



# College of Science and Engineering

## What Distinguishes the College or its Programs?

The distinguishing feature of the College of Science and Engineering (CSE) is the exceptional, student-centered focus of its programs. Students throughout the college engage in hands-on study of science and engineering, and many have the opportunity to participate in cutting-edge research with one-on-one guidance by our nationally recognized faculty. The college is committed to excellence in teaching, fostering interdisciplinary research and study opportunities, enhancing diversity, enhancing the quality of science, mathematics and technology K-12 teaching, and the development of critical thinking. Many of CSE's programs are collaborative, as evidenced by the college's participation in the multidisciplinary Advanced Materials Science and Engineering Center, the Science, Mathematics, and Technology Education (SMATE) program, the Institute for Energy Studies, and the Marine and Coastal Sciences program, among others.

## Recognition and Accreditation

Western's programs in Electrical and Computer Engineering, Manufacturing Engineering, and Polymer Materials Engineering are accredited by ABET, the global accrediting program in applied and natural science, computing, engineering, and engineering technology. The BS in Computer Science is also ABET accredited, and the BS in Industrial Design has been accredited by the National Association of Schools of Art and Design. Degrees in chemistry have been approved by the American Chemical Society.

## Undergraduate Academic Programs

In addition to a host of minor degrees and certificates, the College of Science and Engineering offers the following undergraduate major programs:

### Biology

- Biology, BS, BA
- Biology — Molecular and Cell Emphasis, BS
- Biology — Ecology, Evolution, and Organismal Biology (EEO) Emphasis, BS
- Biology — Secondary Teaching Emphasis, BS
- Biology — Marine Emphasis, BS
- Biology/Anthropology, BS, BA
- Biology/Mathematics, BS

## Chemistry

- Chemistry, BS, BA
- Biochemistry, BS, BA
- Chemistry/Biology — Secondary Education, BAE
- Chemistry/Mathematics — Secondary Education, BAE
- Chemistry/Physics — Secondary Education, BAE

## Computer Science

- Computer Science, BS
- Data Science, BS
- Cybersecurity, BS
- Computer Science, Secondary Education, BAE

## Engineering and Design

- Electrical and Computer Engineering, BS
- Polymer Materials Engineering, BS
- Manufacturing Engineering, BS
- Industrial Design, BS

## Geology

- Geology, BS, BA
- Geophysics, BS
- Earth Science — Elementary Education, BAE
- Earth Science — Secondary Education, BAE
- Earth Science/General Science — Secondary Education, BAE

## Mathematics

- Mathematics, BS, BA
- Applied Mathematics, BS
- Statistics, BS
- Biology/Mathematics, BS
- Mathematics/Computer Science, BS
- Economics/Mathematics, BA
- Mathematics — Elementary Education, BAE
- Mathematics — Secondary Education, BAE

## Physics and Astronomy

- Physics, BS
- Physics/Mathematics — Secondary Education, BAE

## Science Education

- General Science — Elementary Education, BAE
- General Science — Middle Level Education, BAE

## Internship, Research, and Extracurricular Engagement

The College of Science and Engineering has a culture of engaging students in cutting-edge, hands-on and high-impact research experiences. Some departments and programs require capstone research experiences, but students in all departments have the opportunity to get involved in research. Many present their research results at regional and national conferences hosted by organizations such as the Lunar and Planetary Science Institute, the Geological Society of America, the American Chemical Society, the FASEB Protein Society, the Industrial Designers Society of America, the Society for the Advancement of Material and Process Engineering, the American Physical Society, the American Astronomical Society, the Math Association of America, and SACNAS, among others. Local opportunities to present research include Western's exciting and vibrant Scholars Week, among others. In addition, some students have the opportunity to publish their research results in prestigious scientific journals.

Many of the research opportunities available to Western students also involve external collaborators, or partner faculty at institutions across the world. In addition, research in some programs, most notably in Engineering, frequently involves work with industry partners, including Microsoft, PACCAR, Nike, R&D Plastics, and Zodiac Aerospace, to name a few.

In addition to opportunities available to students that take place at Western, many students can participate in internships or research experiences on other campuses through programs like the Research Experiences for Undergraduate (REU) program at the National Science Foundation. As an example, students in Geology have participated in internships through the Incorporated Research Institutions for Seismology, the National Park's Geologist-in-the-Park program, the Keck Consortium, and the Southern California Earthquake Center, to name a few. Students in Engineering and Computer Science frequently participate in internships at one of the many technology companies located in Washington.

Many departments have student chapters of professional societies, as well as internal student clubs. The full list of active student clubs in or affiliated with CSE includes:

- Artificial Intelligence Association
- Association for Computing Machinery
- Association for Women in Computing
- Biology Club
- Chem Club
- NeRDS
- Institute of Electrical and Electronics Engineers
- Materials Science Club
- Out in Science
- Physicists for Inclusion in STEM
- Society for the Advancement of Chicanos, Hispanics, and Native Americans in Science (SACNAS)
- Society of Women Engineers
- Western's Association of Mathematics
- Western Racing Team
- Society of Manufacturing Engineers
- Society for the Advancement of Material and Process Engineering
- Industrial Designers Society of America
- Engineers Without Borders
- National Society of Black Engineers
- Society of Plastics Engineers
- Society of Automotive Engineers
- Oceanic Engineering Society (IEEE)
- ETA Kappa Nu (IEEE)
- Association for Gender Inclusion in Computing
- Competitive Programming Club
- CS Tutors
- Cybersecurity Club
- Data Science Club
- DevOps
- Linux Club
- Object Oriented Design Club
- Whatcom Coders Collective
- Western Game Design Club
- Western National Science Teaching Association Student Chapter
- Association of Environmental and Engineering Geologists
- Diversity in Geoscience

## Commitment to Equity and Diversity

A key component of the College of Science and Engineering's mission is to enable students of all backgrounds to achieve their full potential in our programs, and equity, inclusion, and diversity work is supported in the college and its programs through numerous programs, initiatives, and investments. In recent years, the college has received significant external funding to support underrepresented students in the sciences, as well as the development of inclusive teaching strategies among our faculty. This year, the National Science Foundation awarded \$1.7 million to Western Washington University for a 3-year project that aims to advance equitable science education in the elementary years. CREST: Culturally Responsive Elementary Science Teaching is a collaboration between faculty in Science, Math, and Technology Education (SMATE) at Western, local school districts, tribal nations, and community partners. The project will provide high-quality practicum-based professional development for elementary teachers to prepare them to implement the Explore the Salish Sea (ESS) curriculum, a place- and project-based science curriculum grounded in both Western science and traditional ecological knowledge from Indigenous communities. In addition, the Advancing Excellence and Equity in Science (AEES) program, funded by a Howard Hughes Medical Institute Inclusive Excellence grant for \$1 million, was awarded to Western to enhance the number of women, under-represented minorities, and first-generation students in the natural sciences (biology, chemistry, geology, physics and astronomy).

Student clubs focused on underrepresented communities include SACNAS (Society for the Advancement of Chicanos and Native Americans in Science), Out in Science, Diversity in Geoscience, National Society of Black Engineers, Association for Gender Inclusion in Computing, Association for Women in Computing, Physicists for Inclusion in STEM, and the Society of Women Engineers.

## Scholarships

The college provides competitive financial support for students engaging in research through several scholarships, including the Elwha and Jarvis Undergraduate Research Awards, which provides full-time compensation to students engaged in a summer research project. Many departments also offer similar competitive research award opportunities, information about these can be found on the departmental web pages.

Learn more about these and other scholarship opportunities offered by the College of Science and Engineering here: <https://cse.wvu.edu/scholarships>

Once students have declared a major in a CSE department, there are numerous scholarships at both the department and college level. Incoming students, including transfer students who are custodial single parents planning to be STEM majors, are encouraged to apply for the Marion Van Nostrand Scholarship for Single Parents.

Learn more about the Marion Van Nostrand Scholarship for Single Parents here: <https://cse.wvu.edu/marion-van-nostrand-scholarship-single-parents>

## Application Process & Requirements

With the exception of math, all CSE departments have a two-phase admissions process in which students must earn a minimum GPA in a set of Phase I courses prior to acceptance into Phase II. Some program admissions have additional requirements, or other factors that are taken into consideration when evaluating applicants to Phase II. The requirements differ between departments, and information for all programs may be found in the Programs of Study in the University Catalog. Advisors are available in all programs to help students better understand and navigate the process of major application. Contact information for department-level advisors is available in the Programs of Study and on each department's website.

You can find the University Catalog here:

<https://catalog.wvu.edu/content.php?catoid=20&navoid=5704php?catoid=20&navoid=5704>

## Student Stories

The College of Science and Engineering has no shortage of amazing students. Here are a few of their stories:

- “Biochemistry major Elise Tahti is Western’s newest Goldwater Scholar”  
<https://news.Western.edu/biochemistry-major-elise-tahti-is-westerns-newest-goldwater-scholar>
- “Western Student Mayla Ward Wins Best Presentation at Gonzaga Math Competition”  
<https://news.Western.edu/Western-student-mayla-ward-wins-best-presentation-at-gonzaga-math-competition>
- “Biology grad student awarded a Research and Creative Opportunities Grant from Western”  
<https://news.Western.edu/biology-grad-student-awarded-a-research-and-creative-opportunities-grant-from-Western>
- “Western Student Aimee Long Receives Prestigious Undergraduate Research Fellowship”  
<https://news.Western.edu/western-student-aimee-long-receives-prestigious-undergraduate-research-fellowship>
- “‘I just wanted to crunch some data:’ How mentoring and team skills led to a research success story”  
<https://news.Western.edu/i-just-wanted-to-crunch-some-data-how-i-mentoring-and-team-skills-led-to-a-research-success-story>
- “Western’s Emily Roland and Six Undergrads Spend Week at Sea Gathering Data from the Queen Charlotte Fault off SE Alaska”  
<https://news.Western.edu/Western-s-emily-roland-and-six-undergrads-spend-week-at-sea-gathering-data-from-the-queen-charlotte>

## Alumni Success

The College of Science and Engineering has a long list of notable alumnae. Many go on to graduate programs in the sciences, while others go directly into the workforce. Companies that employ Western science graduates include Alpha Technologies, Amazon, APANA, BP, Boeing, Cypress Semiconductors, Daktronics, GeoEngineers, Fluke, Janiki Industries, Microsoft, Nike, SpaceX, and TEAGUE.

## **Academic Resources for Transfer**

CSE departments each have advising staff that support both incoming first-year and transfer students. See department webpages and/or the Programs of Study in the Western catalog for contact information for advisors.

## **Frequently Asked Questions**

We are often asked how best to prepare for a degree in STEM fields at Western. For most degree programs we strongly encourage prospective students to pursue an AS-T degree rather than a DTA degree. Students should consult with an advisor about earning the AS-T to ensure that matriculation at Western is a smooth process. This preparation will help ensure that they can take the proper courses at Western and progress through their degree in a timely fashion.