ACTIVE LEARNING OPPORTUNITIES
The College of Engineering and Applied Science at the University of Colorado Boulder is a strong advocate of experiential education, which we refer to as ‘active learning’. Students who engage in active learning are challenged to apply knowledge and skills taught in the classroom to a variety of situations encountered in the engineering profession and to understand the role of an engineer from a wider perspective. The result is a richer and broader educational experience for our students, better prepared and more experienced workers for employers, and better prepared applicants for graduate schools. Additional information can be found on the College’s Active Learning website, located at:
http://engineering.colorado.edu/activelearning/.

Active Learning is grouped into three main categories:

**Discovery Learning (also known as Research Learning)** engages the student in a research project with a faculty member and his/her graduate team. Topics of research are unique to each discipline, but all projects teach students the basics of formulating a hypothesis, performing original investigative work and analyzing the outcome of their research. There are several ways to get research experience – here are a few examples:
- Independent study (for credit, not pay)  
  [http://www.colorado.edu/engineering/sites/default/files/Independent_Study.pdf](http://www.colorado.edu/engineering/sites/default/files/Independent_Study.pdf)
- Undergraduate Research Opportunities Program (UROP)  
  [http://enrichment.colorado.edu/urop/](http://enrichment.colorado.edu/urop/)
- BURST: Bioscience Undergraduate Research Skills and Training  
  [http://www.colorado.edu/Outreach/BSI/undergrad/burst.html](http://www.colorado.edu/Outreach/BSI/undergrad/burst.html)
- Discovery Learning Apprenticeship  
  [http://engineering.colorado.edu/activelearning/Discovery.htm](http://engineering.colorado.edu/activelearning/Discovery.htm)
- NSF Research Experience for Undergraduates (REU)  
- NIH Howard Hughes Medical Institute (HHMI) Scholar  
  [http://mcdb.colorado.edu/undergraduate/honors/](http://mcdb.colorado.edu/undergraduate/honors/)
- Research experience with Space Grant  
  [http://spacegrant.colorado.edu/](http://spacegrant.colorado.edu/)

**Service Learning** may take a wide variety of forms, from service to the college such as serving as a course assistant or website designer, to service to the wider community, utilizing engineering to address local, national or even global challenges such as adequate sanitation and water quality. Examples of service learning opportunities include:
- Completion of an elective course with a required service learning component
- Completion of an optional service learning component within a required course
- Completion of an Earn/Learn Apprenticeship  
  [http://www.colorado.edu/engineering/activelearning](http://www.colorado.edu/engineering/activelearning)
- Participation in Engineering Fellows Program for at least one academic year  
  [https://sites.google.com/site/cufellows/](https://sites.google.com/site/cufellows/)
- INVST Community Studies participation  
  [http://www.colorado.edu/communitystudies](http://www.colorado.edu/communitystudies)
- K-12 Outreach (e.g., through the ITLL)  
  [http://itll.colorado.edu/index.php/k-12_engineering](http://itll.colorado.edu/index.php/k-12_engineering)
- Student society/group leadership (AIAA, ASCE, ASME, SWE, EWBS, UCEC, etc.)  
  [http://www.colorado.edu/engineering/academics/student-organizations](http://www.colorado.edu/engineering/academics/student-organizations)
- Outreach through BOLD Center programs
- Participation in the western Colorado K-12 outreach program in conjunction with the Western Colorado Math and Science Center
**Professional Learning** requires that the student be involved in some type of relevant work experience via an internship or co-op experience with a non-campus employer. What is the difference between an internship and a co-op experience?

- An internship is a paid or unpaid work position for a company, full or part-time during the school year or summer, that is not administered by the college and results in no academic credit. Internships may be arranged with the help of CU-Boulder’s Career Services or independently.

- A co-op experience takes place in the context of a program administered by the college that integrates work experiences into a student’s academic experiences. Co-op work experiences are always paid, have academic requirements, and result in academic credit, although this credit does not apply towards the student’s degree. A student participating in the co-op will receive a certificate of participation or written acknowledgement and an official transcript entry for each experience in which the student participates. While participation in a co-op program may add up to a full year to students’ time in college, students graduate with a host of marketable skills and professional contacts.

- Internship experience (must be relevant work experience with an engineering focus)
  
  Career Services can help students find internships. [http://careerservices.colorado.edu/](http://careerservices.colorado.edu/)

- Co-op experience (must be relevant work experience with an engineering focus)
  
  [http://www.colorado.edu/engineering/activelearning/professional/co-op](http://www.colorado.edu/engineering/activelearning/professional/co-op)

- Certificate in International Engineering [http://www.colorado.edu/engineering/node/191453](http://www.colorado.edu/engineering/node/191453)


- STEM-TP participant [http://www.colorado.edu/education/stem-education/stem-research-and-initiatives](http://www.colorado.edu/education/stem-education/stem-research-and-initiatives)

- NIST Professional Research Experience Program (PREP) [http://www.colorado.edu/career/internshipjob-search/research-opportunities](http://www.colorado.edu/career/internshipjob-search/research-opportunities)


**Active Learning Award:** Undergraduate students who have participated in all three forms of active learning (discovery, service, and professional) are recognized at graduation with the Active Learning Award. Students must apply and provide evidence of all three experiences to receive the award. Students may petition on their application for consideration of other experiences (beyond those mentioned above). The Active Learning Award application can be completed online. Links to the application will be emailed to students who have applied to graduate. To learn more about this award: [http://www.colorado.edu/engineering/activelearning/award](http://www.colorado.edu/engineering/activelearning/award). The submission deadline is approximately five weeks prior to graduation: November 1st for December graduates, April 1st for May graduates, and July 1st for August graduates. When employers and prospective graduate schools see the Active Learning Award on a job applicant’s resume, they can be assured that this applicant will bring a wealth of education and experience beyond what is received in the classroom.

**What’s in it for students?**

- Acquiring new skills and abilities while exploring their interests;
- Connecting with faculty, professionals, and other students who share their passion;
- Taking pleasure in knowing that they are making the college, the community, or the world a better place;
- Improving their opportunities for graduate school or a career;
- Validating their career choice and gaining insights about their chosen field;
- Earning money, course credit, or an Active Learning Award at graduation.

Questions about Active Learning can be directed to Sharon E. Anderson at [Sharon.E.Anderson@colorado.edu](mailto:Sharon.E.Anderson@colorado.edu), at (303) 492-4404, or in person in ECAD 102A. Advisors can help steer students to these opportunities, and also nominate students to be featured on the Active Learning website: [http://engineering.colorado.edu/activelearning/](http://engineering.colorado.edu/activelearning/).
A chart follows explaining the difference between Discovery Learning Apprenticeships and Earn-Learn Apprenticeships, which are often confused by faculty and staff, not to mention students.

<table>
<thead>
<tr>
<th>Type of Apprenticeship → Characteristics ↓</th>
<th>Discovery Learning Apprenticeships (DLA)</th>
<th>Earn-Learn Apprenticeship</th>
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<tbody>
<tr>
<td>Length of appointment?</td>
<td>One academic year long</td>
<td>One semester long</td>
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<tr>
<td>Ability to serve multiple times?</td>
<td>May not serve more than one year</td>
<td>May serve as many semesters as the department or program deems appropriate</td>
</tr>
<tr>
<td>Is the program open to graduate students?</td>
<td>No</td>
<td>Yes, but the number of graduate students is limited and is roughly proportional to undergrad/grad ratio in college</td>
</tr>
<tr>
<td>Is this program open to students from other colleges?</td>
<td>No, even if they are planning to IUT into the college; they must be students in the college</td>
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</tr>
<tr>
<td>Is this program offered in the summer?</td>
<td>No</td>
<td>Generally not, except under rare circumstances</td>
</tr>
<tr>
<td>What type of work may be included?</td>
<td>Any type of research work appropriate for an undergraduate student</td>
<td>Any type of work needed by the department or program that is NON-research in nature and suitable for a graduate or undergraduate student</td>
</tr>
<tr>
<td>How and when are the positions to be offered determined?</td>
<td>Faculty members submit “position descriptions” online in February and March each year to Sharon Anderson. All of these positions will be posted for viewing by interested students in April.</td>
<td>Faculty must negotiate with their Department Chair or Program Director for access to allocated slots – slots allocated by Dean, generally based on size of department/program and need. Positions are offered each semester at the beginning of the semester.</td>
</tr>
<tr>
<td>How and when are the positions advertised to students?</td>
<td>Advertised on Active Learning website and notice posted on big Active Learning Board in lobby in April each year</td>
<td>Advertised on Active Learning website if requested by departments or programs; advertised by departments before or at the beginning of each spring/fall semester.</td>
</tr>
<tr>
<td>How and when do students apply?</td>
<td>Students apply online; they provide a cover letter and resume and select their top 5 choices of projects; applications are due end of April for following academic year</td>
<td>Students apply to each department or program directly; each runs their program a bit differently; positions are generally filled by 2-3 weeks into the semester. Department or program submit students for position online; students must then complete their application</td>
</tr>
<tr>
<td>How and when are the students selected?</td>
<td>Sharon Anderson proposes student matches to faculty based on applicant pool and their match with stated requirements; faculty members approve the candidates in May; faculty may request certain students be assigned and every attempt is made to honor these requests</td>
<td>This varies by department and program; each runs their program a bit differently, but most positions are filled by 2-3 weeks into the semester; Sharon Anderson reviews all applications to ensure that requirements for the program are met (e.g., GPA minimum is met, engineering student, etc.)</td>
</tr>
<tr>
<td>How/when are students notified that they have a position?</td>
<td>Sharon Anderson notifies students they are accepted in June</td>
<td>This varies by department and program; each runs their program a bit differently, but most positions are filled by 2-3 weeks into the semester and students are notified by then</td>
</tr>
<tr>
<td>Must apprentices undergo a background check?</td>
<td>Student employees, including student assistants, research assistants and teaching assistants, meeting the definition of</td>
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</tr>
</tbody>
</table>
**Security-Sensitive.**

*Security-Sensitive* means work that meets one or more of the following criteria:

1. Responsibility for patient, animal or child care in a child care center as defined by state law;
2. Access to "select agents or toxins" or "controlled substances" as defined under state and federal law;
3. Access to campus buildings where students and faculty reside (e.g. residence halls), the Recreation Center, Athletics Facilities and other secured facilities as determined at the sole discretion of Human Resources in consultation with the appropriate Dean or Hiring Authority as needed;
4. Positions that serve a Vulnerable Population Program;
5. Primary responsibility for driving a University vehicle (refer to Appendix A); or
6. Positions with information technology responsibilities that meet the criteria for Privileged Access.

**Sensitive.**

*Security-Sensitive* means work that meets one or more of the following criteria:

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4. Positions that serve a Vulnerable Population Program;
5. Primary responsibility for driving a University vehicle (refer to Appendix A); or
6. Positions with information technology responsibilities that meet the criteria for Privileged Access.

<table>
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<tr>
<th>Who is responsible to request a Background Check if the student has not had one in the last 3 years?</th>
<th>The Department/Program is responsible. Incomplete background checks will result in discontinuation of work until it has been completed</th>
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<tr>
<td>How do I know if an apprentice has undergone a Background Check?</td>
<td>Contact Human Resources directly at: <a href="mailto:hr-bgc@colorado.edu">hr-bgc@colorado.edu</a> The link to the background check will be sent to the apprentice from Human Resources when you request it, if the apprentice does not have a current Background Check on file</td>
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</tr>
<tr>
<td>What are apprentices paid?</td>
<td>$10/hour minimum.</td>
<td>$10/hour minimum undergrads, $12/hour minimum grads.</td>
</tr>
<tr>
<td>What portion is paid by the college?</td>
<td>College will pay $6/hr for each student.</td>
<td>College will pay $6/hr for each student, regardless of undergrad/grad status.</td>
</tr>
<tr>
<td>Is this program supported with donor funding?</td>
<td>To a limited degree</td>
<td>Yes, many of the apprentices are supported by donor funds; the rest are supported by the Dean (donors and the Dean fund only 50%)</td>
</tr>
<tr>
<td>What additional requirements must students fulfill besides...</td>
<td>- Apprentices are required to attend the following meetings:</td>
<td>- Apprentices are required to write a thank-you letter if they are assigned to a donor.</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
<td></td>
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</tbody>
</table>
|doing their work?| • Introductory meeting in fall semester  
• 3 (total) of several seminars offered in the spring and fall semester  
• Meeting to discuss Discovery Learning Research Symposium in the spring semester  
- For those apprentices with donor funding, write a thank-you letter  
- Write a 2-3 page paper re: their research plans due in October  
- Create a poster and participate in the Discovery Learning Research Symposium in April; prizes awarded!|
|What if my apprentice has not used all of his/her hours? Can he/she continue to work?| Apprentices may continue through winter break. The appointments terminate on the date of commencement each spring. All timesheets must be turned in by May 31st.  
Apprentices may work through the date of commencement in fall and spring. All time sheets for fall must be turned in by December 31st and all time sheets for spring must be turned in by May 31st.|
|How can the apprentice continue work?| After one year, they may not participate in this program, but may continue to be supported by REU, UROP or BURST funding, or may choose to participate in an independent study.  
The hiring manager must resubmit the apprentice each semester online; student must complete application online each semester.|
|How many apprentices are there?| About 70 per year  
About 200 per semester, depending upon donor funding.|
|Is there a GPA requirement?| Not exactly, but it is a competitive program, so those with GPAs above a 3.3 are more likely to be accepted.  
Yes, GPA must be above 2.3 for undergraduate students and 2.7 for graduate students.|
|Who to call if questions?| Sharon Anderson (303) 492-4404  
Sharon Anderson (303) 492-4404|
|Administrator of Program| Sharon E. Anderson – Sharon.E.Anderson@Colorado.Edu  
Sharon E. Anderson – Sharon.E.Anderson@Colorado.Edu|