American Association of Museums (AAM) | AAM | 2003 | 2013 |
| Wardenburg Health Center | Commission on Laboratory Accreditation of the College of American Pathologists (CAP) | CAP | Feb 2009 | Feb 2011 |
| | Accreditation Association for Ambulatory Health Care (AAAHC) | AAAHC | May 2008 | May 2011 |
| | American Psychological Association (APA) | APA | June 2003 | Jan–Mar 2010 |

APPENDIX E

Resource Room Examples

Examples of materials that will be available in the NCA evaluating team's Resource Room during their campus visit include:

Minutes of Major Organizational Committees

- CU Board of Regents
- Chancellor's Cabinet
- Chancellor's Executive Committee
- Boulder Faculty Assembly
- Arts and Sciences Council
- Assessment Oversight Committee
- Boulder Campus Planning Commission (BCPC)
- UCB Self-study (Planning Board, Steering Committee)
- Dean's Council
- Staff Council
- University of Colorado Student Union (UCSU)

Reports Referenced in the Self-Study Report

- IPEDS Data Feedback Report: 2009
- Institutional Characteristics: Fall 2009
- Fall Enrollment Survey: Fall 2008
- Degree Completion: 2008-09
- Finance Survey: 2007-08
- Human Resources Survey: Fall 2009
- Graduation Rate Survey: Fiscal Year 2008-09
- Financial Aid Survey: Fiscal Year 2008-09
- Enrollment Snapshots—Comparing Fall 99 to Fall 08
- Resource Allocation Process
- Performance Contracts
- Glory Colorado*, Volumes I and II
- An Academic Review and Planning Profile, (ARP)—Department of Psychology and Neuroscience
- Strategic Planning for Individual Schools, Colleges and Organizations

Policies and Procedures Related to Curriculum

- Regent Policies
- Office of Faculty Affairs Review and Planning
- Graduate Course Proposal Form
- Curriculum Policies and Procedures for Individual Schools/Colleges

Policies on Learning Resources

- Intellectual Property Policy on Discoveries and Patents for Their Protection
- Intellectual Property That is Educational Material
- Library Circulation Policy

Information Services for Information Consumers; Public Services Code of Service
 Interlibrary Loan Service Policy
 Electronic Reserves Copyright Guidelines
 Circulation Loan Policies
 Chinook System

Policies on Interaction with Other Academic Organizations and Programs

Policies for Allocation and Use of Computer Resources

Budgets and Expenditure Reports

Annual Financial Report (Expenditure Side)
 Annual Budget Documents as Approved by CU Board of Regents
 Fiscal Management Report

Physical Facilities Master Plan

Campus Master Plan 2001
 Campus Master Plan 2009

Maintenance Plans

Catalogs, Bulletins, Viewbooks, and Other Promotional Literature

Academic Admission, Good Standing, and Completion Policies

University of Colorado at Boulder Catalog—2009–10

Policies Related to Faculty

University of Colorado System Faculty Handbook
 Faculty Desk Reference Guide
 New Faculty Orientation Schedule
 Graduate Student Appointment Manual
 Reappointment, Tenure and Promotion
 Merit, Annual Evaluation (Professional Development)

Faculty, Student, and Staff Handbooks

Faculty Handbook
 Ralphie's Guide to Student Life
 Human Resources Website

Bylaws of Faculty and Staff Assemblies or Other Representative Bodies

Staff Council Bylaws
 Boulder Faculty Assembly Bylaws

University of Colorado Student Union (UCSU) Bylaws
United Government of Graduate Students (UGGS) Bylaws
Arts and Sciences Council Bylaws

Governance Documents

CU Board of Regents Materials
Boulder Faculty Assembly (BFA) Materials
Staff Council Materials
University of Colorado Student Union (UCSU) Materials
United Government of Graduate Students (UGGS) Materials

A Complete Roster of All Faculty Members and Their Teaching Assignments

Formal Agreements for all Consortia or Contractual Relationships

Partnership Agreement with Mesa State

Student Service Policies

Residence
Governance—University of Colorado Student Union (UCSU)
Health
Financial Aid Overview
Student Records—Office of the Registrar
Refund Policy

Board Rosters, Charters, and Bylaws

CU Board of Regents
University of Colorado Foundation

Reports from Other Agencies or Accrediting Bodies

Architecture and Planning
Business
Clinical Psychology
Education
Engineering and Applied Sciences
International English Center (IEC)
Journalism
Law School
Music
Speech, Language, and Hearing Sciences
Wardenburg Health Center

Documents Concerning Title III Compliance and Recertification

Third Party Comment Notices

APPENDIX F

Fall 2009 Enrollment Update

As of fall census, September 15, 2009. Update of Display 1.4, page 14.

| STUDENTS | 2008 | 2009 |
|--|--------|--------|
| Enrollment: Fall census, main campus, degree-seeking students (headcount) | 29,709 | 30,196 |
| Undergraduate | 25,080 | 25,408 |
| New freshmen | 5,833 | 5,519 |
| New transfers | 1,320 | 1,360 |
| Graduate (including Law) | 4,629 | 4,788 |
| Professional (Law) | 523 | 533 |
| Enrollment: Fall end-of-term total; includes non-degree, evening and correspondence, CU-Boulder study abroad (headcount) | | |
| –Final for 2008, as of census 2009 | 32,469 | 32,751 |
| Diversity (fall census, main campus degree-seeking students) | | |
| % Women | 47% | 47% |
| % Colorado residents | 66% | 66% |
| % Students of color | 14% | 14% |
| African American | 2% | 2% |
| Asian American | 6% | 6% |
| Hispanic | 6% | 6% |
| Native American | 1% | 1% |
| % International | 4% | 4% |
| Academic Profile, new summer/fall freshmen | | |
| Average ACT composite | 26 | 26 |
| Average SAT combined | 1177 | 1177 |
| Cumulative % in top 10% of high school graduating class | 27% | 25% |
| Cumulative % in top 25% of high school graduating class | 61% | 58% |
| Retention to second fall, new summer/fall freshmen | | |
| Entry year | 2007 | 2008 |
| All new summer/fall freshmen | 84% | 83% |
| Students of color | 80% | 80% |
| African American | 82% | 74% |
| Asian American | 86% | 85% |
| Hispanic | 74% | 78% |
| Native American | 82% | 60% |
| Six-Year graduation Rate, new summer/fall freshmen | | |
| Entry year | 2002 | 2003 |
| All new summer/fall freshmen | 67% | 67% |
| Students of color | 61% | 59% |
| African American | 53% | 49% |
| Asian American | 66% | 65% |
| Hispanic | 60% | 57% |
| Native American | 49% | 53% |

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