

University of Colorado at Boulder

**Graduate School/
Associate Vice Chancellor for Research**

Self-Study

**for the
North Central Association
of Colleges & Schools**

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Graduate School/AVC Research

EXECUTIVE SUMMARY

CU-Boulder is the flagship institution of the University of Colorado system and the leading research institution in the Rocky Mountain region. Much of its national and state reputation rests with its excellence in master's and doctoral education and in the research conducted by its faculty, students and research staff. At CU-Boulder, the dual missions of graduate education and research are combined into one office--the Graduate School/Office of the Associate Vice Chancellor for Research (GS/AVCR).

The GS/AVCR oversees the education and support services for the 4,000 graduate students in 43 departments on the Boulder campus. It provides a wide range of academic degree programs at the master's and doctoral levels in the arts & sciences, engineering, journalism, music, education, and business. The GS/AVCR's responsibilities include appointing Graduate Faculty, evaluating graduate curricula, providing services such as advising and financial aid for graduate students, training teaching assistants, and enhancing diversity.

The GS/AVCR also directs the operations of the Boulder campus research enterprise, which includes the scholarship/creative work of faculty and students, the studies and operations of the seven research institutes and numerous centers, and the administration of the campus research support units, regulatory committees, and funding committees. Research plays a major role in the education of students at CU-Boulder and is a growing enterprise on campus. In 1998-9 CU-Boulder attracted \$204.3M in external research funding; more than one-half of that funding was awarded to the GS/AVCR units, primarily the research institutes.

Since the last accreditation review, both the reputation and responsibilities of GS/AVCR have grown dramatically. Among its strengths are a growing excellence in graduate education, including an increased emphasis on interdisciplinary studies; an innovative and expanding research enterprise; and a growing focus on integrating research and education to enhance the scholarship of graduate students and improve their preparation for the workplace.

The weaknesses of the GS/AVCR are mainly the result of rapid growth. State and University funding for operations, student fellowships, diversity support and research infrastructure has not kept pace with the growing excellence of graduate education and research. The GS/AVCR cannot support students on a comparable level with peer institutions and attract a diverse student body. Finally, although strong science and engineering departments attract considerable external support for research and students, the humanities, arts and social science departments have much less financial support.

The GS/AVCR is taking advantage of the opportunities afforded by technology transfer and University-industry partnerships. It also is participating in the CU-Boulder capital campaign to tap the private sector for funds to support educational and research goals. At the same time, it faces the threats of a declining national pool of graduate students, a lack of state support for graduate students, and dwindling support for diversity--any of which could change the future direction of the GS/AVCR.

In the next ten years, the GS/AVCR plans to capitalize on its strong reputation in graduate education, strengthen graduate student recruitment and support, and improve the technical skills and job preparation of its graduates. Likewise, it plans to improve its research infrastructure to maintain the University's research leadership, to work for a redistribution of research revenue streams to support innovation, and to enhance the research opportunities of students so that they may take full advantage of the research enterprise.

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Graduate School/AVC Research

Self-Study

I. INTRODUCTION - MISSION

The responsibilities of the Graduate School and the Associate Vice Chancellor for Research--the highest research administrative position on the Boulder campus--are combined into one office, referred to in this self-study as the GS/AVCR.

The mission of the GS/AVCR is directly related to the mission statement for the Boulder campus, presented in the Strategic Plan (10/96):

- Education: “educating graduate students in the accumulated knowledge of humankind”
- Research: “discovering new knowledge through research and creative work”

GRADUATE SCHOOL/AVCR MISSION

The mission of the Graduate School/AVCR is

- to facilitate and enhance the educational experiences and research opportunities for all graduate students*
- to encourage and support excellence in research, creative and scholarly work*
- to oversee the Boulder campus research enterprise, including the research institutes and programs, and the research support units*
- to integrate scholarship, research and education into a cohesive learning environment*
- to provide students, faculty and staff with opportunities to explore interdisciplinary areas of study and approaches to problems*

A. Education

The Graduate School/Associate Vice Chancellor for Research (GS/AVCR) oversees the master’s and doctoral education of 4,000 graduate students in 43 departments across all schools and colleges of the University of Colorado at Boulder (CU-Boulder) except the Law School. (See www.colorado.edu/GraduateSchool/degrees.html/ for degree listings.) Its responsibilities include:

- evaluating graduate curricula, coordinating the development of new programs and degrees, and assessing graduate educational outcomes
- providing services to graduate students, including degree advising and the awarding of financial aid
- providing teaching assistance for undergraduate courses and training future faculty through the Graduate Teacher Program

- advocating for and enhancing diversity in the graduate student population
- creating interdisciplinary educational opportunities for graduate students through certificate programs, training grants, and teaching assistantships in interdisciplinary areas

B. Research

The research enterprise on the Boulder campus encompasses the research, scholarly, and creative projects of individual faculty members and the long-term research projects housed in the professional research units. Research on the Boulder campus attracted more than \$204M in outside funding in 1998-9. The research enterprise also makes a sizable contribution to the University's operating budget in the form of indirect cost recovery dollars--last year totaling about \$37M.

The GS/AVCR oversees the CU-Boulder research enterprise, which consists of seven research institutes, a large number of centers, programs, and individual scholarly and scientific research projects, as well as the personnel (including students), facilities, and infrastructure that support them. The contributions of the research enterprise to new knowledge, to undergraduate and graduate education, to enhancing faculty expertise, and to the University's reputation and national standing cannot be overstated--and they are inseparable from those arising from the educational mission. Research directly impacts students by providing financial assistance to the 900 graduate research assistants, and facilities, training, and technology in the classrooms and for students' research. The GS/AVCR provides the following support for the research mission:

- leadership in cooperative research ventures and other partnerships between CU-Boulder and outside entities, including federal funding agencies, industries, and federal laboratories
- administration and budgetary oversight for campus research entities and personnel, including the seven interdisciplinary research institutes and the 1800 designated research faculty
- internal research funds for faculty, including matching funds for equipment and grants to faculty through the Council on Research & Creative Work and the Graduate Committee on the Arts & Humanities
- monitoring and enforcement of federal and University research compliance through the Human Research Committee, the Animal Research Committee, and the Research Misconduct Committee
- assistance through the Office of Contracts & Grants, which reviews research proposals, carries out contract and grant negotiations, and administers grant funds

C. Organizational Structure (see Appendix I, attached)

D. Units and Programs Reporting to GS/AVCR

The GS/AVCR office consists of a staff of 16: 4 senior administrators (1 part-time), 5 unclassified staff members (1 part-time), 7 classified staff members (2 part-time). The staff offices are located together in the University's central administration building. This group handles research administration as well as graduate student affairs ranging from advising to the development of new programs.

1. Interdisciplinary Research Institutes (www.colorado.edu/Directories/ResearchInst)

The following research institutes report to the GS Dean/AVCR:

The Cooperative Institute for Research in Environmental Sciences (CIRES) is jointly supported by CU-Boulder and the National Oceanic and Atmospheric Administration (NOAA). CIRES research programs focus on such societal problems as destruction of the Earth's ozone

shield by pollutants, acid deposition in rain and snow, degradation of air and water quality, toxic waste treatment, understanding climate change, earthquake prediction, and water management in the West. CIRES is made up of 5 scientific divisions: atmospheric & climate dynamics; cryospheric & polar processes; environmental chemistry & biology; solid earth sciences; and remote sensing of the environment. Several specialized research centers exist within CIRES: the Center for the Study of Earth from Space; the National Snow and Ice Data Center; the Colorado Center for Chaos and Complexity; and the World Data Center--A for Glaciology (Snow and Ice).

The Institute of Behavioral Genetics (IBG) is an organized research unit whose personnel conduct research on the genetic bases of individual differences in behavior, and provide research training in this interdisciplinary area. This field brings to bear upon behavioral research the perspectives of biochemical genetics, cytogenetics, developmental genetics, evolutionary genetics, molecular genetics, pharmacogenetics, and quantitative genetics. IBG faculty study such areas as aging, alcoholism, cognitive development, drug addiction, learning disabilities, neurological diseases, personality, and psychopathology.

The Institute of Behavioral Science (IBS) is an interdisciplinary research organization serving faculty and graduate students in the behavioral sciences. IBS encourages work that looks into the complex mechanisms of social behavior and society and that has implications for social policy. IBS personnel conduct research through four programs: problem behavior, population processes, environment & behavior, and political & economic change. Included in IBS are the Center for the Study and Prevention of Violence, the Natural Hazards Research & Applications Information Center, and the Social Science Data Analysis Center.

The Institute of Cognitive Science (ICS) promotes interdisciplinary research and training in the cognitive sciences. ICS's main research areas are human-computer interactions, information processing, decision making, and language understanding and production. Three centers are affiliated with ICS: the Center for Research on Judgment and Policy, the Center for Life Long Learning and Design, and the Center for Spoken Language Understood.

The Institute of Arctic and Alpine Research (INSTAAR) is the premier facility for alpine, arctic and cold region studies in the United States. Research at INSTAAR focuses on the environmental sciences as they relate to high latitudes and high altitudes and to Quaternary (Ice Age) cold environments. Researchers affiliated with INSTAAR are developing a predictive understanding of the interactions that regulate the earth system in arctic, alpine, and other regions by looking at records of past environments. An INSTAAR-affiliated facility, the **Mountain Research Station (MRS)** located at 2910 m above sea level, is a site for NSF's Long-Term Ecological Research (LTER) Program.

JILA (originally the Joint Institute for Laboratory Astrophysics) was established in 1962 by an agreement between the National Institute for Standards & Technology and the University of Colorado. Academic disciplines of JILA scientists span theoretical and experimental physics, chemical physics, stellar and galactic astronomy, atomic physics, geophysics, and measurement science. Specific strengths include laser technology, optoelectronics, precision metrology, state-of-the-art electronic and optical feedback control of dynamical systems, chemistry and physics of materials and processes, ultra-high precision spectroscopy and optics, and high-performance computing and image processing.

Research at the **Laboratory for Atmospheric and Space Physics (LASP)** focuses on theoretical and experimental studies in planetary and atmospheric science and solar physics. The laboratory's research program uses ultraviolet spectroscopy techniques to understand terrestrial and planetary atmospheres and to investigate processes occurring on the sun. Personnel at LASP also develop space operations systems, information systems, and scientific instrumentation for space projects. Student centered programs, such as the SNOE satellite (Student Nitric Oxide Explorer Mission),

which was designed, built, launched, and controlled by CU students and faculty, are playing an increasingly important role at LASP.

2. Interdisciplinary Centers & Programs

The following other units report to the GS/AVCR:

The Center for Limb Atmospheric Sounding (CLAS) provides a resource to coordinate the efforts of faculty in developing and exploiting the capabilities of limb sounding for atmospheric research. The center's main activity is related to the High Resolution Dynamics Limb Sounder (HIRDLS), scheduled to fly on the NASA Earth Observing System chemistry mission. Future efforts will involve the development of follow-up and related instruments. CLAS also serves as a focal point for scientific collaboration with scientists at the National Center for Atmospheric Research and the National Oceanic & Atmospheric Administration, and with faculty and students at other institutions involved in the HIRDLS projects (University of Washington and Oxford University).

Boulder is a preeminent international center for environmental studies, in part because of its collaborations with co-located federal laboratories and the outstanding faculty and professional researchers it has attracted. **The Environmental Program (formerly the Global Change and Environmental Quality Program)** represents a concerted, multidisciplinary effort to diagnose local, regional and global environmental problems, analyze their underlying societal causes, and develop feasible solutions. The Environmental Program is working to provide CU-Boulder students with the knowledge and skills necessary for making wise decisions about stewardship of the Earth and to convey knowledge to the public so it can make intelligent environmental choices. To meet these goals, the Environmental Program takes a cross-disciplinary approach by encompassing several departments, program, centers and institutes. One of its current objectives is facilitating the development of both a master's and doctoral degree program in environmental sciences at CU-Boulder.

The University of Colorado Museum is a major comprehensive university museum that maintains collections that serve the University community, the State of Colorado, and the scientific community. The Museum is organized into five curatorial sections--anthropology, botany, entomology, geology, and zoology--and a public education section. The Museum is the only research unit with a teaching program and a degree program. The interdisciplinary **Museum & Field Studies Program**, leading to a master's degree, provides an educational background in an academic field as well as theoretical and practical grounding in museum and field studies. The program has two tracks: the collection/field track and the administrative/public track.

3. Support Units & Programs

The Graduate School is responsible for training graduate students to become tomorrow's faculty members and researchers, for ensuring that CU-Boulder's faculty and staff comply with federal requirements for human and animal research, and for facilitating the transfer of the ideas, inventions and technology developed at CU-Boulder to the outside community.

The following offices and programs report to the GS/AVCR:

The Graduate Teaching Program (GTP) is a campus-wide teacher-training endeavor, started in 1984, that provides support to the 1200 graduate teaching assistants and graduate part-time instructors who teach undergraduate classes, recitations, and laboratory sessions. The GTP provides instruction for graduate teachers so that they may teach as effectively as possible and take part in discussions on the issues of college/university teaching. It also assists them in their

professional development as the professoriate of the future. (See II. Self-Study, B-1, c) for a description of GTP participation in the national Preparing Future Faculty Program.) (See also www.colorado.edu/gtp.)

The primary function of the **Office of Animal Resources** is to ensure that all state and federal regulations regarding the humane care and use of animals in research and teaching are strictly followed at CU-Boulder. This unit ensures that vertebrate animals are treated in a humane manner, monitors health and provides veterinary care for all research animals, and ensures that animal care personnel are protected from possible harm when working with animals. Animal Resources also conducts regular, mandatory training sessions for individuals who use vertebrate animals in teaching or research. (See www.colorado.edu/Research/animal_resources.)

The **Office of Contracts & Grants (OCG)** is one of the most efficient and well-regarded units on the Boulder campus. OCG processed nearly 1600 proposals in 1999 and approximately the same number of awards. Although the workload has increased more than a 100% since 1979, OCG's staff has grown only slightly in the last 20 years. The office provides support to faculty and other University personnel in obtaining and administering research and educational funds from non-University sources--it also offers advice in writing proposals, seeking funding sources, and transmitting proposals electronically. OCG is responsible for protecting University interests through the review of proposals to non-University sources; contract and grant award review and negotiation; administration of funds; policy and procedure initiation and implementation; and liaison with and negotiation with auditors. (See www.colorado.edu/ocg.)

The **Office of Technology Transfer & Industry Outreach** was implemented 1994 to facilitate technology transfer between the Boulder campus and local and national companies. Since that time, it has made great strides in bringing CU-Boulder's research results into the state and national communities and in developing partnerships between the University and business and industries. The goal of the office is to transfer University research results into the private sector for the creation of jobs and new products and services. The office advises faculty on intellectual property issues; fosters inventor participation in the technology transfer program; solicits invention disclosures from faculty, students, and staff, and recommends commercialization strategies; licenses patents and copyrights for commercial use. It also facilitates opportunities for business and industry interactions with CU-Boulder researchers and helps in the creation of mutually beneficial working relationships. Such opportunities include internships, collaborative research, company-sponsored University research, faculty consultantships, and on-site seminars by CU-Boulder researchers. (See txfr35.colorado.edu/home.)

II. SELF-STUDY

A. Evidence of Quality

Major developments in the role of GS/AVCR since the last accreditation review are its increased recognition as an important and valued unit at CU-Boulder, its increased responsibilities for the research enterprise on the Boulder campus, and its enhanced role in the delivery of graduate student services and policies. The GS/AVCR's growing recognition is partly the result of the increasing national focus on educational issues addressed in the GS/AVCR--the importance of research to education, the emphasis on interdisciplinary areas of study, the need for graduates with technical knowledge. At the same time, the national/international reputation of the GS/AVCR at Boulder has increased greatly because of the strength of both the research enterprise and the graduate programs. This strength can be attributed in part to the GS/AVCR's taking on the responsibilities for the ~1800 professional research personnel on campus and for its efforts to bring the expertise and facilities of campus researchers into the educational environment. Finally, the CU-Boulder

GS/AVCR is now independent of the University of Colorado system-wide Graduate School, which is in the process of decentralization. The GS/AVCR has written (through a faculty committee) its own set of *Graduate School Rules* and had them approved by the Boulder faculty and the system administration. It also has focused attention on graduate student services, which have taken a backseat to undergraduate services for many years.

Following are highlights of excellence in the GS/AVCR during the last 10 years:

Research Institutes Are Highly Valued Units on Boulder Campus

Members of the 1993-94 Pursuit of Excellence Task Force at CU-Boulder rated 61 academic units for program quality using information contained in their most recent Program Review Panel Final Reports. (Results of this evaluation appear in the *Report of The Pursuit of Excellence Task Force*, May 16, 1994, pp. 90-2.) Of the 61 academic units reviewed by the task force, five of the seven research institutes ranked in the top 10. The Department of Chemistry & Biochemistry was ranked highest with an average score of 4.0. LASP was ranked second with a score of 3.83, IBG and ICS were tied for third with the College of Music (each with average scores of 3.75), JILA was 7th with a score of 3.70, and CIRES was 10th with a score of 3.42. The average rating for all 61 units was 2.59, using a 4-point scale.

CU-Boulder's Grad Programs Are Ranked Highly in *US News & World Report*

US News & World Report cited 10 CU-Boulder graduate programs for excellence in 1996-8. The School of Education jumped from 19th in 1997 to 15th in 1998. The graduate engineering program was ranked 35th overall; psychology ranked 18th; speech pathology ranked 21st; and environmental law tied for 5th. Music, evaluated in 1997, was ranked 20th. Other programs that received high rating in 1996 included astrophysics - 12th; biological sciences - 20th; chemistry - 20th; and physics - 26th.

Graduate Students Praise Educational Experience

The three-year-old Graduate Student Outcomes Assessment Survey is helping the GS/AVCR evaluate its educational programs and improve weak areas. The Outcomes Assessment Survey was begun in 1996-7 in response to the accreditation requirements of the NCAA. It was updated for fall semester 1999. Below are a few of the statistics compiled from the first years of the survey.

Good News

- 98% of grad students receiving degrees said that CU-Boulder programs met their educational goals
- 80% rated the quality of instruction as excellent or good
- 85% said that their teaching assistantship experience was effective for professional development
- 80% said that they would recommend CU-Boulder and their department to a friend

Room for Improvement

- 54% of all doctoral students said that completion of their doctorate took longer than expected
- Only 50% of doctoral students and 56% of master's students thought that the advising that they received from their department was good or excellent
- Although 85% found that their TA experience was effective, only 53% found the Graduate Teacher Program to be useful (but we do not know how many of these actually used the GTP)

CU-Boulder Excels in Gaining External Grant Support

CU-Boulder has enjoyed a 48% increase in award dollars from external sources over the past five years and a 13% increase over the past two years. Likewise, the total expenditures on sponsored projects increased more than 8.5% during the past year, and the total number of sponsored program awards received through OCG increased more than 2.5%.

An indicator of CU-Boulder's success in obtaining sponsored project funding is the most recent (fiscal year 1996) National Science Foundation survey of federal obligations for science and engineering. That survey ranks the University of Colorado four-campus system among the

country's top universities. The CU system ranks 17th in total federally funded research and development expenditures among all universities (public and private) and ranks 9th among public institutions.

1. Evaluative Processes Used to Measure Quality

The GS/AVCR has dedicated time and energy toward evaluating its programs and is using those evaluations to support excellence and improve less successful areas. It uses the following criteria to evaluate its academic and research success:

- national evaluations, such as graduate program evaluations; national comparisons, such as those in the *Chronicle of Higher Education* and those by the National Research Council
- peer group and AAU comparisons (statistics from the National Center for Education Statistics Integrated Postsecondary Education Data System)
- academic Program Review (PRP) through which each unit (department, center, institute) is evaluated on a continuing basis (7-year cycle)
- internal task forces, such as the Task Force on Graduate Education (fall 1999) and the Task Force on the Research Enterprise (fall 1999), which conduct reviews of various aspects of campus units such as the GS/AVCR
- faculty participation in the allocation of resources, the evaluation of curricula, and the enforcement of compliance
- student participation in the evaluation of education and services through the annual Graduate Student Outcomes Survey
- student input on their interests and needs through the United Government of Graduate Students
- successes in attracting excellent students, faculty, contracts & grants; in creating new directions and mechanisms for delivery; in improving services and opportunities

The GS/AVCR has advisory groups to help in evaluations and aid in its decisions. The Executive Advisory Committee (EAC), composed of Graduate Faculty, advises the GS Dean/AVCR on issues concerning policies and programs, especially on matters related to excellence. In general, the EAC approves appointments to research professorships, reviews new degree programs, bachelor's/master's programs, and certificate programs, and serves as a check and balance as the final appeal committee for decisions made by the Graduate School Dean.

The GS/AVCR also has an Institute Directors Committee, a Budget Advisory Committee, and an Alumni Advisory Committee--each of which provides consul in a specific area. For example, the Alumni Advisory Committee meets on the Boulder campus twice each year to develop strategies for fundraising and for nonfinancial assistance; at the same time, it provides advice and feedback on GS/AVCR goals and objectives.

2. Improvements as a Result of Evaluation

The GS/AVCR played a relatively small role in CU-Boulder's 1989 self-study. The main improvements resulting from that evaluation are (1) an increasing emphasis on the role of the GS/AVCR at CU-Boulder; (2) the continuing development of interdisciplinary thrusts that allow education to keep pace with the increasing complexity in both the business world and society in general; (3) enrichment in the quality of the graduate programs and encouragement for bringing education and research closer together; (4) increased support for graduate students; (5) a greatly increased role in the administration of research personnel.

3. Integration with Other Campus Units

The GS/AVCR is closely integrated with the other schools and colleges, with the academic departments which offer graduate courses, and with the faculty, almost all of whom contribute to and are supported by the research enterprise.

a. Administrative Integration. The GS/AVCR takes part in all major administrative functions of CU-Boulder as a distinct school. The GS Dean /AVCR is a permanent member of the Vice Chancellor for Academic Affairs' Committee on Promotion & Tenure. Likewise, the GS Dean/AVCR sits on the Chancellor's Budget Committee, the Executive Committee, and the Council of Deans. During AY2000, the Graduate School created the position of Coordinator of Graduate Student Services to coordinate services, such as admissions, registration, career counseling, for graduate students with the appropriate offices.

b. Integration with Departments. The GS/AVCR shares with the academic departments responsibility for the recruitment, education and graduation of graduate students. The departments are responsible for admissions of students, selection of students to receive financial awards, mentoring of students, and assistance in job placement. The Graduate School supports these responsibilities through allocating fellowship dollars to the departments, distributing recruitment funds, overseeing graduate curricula and approving new programs, providing degree advising, etc. It also is now responsible for evaluating graduate student outcomes and satisfaction with graduate education. The GS/AVCR meets at least once a semester with the graduate directors from all departments to coordinate the administration of graduate education at CU-Boulder.

c. Integration with Faculty. A major part of the GS/AVCR's responsibilities focuses on supporting the research of individual researchers. Outstanding research/creative work is part of the mission of the campus, and the job requirements of CU-Boulder faculty members. The GS/AVCR oversees research compliance through the Human Research Committee and the Animal Research Committee, assists with external awards through the Office of Contracts & Grants, and helps faculty bring their discoveries and inventions into the marketplace through the Office of Technology Transfer & Industry Outreach. The GS/AVCR also distributes a major part of the internal research funds to faculty through the Council on Research & Creative Work and the Graduate Committee on the Arts & Humanities. In turn, faculty members serve on all GS/AVCR committees.

d. Integration with Students. The GS/AVCR provides services to graduate students in all academic aspects of student life--academic advising, degree advising, financial aid, other financial support, research and teaching appointments--as well as handling student academic grievances. It also actively seeks out communication with graduate students and champions their participation in University administration. There is a strong and active graduate student group on the Boulder campus--the United Government of Graduate Students (UGGS), which represents all graduate and professional students. Through UGGS, graduate students are represented at all levels of university policies and decision-making. One of the associate deans of the Graduate School and the Coordinator of Graduate Student Services attend UGGS meetings to learn about student interests and concerns. Issues of interest have included graduate employment, health insurance, student fees, child care, library use and federal student aid. UGGS also provides the Graduate School with student members for its various committees.

4. Faculty-Staff Development

The GS/AVCR has recently set up a series of workshops to help faculty improve their grant-getting skills. Six to eight of these workshops are offered each semester on topics ranging from writing successful proposals, to complying with the new accounting standards, to finding funding sources for humanities and arts projects. These workshops also familiarize faculty with the University's

resources available to them, such as grant preparation assistance from OCG, funding source searches through OCG, and industry-faculty partnerships coordinated through the Office of Technology Transfer.

The GS/AVCR is extremely supportive of staff development. Many staff members take advantage of skill development courses offered by CU-Boulder, such as workshops on advanced wordprocessing, using computer software, and developing Web pages, as well as courses in business skills. Employees also can take University academic courses and training courses from outside groups.

B. Activities

The education of 4,000 graduate students in the 43 units offering graduate courses at CU-Boulder is one of the central missions of the GS/AVCR. The education it provides is highly regarded, as indicated by both national rankings and student assessments (see section II.A). The main vehicles of assessing graduate education are PRP for the units and the graduate student outcomes survey, instituted in 1996, for student satisfaction.

1. Instruction

a. Curriculum

Degrees: The GS/AVCR actively encourages the creation/discontinuance of degree programs to address changes in the academic environment and in the educational expectations of prospective students. Within the last ten years, new degree programs have been approved in East Asian Languages and Literatures - MA; Kinesiology - PhD; and Museum and Field Studies - MS. Degree programs are currently under development in Environmental Studies - MS & PhD; and Cognitive Science - PhD. New degree programs are first approved by the Dean/AVCR and the Executive Advisory Council. They then go through a lengthy approval process, including the Chancellor, the central administration, Regents, and Colorado Commission on Higher Education.

Graduate Courses: In keeping with its responsibility to ensure excellence in graduate education, the GS/AVCR administers a Graduate Curriculum Committee to maintain the high quality of graduate course offerings at CU-Boulder. The committee critically reviews proposals submitted by the individual departments for new graduate courses or courses that have undergone substantial changes. Every proposal must be approved by the committee before it may be advertised in the course catalog and offered to students. Frequently, the committee recommends substantive changes to proposed courses before it approves them. The Graduate Curriculum Committee is composed of 10-12 members from the academic units offering graduate courses; it is chaired by the GS Associate Dean.

Certificate Programs: One way that the GS/AVCR broadens the education offered to graduate students and meets the needs of the rapidly changing workplace is through graduate certificate programs. These programs offer training and education in interdisciplinary areas outside the student's regular degree requirements. The GS/AVCR is at the forefront of the development of these initiatives, which are currently a major topic of discussion among graduate schools nationally.

The first graduate certificate program at CU-Boulder was in environmental policy, created in 1990. Since then the GS/AVCR and the Executive Advisory Council have approved 12 interdisciplinary certificate programs: atmospheric & oceanic sciences; behavioral genetics; biotechnology; cognitive science; environmental policy; media & communication; molecular biophysics; neuroscience & behavior; optical science & engineering; population studies; remote sensing; women's studies.

Bachelor's/Master's Degrees (BAMAs): An exciting degree option that the GS/AVCR facilitates is concurrent bachelor's/master's degree programs. These programs offer a joint BA/MA or BS/MS, which requires 5 years to complete or one year in addition to the undergraduate degree program. Concurrent BAMAs make efficient use of students' time, emphasize excellent mentoring, and accelerate the pace of education for the talented student. They also help departments attract outstanding undergraduate students and keep them through the master's degree. Since 1996, 16 BAMA programs have been developed: East Asian languages; economics; EPO biology; German; linguistics; psychology (cognitive); accounting/accounting; finance/accounting; information systems/accounting; information systems/telecommunications; aerospace engineering sciences; chemical engineering; civil engineering; computer science; electrical engineering; mechanical engineering.

To gain approval for a BAMA program, the interested department writes a formal proposal, following GS/AVCR guidelines. BAMA proposals are reviewed by both the GS Executive Advisory Council and the Curriculum Committee of the school or college that will offer them. BAMA programs retain the integrity of the master's degree by requiring students to meet all requirements of the traditional master's degree.

b. Assessment of Learning

The GS/AVCR is assessing the delivery of education and services to graduate students through an annual outcomes assessment survey of exiting students. Developed in 1996, the survey looks at such parameters as student satisfaction with mentoring, financial support, the Graduate Teacher Program, and career preparation. The GS/AVCR has also helped the departments set up surveys to assess their individual success in providing education and services to students. All 43 graduate programs are taking part in both surveys, with roughly a 50% return rate. Results of the outcomes assessment survey, which was developed in response to the North Central Accreditation mandate, have been compiled for two years. It is too early for recommendations for changes to be made at this time.

c. Teaching

Graduate Faculty (see *GS Rules* at www.colorado.edu/GraduateSchool/GSRules)

Faculty who teach graduate courses are rostered in the individual departments and are evaluated by those units according to the policies of faculty appointments defined in the *Faculty Handbook*. However, appointment of faculty to the Graduate Faculty is the responsibility of the GS/AVCR, according to the rules and procedures described in the *Graduate School Rules*.

The Graduate Faculty works in partnership with the GS/AVCR to maintain high standards and quality of graduate programs at CU-Boulder. Appointments of individual faculty members to the Graduate Faculty are made by the GS Dean/AVCR on the basis of uniform, minimum standards specified in the *Graduate School Rules*. To teach a graduate level course or serve on a graduate examining committee, an individual must be a member of the Graduate Faculty. Regular membership is limited to full-time faculty members of CU-Boulder who hold the rank of assistant professor, associate professor, or professor, as well as any research professor title. The quality of graduate teaching, thesis supervision, and research and creative work is central to the decision.

Teaching Assistants (TAs) & Graduate Part-Time Instructors (GPTIs)

Through positions as teaching assistants and graduate part-time instructors, approximately 1200 graduate students at CU-Boulder teach undergraduate classes, assist faculty members in the classroom or as graders, and conduct laboratory or recitation sessions. The GS/AVCR has the responsibility for advocacy and stewardship of graduate student teaching appointments in the departments and interdisciplinary areas. It determines the pay scale and raises for student appointments and upholds a rigorous set of policies for graduate teachers. These policies define the duties and time commitment for teaching assistants and GPTIs.

During fall 1998, the GS/AVCR undertook a survey of all students holding graduate teaching appointments. A similar survey was sent to the Graduate Director in each department (~50) so that the expectations of the students could be compared with those of the departments. Responses to that survey were analyzed during second semester 1999, including such issues as type of duties performed by students, hours per week worked, comparative workloads across colleges, etc.

The rate of compensation for TAs at CU-Boulder is compared each year with that for other institutions through the University of Nebraska's "National Survey of Graduate Assistant Stipends" to ensure that CU-Boulder's teaching assistants are compensated at a nationally competitive rate. The GS/AVCR is working to make the annual rate of increase in compensation for teaching assistants the same as that for regular faculty.

Graduate Teacher Program

To provide uniform opportunities for teaching assistants to improve their teaching skills and to learn about issues in college teaching, the **Graduate Teaching Program (GTP)** was created in 1984. The GTP provides instruction, training, evaluations, and information to the 1200 graduate students who teach undergraduate classes, recitations, and laboratory sessions on the Boulder campus. The GTP helps graduate teachers teach effectively and assists them in their professional development as the professoriate of the future. The GTP is currently undergoing a Program Review similar to that used to evaluate other units of the University. (See information and current offerings for the GTP at www.colorado.edu/gtp.)

In 1997 the GTP received a grant from the Preparing Future Faculty Program, a national initiative funded by the Pew Charitable Trusts, to develop ways to better prepare graduate students to teach at the college level. The PFF initiative seeks to make "graduate preparation more consistent with the actual responsibilities of faculty members." PFF Fellows at CU-Boulder take part in off-campus teaching internships, visits with faculty from partner institutions, and on-campus activities such as courses in teaching at the postsecondary level, workshops on professional portfolio development, and pedagogical and professional development workshops.

d. Academic Advising & Support Programs

The GS/AVCR employs one full-time advisor, one half-time advisor, and the Coordinator of Student Services to assist graduate students on such matters as graduation requirements, dropping/adding courses, and grievances, as well as thesis/dissertation formatting. It also provides up-to-date information for new and continuing graduate students on the GS/AVCR homepage so that general procedures and theses format requirements can be accessed by students from their personal or office computers. The GS/AVCR employs a full-time fellowship advisor whose office is located in the GS/AVCR to consult with students about funding opportunities, bills, travel grants, etc.

2. Scholarship/Creative Work

CU-Boulder is the flagship institution of the University of Colorado system and the leading research institution in the Rocky Mountain region. It is responsible for providing a wide range of academic degree programs at the graduate level. CU-Boulder offers graduate degrees in the arts and sciences, engineering, journalism, music, education, business, and law. It does not include the state's medical school, which is an independent campus in the CU system, or land-grant programs, such as agriculture, veterinary science, and home economics.

a. Major Themes

CU-Boulder is best known for its outstanding academic programs in astrophysics, environmental sciences, biology, psychology and chemistry & biochemistry. Its engineering, music and education colleges are also highly regarded nationally. Some major themes running through CU-Boulder

scholarship are: studies of the environment, including biology, law and political science; studies of the West, including creative writing, history, and law; human behavior (violence, alcoholism, teen crime), including psychology, biology, sociology, etc. The success of these programs can be seen in the national ratings, contracts & grants attracted by these departments, and the number of graduate applications to these areas.

•**Interdisciplinary areas**

Academic areas that use expertise and information from more than one department--the so-called interdisciplinary areas--are extremely well-regarded on the Boulder campus. In part, this regard is the result of the highly successful interdisciplinary research institutes, which focus on research in such areas as atmospheric, environmental, and behavioral sciences.

Interdisciplinary education is facilitated by the GS/AVCR's 12 certificate programs, which allow students to study outside their home department while continuing to meet the degree requirements of their major field. Certificate programs are offered in 12 areas, all of which contribute to the body of knowledge outside the disciplines: atmospheric & oceanic sciences; behavioral genetics; biotechnology; cognitive science; environmental policy; media & communications; molecular biophysics; neuroscience & behavior; optical science & engineering; population studies; remote sensing; women's studies.

b. Institutional Support for Research

Faculty Research Committees (www.colorado.edu/GraduateSchool/facultymenu.html)

The GS/AVCR administers two faculty committees that distribute funds for faculty research and creative work--**Council on Research & Creative Work (CRCW)** and **Graduate Committee on the Arts & Humanities (GCAH)**. The primary function of the committees is to award funding to the faculty so they may pursue their research interests. The financial assistance is expected to stimulate a diversity of intellectual and artistic contributions to the University community and society. The committees are composed of 10-12 faculty members, a faculty member/administrator representing the GS/AVCR, and an administrator from the GS/AVCR office. The committees provide research grants, faculty fellowships, junior faculty development awards, and conference grants on a competitive basis.

Matching Support for Equipment on Grants

The GS/AVCR provides matching funds for equipment and related facilities to leverage research proposals submitted for sponsored awards. Such matching is often required by granting agencies to show the University's commitment to the proposed research. Matching funds are granted to researchers whose requests meet the GS/AVCR's matching policies, which include maximum amounts of the match, required support from departments, and disposition of funds. Decisions on matching funds are made by the Assistant Vice Chancellor for Research, in consultation with the GS Dean/AVCR. A committee is not used for this purpose because all proposals meeting the matching criteria are funded.

Research Compliance Committees

The GS/AVCR administers three research compliance committees: two that evaluate faculty proposals that use humans or animals in their studies, and one that educates the University community on research misconduct and hears cases if necessary.

•The **Human Research Committee** is a federally mandated regulatory compliance committee, which provides proposal review and compliance information for faculty members whose research involves human subjects. The HRC is composed of approximately 12-15 faculty members, drawn from academic departments whose faculty conduct research using human subjects or who are interested in issues of research involving human subjects. In addition to these members, an

Executive Secretary from the GS/AVCR, a student, physician, and Boulder community member sit on the committee. (See www.colorado.edu/GraduateSchool/HRC.)

- The regulatory arm of Animal Resources is the **Institutional Animal Care and Use Committee (IACUC)**, consisting of 12 members, including the University veterinarian, faculty, staff, and non-University members. The primary function of the Committee is to ensure that all state and federal regulations regarding the humane care and use of animals in research and teaching are strictly followed at the University. (See www.Colorado.EDU/Research/animal_resources.)

- The **Standing Committee on Research Misconduct** is an intracampus committee that carries out the University of Colorado administrative policy on research misconduct. The committee provides information on the proper conduct in carrying out research and hears cases when they are brought before the committee. (See www.colorado.edu/Academics/research_misconduct.)

c. Integration of Education & Research

For many years, CU-Boulder has directed major efforts toward bringing research into the classroom and educating students through research. A major benefit of combining the offices of the Graduate School and the AVCR is to facilitate the synergy between these two functions. All the facilities of the research enterprise--the Mountain Research Station and surrounding environs, the telecommunications laboratories in the College of Engineering, the Chaco Canyon research digs in Utah, the electronic music labs in the College of Music, the technology used to create space shuttle instrumentation in LASP--are brought into the education of graduate (and undergraduate) students on a daily basis. The GS/AVCR also has several programs that were developed specifically to bring education and research closer together.

Research Institutes

The GS/AVCR units brought in more than one-half (\$109.2M) of all the external research funding attracted by CU-Boulder last year (\$204.3M). The seven interdisciplinary research institutes overseen by CS/AVCR play a major role in educating students and preparing them for the skilled work force. The approximately 60 professors whose primary affiliation is the institutes teach courses, mentor students, serve on degree committees, and train research assistants. Institute faculty also provide the research infrastructure to support students by attracting major project grants and long-term training grants expressly funded to train the future work force in the sciences/social sciences. Since the institutes include faculty from several departments, they are ideal structures in which to develop and teach interdisciplinary courses and to train students in interdisciplinary research areas.

In 1996, the GS/AVCR conducted a survey of the research institutes to document their contributions to the educational mission of the Boulder campus. The survey provided a wealth of information about interdisciplinary instruction, research training activities, advising, etc., carried out in the institutes, as well as speaker series, invited lectures, K-12 programs. The survey clearly demonstrates how important the institutes are to the educational mission of the campus.

Dean's Graduate Student Grants Program

Because research is an integral part of graduate education, the GS/AVCR has developed a special fund to provide grants to graduate students to pursue their research or creative work. Students write a formal proposal, following specific guidelines, in which they describe their research and their need for funds. The proposals are reviewed by committees consisting of faculty, business people, and alumni, and feedback is provided for unsuccessful proposals. Each year approximately \$130,000, all of which comes from alumni donations, is distributed to graduate students through this popular program.

3. Service

The GS/AVCR is a service unit as well as an academic and administrative unit. It is responsible for administering and advocating for graduate education and research, integrating them into the wider campus community, and supporting their continuing growth and development, as well as bringing their expertise, inventions, and facilities to bear on society outside the University.

a. Campus

During the last 10 years, the GS/AVCR has worked to increase the visibility of graduate students and research, championed their needs and contributions, and increased the role of both entities in campus activities. For example, until recently, graduate students, who make up 1/5 of the student enrollment, were not afforded such services as job search/placement support or admissions support on a level comparable to undergraduates. Likewise, the student services offered by the campus were tailored for undergraduates. To focus on graduate student services, the GS/AVCR created the position of Coordinator of Graduate Student Services to help develop career counseling and job fairs for graduate students, and improve delivery of basic services such as student billing and financial aid. On the research side, the GS/AVCR has greatly increased the services provided to faculty in support of their research, from assisting with compliance issues to creating workshops on all aspects of the grants process to facilitating the development of centers.

b. Community & State

The GS/AVCR plays a formal role in bringing University research into the community/state through the Office of Technology Transfer & Industry Outreach. CU-Boulder research in many areas--biochemistry, computer sciences, environmental science, engineering, education--is strongly related to local and state interests. CU-Boulder faculty and research personnel work collaboratively with scientists at the local government laboratories such the National Oceanic & Atmospheric Administration (NOAA) and the National Institute of Standards & Technology (NIST).

The GS/AVCR also encourages the sharing of campus-generated knowledge with the community through less formal channels. For example, most of the research institutes take part in education program with K12 or undergraduates: ICS directs the "Kids as Global Scientists" program; CIRES scientists take part in local science fairs; IBG conducts a summer internship program for high school minority students; LASP brings students from technical colleges to work on its space projects. One of the GS/AVCR's newest programs--the Preparing Future Faculty program--has established a state-wide network of graduate student teachers and faculty to help prepare graduate students to teach in all types of institutions of higher education from community colleges to Research I universities.

c. Recognition

One of the GS/AVCR's responsibilities is the recognition of excellence among graduate students and researchers. It conducts the review process and distributes awards for excellence in graduate student research/creative work and for graduate student teaching, as well as for the outstanding doctoral dissertation. Likewise, each year it offers two awards for the outstanding graduate student advisors--one to a faculty member and one to a staff member from the 43 departments. On the research side, the GS/AVCR, through the Council on Research & Creative Work, awards Junior Faculty Development Awards, Faculty Fellowships, and the Distinguished Research Lectureship--all of which recognize outstanding research or creative work by CU-Boulder faculty members. All these awards are made by the GS Dean/AVCR upon the recommendation of faculty committees.

C. SWOT Analyses

1. Strengths

a. Excellence in Graduate Education

The most obvious area of excellence for the GS/AVCR is the outstanding nature of the graduate degree programs. As detailed in Section II.A, CU-Boulder is highly ranked in graduate education both regionally and nationally. This excellence has grown considerably during the last 10 years and is expected to continue to grow.

b. Excellence in Research

The second area of excellence is the research enterprise, including the research infrastructure, facilities, and administration. The contracts and grants attracted by CU-Boulder account for its rank as 9th in federally funded R&D expenditures for public universities. This rank is especially impressive because of the comparatively small size of CU-Boulder--24,500 students--compared to the AAU average of 31,700. Much of this research success can be attributed to the GS/AVCR units, which bring in about one-half of the University's research dollars.

c. Integration of Research & Education

In keeping with the mission of both the GS/AVCR and CU-Boulder, education and research are mutually dependent and nurturing at CU-Boulder. Many aspects of the research enterprise--discoveries, technology, skills training--are being brought to bear on the education of students at all levels. (See II.A,3, above, for description of integration.)

d. Innovation in Delivery and Interdisciplinary Opportunities

The GS/AVCR is innovative in delivering education (bachelor's/master's degrees--BAMAs), meeting workplace needs through graduate programs (professional master's degrees), and increasing the scope of graduate education (certificate programs). These new educational opportunities add flexibility to existing programs and enhance their offerings in ways that make their graduates more employable in the current marketplace. They also can add timeliness and interdisciplinarity to traditional graduate degree programs, while requiring only minimal increases in resources. (See Section II.B,1, above, for description of innovative programs.)

e. Encouragement of Student Input in Graduate Education

Since graduate students are one of the two main constituencies of the GS/AVCR, their interests and concerns and their feedback are vital to the GS/AVCR. The recently implemented Graduate Student Assessment Survey shows promise of providing feedback on student services and satisfaction--feedback that is expected to lead to improved services and experiences for graduate students campus-wide. Likewise, the GS/AVCR's coordination with the United Government of Graduate Students (UGGS) continues to be effective. Several years ago, this alliance resulted in CU-Boulder's taking over much of the cost of student health insurance for teaching assistants, as well as supporting events such as graduate student orientation.

2. Weaknesses

a. Financial Support for Graduate Students (data are from *Comparisons of AAU institutions*)

State Funds. CU-Boulder receives proportionately less in state appropriations than the public AAU average, and than the 10 public AAU peer institutions. In FY93-4, CU-Boulder received 13% of total revenues from state appropriations, compared to the public AAU average of 30% and high of 53%.

CU-Boulder receives proportionately more in tuition and fees revenues than the public AAU average, and than the 10 public AAU peer institutions. In FY93-4, CU-Boulder received 31% of

total revenues from tuition, compared to the public AAU average of 19%, and it approached the high of 32%.

As a result, CU-Boulder has fewer fellowship funds to offer graduate students than most of its peers, and its yearly operations are overly dependent on tuition revenues. Its inability to make competitive fellowship offers to students limits its ability to attract the very best students.

Diversity Support. For many years, CU-Boulder, like many major universities, relied heavily on external funding to increase ethnic diversity. The Department of Education's Patricia Roberts Harris Fellowship Program and its minority research opportunities program provided funding with which CU-Boulder was able to attract outstanding underrepresented students to its departments. Without these resources, CU-Boulder must find other revenue sources to fund its diversity efforts.

b. Financial Support for Research

The research infrastructure, which has been so successful in attracting external funding, has aged and been stretched to a point where large new investments are required for it to continue to grow. The institutes and other research entities need more space for new research programs and renovated facilities for continuing projects. Likewise, the Office of Contracts & Grants, despite a one-person increase in AY 2000, needs more staff to process an annually increasing workload of proposals and awards. Without these improvements, the research enterprise will not be able to continue its growth or support the projects that it already has in place.

c. Admissions/Recruitment of Graduate Students

Increasing the enrollment of graduate students at CU-Boulder has been a goal of the GS/AVCR for many years. However, that objective is affected by the national pool of applicants (see II.C,4, Threats) and by the recruitment/admissions strategies of the departments. At CU-Boulder, the departments, rather than the GS/AVCR, control admissions for graduate students. In fact, departments may embark on a plan of rapid growth or severe cut-backs without even contacting the GS/AVCR. Thus to increase enrollments, the GS/AVCR may encourage departments to enhance their efforts, but has no direct control over their actions.

d. Strengthening Research in Humanities, Arts & Social Sciences

Science and engineering departments have been consistently strong at CU-Boulder, and many faculty members in these fields are able to acquire considerable external support for their research agendas and for student assistants. In contrast, humanities, arts, and most social science researchers have few opportunities for external support for either faculty research projects or student support. It is possible that departmental and GS/AVCR success in soliciting private support, as well as efforts to attract support through the Center for the Humanities & the Arts, may help this situation.

3. Opportunities

a. Technology Transfer

CU-Boulder has outstanding opportunities to build upon its strengths, solicit external support, and benefit the regional and local economy through partnerships between the University and private businesses and industry. Technology transfer is a virtually untapped resource at this time, and could potentially contribute to the University's educational and research missions at the same time that it brought discoveries from the University into the marketplace. Better methods of feeding back revenues to help develop the campus operations are necessary.

b. Partnerships Between Industries & University

A large number of high tech industries are locating at Interlocken Park, about 10 miles from CU-Boulder. These industries, which include Sun Microsystems, Level3, Corporate Express, and StorageTek, would benefit from the expertise in CU's computer science, business, and engineering

departments. At the same time, they could help train student interns in the actual businesses that result from their studies. This area could be much more highly developed than it is at this time.

c. Capital Campaign & Private Support

The schools and colleges at CU-Boulder have embarked upon a major capital campaign to tap the private sector for funds to support educational and research goals, as well as facilities and personnel. This is an opportunity for the GS/AVCR to attract funds for graduate student fellowships, institute outreach programs and facilities, and endowed fellowships.

4. Threats

a. Declining National Enrollments of Graduate Students

The GS/AVCR has set its five-year enrollment goal at reaching a 20/80% mix of graduate students to undergraduate students. This mix would require an overall increase of 300 to 400 graduate students from 1998 to 2004 (to a total of 5,000 students). This increase in enrollment may not be possible. Peer institutions report a decline in graduate enrollments by significant percentages, indicating that fewer qualified students nationally may be applying to graduate programs.

b. Lack of Adequate State Support for Graduate Students

Fellowships play a major role in students' decisions to attend graduate school and in their choice of which graduate school to attend. CU-Boulder is becoming less and less competitive in its fellowship offers. The fellowship funds allocated to the GS/AVCR by the Colorado Commission on Higher Education have not increased during the last 13 years (as far back as records go)--even by inflation increases. At the same time, in-state graduate tuition has increased by 79%, and out-of-state by 133%. As a result, CU-Boulder departments are unable to compete successfully with better funded institutions for the best qualified students.

c. Dwindling National Support for Diversity

With the demise of the US Department of Education's minority programs, the GS/AVCR is left with excellent minority recruitment programs--such as its Summer Minority Access to Research Training (SMART) program and the Patricia Roberts Harris Fellowship program--without adequate resources to administer them. Further, the national climate of litigation in minority matters makes the remaining minority programs vulnerable to possible lawsuits. These threats cast a shadow on the GS/AVCR's efforts to enhance diversity.

III. ACTION PLAN

A. Academic Goals

1. Increase Graduate Enrollments

The GS/AVCR is proactive in developing a strategy to increase graduate student enrollments to a five-year goal of 5,000 students (20% of the total enrollment). It regards graduate students as an indispensable asset to the University. Much of CU-Boulder's reputation for excellence rests with the graduate students that it trains as future faculty members and researchers. Graduate programs are arguably the place where the least number of new resources would be necessary to increase overall enrollments--and enrollment revenues. The GS/AVCR hopes to increase enrollments by publicizing its interdisciplinary strengths, working closely with the departments to improve recruitment, increasing its fellowship funds, and developing attractive new programs, such as professional master's tracks.

2. Increase Fellowship Resources for Graduate Students

The GS/AVCR distributes state and University fellowship funds to graduate departments. These funds include CCHE fellowship funds, non-resident tuition differentials, and supplemental fellowship funds. During the last 5 years, the GS/AVCR has streamlined the allocation process and related its funding decisions to its major enrollment objectives: encouraging excellence, increasing diversity, and rewarding growth. However, the GS/AVCR needs more funds; CU-Boulder has fallen sorely behind its peers. The GS/AVCR hopes to increase its overall fellowship pot through private support and through lobbying for additional general fund support.

3. Enhance the GS/AVCR's Diversity Initiatives

For 10 years, the GS/AVCR's diversity program has worked to increase the graduate enrollment of minority and underrepresented students. However, as diversity becomes a priority in a larger sense, the GS/AVCR is looking at joining forces with the Chancellor's Office of Diversity to streamline the campus diversity mission and attempt to encourage diversity throughout the University. Without campus support, major initiatives such as the SMART program will be unable to continue.

4. Improve Teacher Training for Graduate Students

The GS/AVCR is enhancing the role that the Graduate Teacher Program (GTP) plays in training future faculty. The GTP provides a spectrum of teaching and professional support activities for graduate students, including personal and professional development, pedagogical methods, diversity training, and assessment and evaluation. Administratively, the Graduate Teacher Program consists of the central program and the departmental Lead Graduate Teacher Network. A first step in improving the GTP is to fund more Leads in departments with a large demand.

B. Research Goals

1. Improve the Research Infrastructure

The research enterprise at CU-Boulder has been successful beyond the limits of its infrastructure. It presently needs additional staffing for the Office of Contracts & Grants (OCG) and facilities renovations in the research institutes. Although the number of proposals processed and awards received has increased annually, OCG has remained a bare-bones office, with every employee working at or beyond full capacity. The workload has reached the point where the office staff are unable to keep up with deadlines and services. Although a new full-time proposal analyst was hired in 1999, it is imperative that the staff be increased on both the pre- and post-award sides. At the same time, with the growth and development of the research conducted in the institutes, and with the addition of new faculty and new areas of study, the institutes and centers need improvements in their laboratories and offices; many simply need more space. Augmenting these facilities is essential to maintaining the University's research leadership. Similarly, central support for research infrastructure, including matching budget and research personnel support, requires additional resources to keep up with the growth in research on the campus.

2. Index Research Revenue Streams to the GS/AVCR

In the current budgeting structure, the GS/AVCR does not have access to the revenue streams that arise from research--especially indirect cost recovery. It must rely on general fund support from Academic Affairs for all its programs, and, as a result, many of its programs are underfunded. For example, the matching fund budget, which is used to leverage external funding proposals, is often overspent, preventing the GS/AVCR from taking advantage of additional matching opportunities. The GS/AVCR is proposing that a small proportion of the indirect cost recovery be directed to the GS/AVCR to support both ongoing research costs and new ventures.

3. Provide More Research Opportunities for Students

One of the more important services that the research institutes perform at the University is the education and training of students. Many students take part in cutting-edge research as interns, work-study, trainees, research assistants, etc. The costs of student research participation are often not met by external grants, or require a match by the University; many opportunities do not apply to international or out-of-state students. Thus a major way to leverage the contribution of the institutes is to provide funding for student participation in their activities.

GS/AVCR VISION

The vision of the GS/AVCR is

- to create an integrated learning environment that is inviting to new ideas, flexible in adapting new methodologies, and resilient to change*
- to develop academic & research leadership in all fields, especially interdisciplinary areas*
- to increase and sustain the graduate student enrollment at a level that is cost-effective and appropriate instructional and research support needs of the Boulder campus*
- to prepare graduate students for their current roles as teaching and research assistants and their future roles as leaders in educational institutions, the public sector, businesses, industries, and the arts*
- to contribute to the creation of an academic environment that encourages diversity in the student body, staff, and faculty, and in all aspects of the educational and research arenas*

