

9. COLLEGE OF SCIENCES

Mission Statement

The College of Sciences (COS) is committed to preparing the next generation of scientists and researchers, science leaders, and science educators. The COS aims to:

- Advance scientific literacy through excellence in education and community outreach;
- Conduct cutting-edge research to expand the frontiers of science and mathematics;
- Establish broad partnerships to enhance scientific competence at all levels;
- Provide leadership in the education of underrepresented and disadvantaged groups; and
- Support the engagement of faculty and students in global partnerships linked to science and education.

Vision Statement

The College of Sciences envisions itself as a leading institution of higher learning in sciences and mathematics with local and global impact.

General Information

The College of Sciences is comprised of eight departments:

- Biology, Health, and the Environment (<http://catalog.utsa.edu/undergraduate/sciences/integrativebiology/>)
- Chemistry (<http://catalog.utsa.edu/undergraduate/sciences/chemistry/>)
- Computer Science (<http://catalog.utsa.edu/undergraduate/sciences/computerscience/>)
- Earth and Planetary Sciences (<http://catalog.utsa.edu/undergraduate/sciences/earthandplanetarysciences/>)
- Mathematics (<http://catalog.utsa.edu/undergraduate/sciences/mathematics/>)
- Molecular Microbiology and Immunology (<http://catalog.utsa.edu/undergraduate/sciences/molecularmicrobiologyimmunology/>)
- Neuroscience, Developmental and Regenerative Biology (<http://catalog.utsa.edu/undergraduate/sciences/neuroscience/>)
- Physics and Astronomy (<http://catalog.utsa.edu/undergraduate/sciences/physicsandastronomy/>)

Faculty in the COS are nationally and internationally recognized researchers and leaders in their field. The COS offers state-of-the-art facilities and equipment for research and teaching activities. Students will also have opportunities to collaborate with faculty and researchers across the university, as well as industry partners. The COS is a major collaborator in the School of Data Science, with the departments of Computer Science and Mathematics serving as constituents. For more information, visit the College of Sciences website (<https://www.utsa.edu/sciences/>).

College of Sciences Student Success

The College of Sciences is dedicated to supporting students throughout their academic careers at UTSA as they build and grow their science identity. COS offers a variety of scholarships (<https://sciences.utsa.edu/student/scholarships.html>), opportunities to participate in STEM Programs (<https://sciences.utsa.edu/about/stem.html>), and research

(<https://sciences.utsa.edu/research/>) (<https://sciences.utsa.edu/research/endeavors>). Furthermore, our COS Student Success Center (<https://sciences.utsa.edu/student/>) is a comprehensive resource center for all science students. For more information related to the College, visit the main webpage at <https://sciences.utsa.edu/>.

Degree Programs

The COS offers 20 undergraduate degree programs and nine minors. See individual department catalog sections for more information about these undergraduate programs. Applicants to a major in the College of Sciences must meet all UTSA undergraduate admissions requirements.

Department	Degrees	Minors
Chemistry	B.S. Biochemistry B.S. Chemistry B.A. Chemistry	Chemistry
Computer Science	B.S. Computer Science B.A. Computer Science with Teaching Track B.S. Software Engineering	Computer Science
Earth and Planetary Sciences	B.S. Geosciences B.A. Geosciences	Geosciences
Biology, Health, and the Environment	B.S. Biology B.S. Environmental Science B.A. Environmental Studies B.S. Multidisciplinary Science for Teaching	Biology Environmental Science
Mathematics	B.S. Mathematics B.S. Mathematics for Teaching B.S. Mathematics of Data and Computing	Mathematics
Molecular Microbiology and Immunology	B.S. Microbiology and Immunology	
Neuroscience, Developmental and Regenerative Biology	B.S. Neuroscience B.S. Biology - Developmental and Regenerative Science concentration	Neuroscience
Physics and Astronomy	B.S. Physics B.A. Physics	Astronomy/ Astrophysics Physics

Health Careers Pathways

The College of Sciences offers programs that support students interested in pursuing professional or graduate programs in health-related professions (e.g., medical, dental, pharmacy, veterinarian). The following COS programs offer pathways within their degree requirements that meet the prerequisite coursework for medical and dental schools in the state of Texas:

- B.S. Biochemistry
- B.S. Biology - Premedical Sciences concentration
- B.S. Microbiology & Immunology
- B.S. Neuroscience - Premedical Sciences concentration.

Students can also visit the UTSA Health Professions (<https://www.utsa.edu/healthprofessions/>) office for more information.

Joint Early Acceptance Programs

The College of Sciences also offers Joint Early Acceptance Programs (EAPs) with UT Health San Antonio, where students can earn an undergraduate degree from UTSA and a health-related graduate degree at UT Health San Antonio. The three EAPs for the College of Sciences are:

- Master of Science (M.S.) in Respiratory Care EAP—open to UTSA Biology majors
- Master of Science (M.S.) Degree in Medical Laboratory Sciences—open to UTSA Biology, Chemistry, and Microbiology & Immunology majors
- Doctor of Physical Therapy (D.P.T.)—open to UTSA Biology majors

Students interested in the EAPs should visit with the UTSA Health Professions office (<https://www.utsa.edu/healthprofessions/>) and apply on or before the completion of 60 semester credit hours at UTSA .

UTeachSA - Secondary STEM Teacher Preparation Program

UTeachSA (<https://www.utsa.edu/uteachsa/>) is the teacher preparation program in the College of Sciences that prepares students to become secondary (middle school and high school) science and mathematics teachers. Students earn a College of Sciences degree while also taking education courses leading to certification with the following options: 8-12 Computer Science, 7-12 Life Sciences, 7-12 Science (Composite), 7-12 Mathematics, and 6-12 Physical Science.

UTeachSA currently offers the following teacher preparation degrees as outlined in the catalog:

- B.S. Biology with 7-12 Biology Teacher Certification
- B.A. Computer Science with Teaching Track
- B.A. Geosciences 6-12 Physical Science Teacher Certification Concentration
- B.S. Multidisciplinary Science for Teaching (7-12 Science - Composite)
- B.S. Mathematics for Teaching (7-12 Mathematics)
- B.A. Physics with 6-12 Physical Science Teacher Certification Track

UTeachSA is a collaborative effort between the College of Sciences and the College of Education and Human Development. Students interested in becoming a secondary STEM teacher should contact the UTeachSA program (<https://www.utsa.edu/UTeachSA/>). UTeachSA students interested in pursuing a Minor in Secondary Education should contact the Teacher Certification Officer in the College of Education and Human Development to explore how UTeachSA courses can be applied towards the minor.

Students seeking teacher certification should contact the Teacher Certification Officer as early in their educational program as possible, but no later than their fourth semester of study, for information about certificate requirements and admission procedures.

Criminal History Policy and Acknowledgement for Teacher Preparation Programs

Teacher preparation programs at UTSA require fieldwork in public schools, which requires students to be able to pass a criminal background check. It is the responsibility of the student to determine if

their criminal history background will present a problem before applying for admission to the teacher preparation program. Students with a problematic criminal history will encounter difficulty in completing any fieldwork requirements and may not be able to complete the program. The University of Texas at San Antonio is required to inform students of the requirements set forth by the Texas Occupation Code, Chapter 53, Sections 53.001 through 53.105 (<https://statutes.capitol.texas.gov/Docs/OC/htm/OC.53.htm>).

College of Sciences Signature Experiences

The College of Sciences offers experiential learning opportunities for undergraduate students in which they can gain real-world experiences while also learning about the broader impacts of their work within their fields of study. All undergraduate students have the option to participate in a College of Sciences (COS) Signature Experience. COS Signature Experiences may include: internship, research, study abroad, field-based learning, clinical teaching, senior design, community outreach, and professional development.

Some majors have required experiential learning courses that are automatically considered Signature Experiences. While Signature Experiences should be taken as capstones near the end of their program, students can participate at any time while they are at UTSA. Each academic department and major will have their own specific guidelines, procedures, and qualifying Signature Experiences. Qualifying Signature Experiences are generally based in credit-bearing courses within their own disciplines. Students participating in the COS Signature Experience will then co-register with a zero-credit hour SCI course relating to the experience type so that it is recognized on their academic transcripts.

See each department's catalog page for more details about the COS Signature Experiences it offers. Students should consult with the Undergraduate Advisor of Record of the major to learn about their current signature experience options.

Undergraduate Thesis Option

The Undergraduate Thesis Option is an opportunity for advanced College of Sciences undergraduate students to do advanced study and research under close faculty supervision for two semesters. At the conclusion of those two semesters, students are expected to have produced a high-quality research thesis disseminated in a public forum. Students who enjoy research, plan to pursue a research-intensive career, or want to attend a STEM graduate program are encouraged to pursue the Undergraduate Thesis option.

To be eligible for the Undergraduate Thesis Option, students must: 1) be a College of Sciences major, 2) be in Good Academic Standing, 3) have two or more semesters of coursework remaining, 4) be sponsored by a COS research-active faculty member who agrees to supervise the thesis project for two semesters, and 5) have approvals from the Faculty Supervisor, the Department Chair, and the Associate Dean of Undergraduate Studies.

Students must declare their intent to pursue the Undergraduate Thesis option with their department by the Census Day of their penultimate semester of coursework. Students are expected to enroll in the appropriate directed research course each of those two semesters along with *SCI 4600 Undergraduate Thesis* in the final semester so that it is recognized in their academic transcripts. Ultimately, approval of the final thesis is based on the student's academic performance, the quality of the research paper/thesis produced, and recommendation by the

Faculty Supervisor, the Thesis Committee, the Department Chair, and the Associate Dean for Undergraduate Studies in the College of Sciences.

Interested students can contact the College of Sciences Dean's office or their major's Undergraduate Advisor of Record for more information and the current policies and procedures.

Sciences (SCI) Courses

SCI 1100. COS Signature Experience - Professional Development. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked professional development course or consent of the department chair. Participation in semester-long professional development aimed at enhancing student's academic training, career readiness, and marketability. May be repeated.

SCI 1200. COS Signature Experience - Internship. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked internship course or consent of the department chair. The opportunity for semester-long work experience in a private business or public agency related to the student's field of study. May be repeated.

SCI 1300. COS Signature Experience - Research. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked departmental-directed research or undergraduate thesis course or consent of the department chair. Supervised laboratory research mentored by a faculty member engaged in active research within the student's designated area of concentration. Students may produce a thesis in addition to active research. May be repeated.

SCI 1400. COS Signature Experience - Study Abroad. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked study abroad course or consent of the department chair. An international experiential opportunity that allows students to obtain valuable knowledge relevant to their field of study. May be repeated.

SCI 1500. COS Signature Experience - Community Outreach. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked community outreach course or consent of the department chair. A community service opportunity in which students actively engage in the local and greater university community to promote STEM and create more STEM experiences for a broader population. May be repeated.

SCI 4100. COS Signature Experience - Professional Development. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked professional development course or consent of the department chair. Participation in semester-long professional development aimed at enhancing students' academic training, career readiness, and marketability. May be repeated.

SCI 4200. COS Signature Experience - Internship. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked internship course or consent of the department chair. The opportunity for semester-long work experience in a private business or public agency related to the student's field of study. May be repeated.

SCI 4300. COS Signature Experience - Research. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked departmental-directed research or undergraduate thesis course or consent of the department chair. Supervised laboratory research mentored by a faculty member engaged in active research within the student's designated area of concentration. Students may produce a thesis in addition to active research. May be repeated.

SCI 4400. COS Signature Experience - Study Abroad. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked study abroad course or consent of the department chair. An international experiential opportunity that allows students to obtain valuable knowledge relevant to their field of study. May be repeated.

SCI 4500. COS Signature Experience - Community Outreach. (0-0) 0 Credit Hours.

Prerequisite: Co-enrollment in a linked community outreach course or consent of the department chair. A community service opportunity in which students are actively engaged in the local and greater university community to promote STEM and create more STEM experiences for a broader population. May be repeated.

SCI 4600. Undergraduate Thesis. (0-0) 0 Credit Hours.

Prerequisite: Department Chair and College of Sciences approval. The student learns how to conduct independent research. The student selects a thesis topic, conducts a literature review, plans and executes a research project, gathers and analyzes data, writes an academic manuscript, and disseminates the research results in an academic setting. Faculty sponsorship of the thesis is required, and a faculty member should agree to sponsor the student before the thesis project begins.

SCI 4911. Independent Study. (0-0) 1 Credit Hour.

Prerequisite: Approval from the instructor, the Department Chair, and the Associate Dean of Undergraduate Studies in the College for which this course is offered; form available on UTSA OneStop website. Independent reading, research, discussion, and/or writing under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours, regardless of discipline, will apply to a bachelor's degree. Students completing an independent study under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. Generally Offered: Fall, Spring, Summer. This course has Differential Tuition.

SCI 4912. Independent Study. (0-0) 2 Credit Hours.

Prerequisite: Approval from the instructor, the Department Chair, and the Associate Dean of Undergraduate Studies in the College for which this course is offered; form available on UTSA OneStop website. Independent reading, research, discussion, and/or writing under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours, regardless of discipline, will apply to a bachelor's degree. Students completing an independent study under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. Generally Offered: Fall, Spring, Summer. This course has Differential Tuition.

SCI 4913. Independent Study. (0-0) 3 Credit Hours.

Prerequisite: Approval from the instructor, the Department Chair, and the Associate Dean of Undergraduate Studies in the College for which this course is offered; form available on UTSA OneStop website. Independent reading, research, discussion, and/or writing under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours, regardless of discipline, will apply to a bachelor's degree. Students completing an independent study under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. Generally Offered: Fall, Spring, Summer. This course has Differential Tuition.

SCI 4933. Internship. (0-0) 3 Credit Hours.

Prerequisite: Junior or Seniors in Academic Good Standing and approval from the employer, the instructor, the Department Chair, and the Associate Dean for Undergraduate Studies; form available on the College of Sciences website. The opportunity for a semester-long work experience in a private business or public agency in a position related to the student's field of study. Students completing an internship for academic credit under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. Generally offered: Fall, Spring, Summer. This course has Differential Tuition.

SCI 4991. Directed Research. (0-0) 1 Credit Hour.

Prerequisite: Approval from the instructor, the Department Chair, and the Associate Dean of Undergraduate Studies in the College for which this course is offered; form available on the College of Sciences website. Supervised research mentored by a faculty member engaged in active research within the student's designated area of concentration. Students may produce a thesis in addition to active research. May be repeated. This course can also be used for students pursuing the COS Undergraduate Thesis Option. Students completing directed research under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. This course has Differential Tuition.

SCI 4992. Directed Research. (0-0) 2 Credit Hours.

Prerequisite: Approval from the instructor, the Department Chair, and the Associate Dean of Undergraduate Studies in the College for which this course is offered; form available on the College of Sciences website. Supervised research mentored by a faculty member engaged in active research within the student's designated area of concentration. Students may produce a thesis in addition to active research. May be repeated. This course can also be used for students pursuing the COS Undergraduate Thesis Option. Students completing directed research under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. This course has Differential Tuition.

SCI 4993. Directed Research. (0-0) 3 Credit Hours.

Prerequisite: Approval from the instructor, the Department Chair, and the Associate Dean of Undergraduate Studies in the College for which this course is offered; form available on the College of Sciences website. Supervised research mentored by a faculty member engaged in active research within the student's designated area of concentration. Students may produce a thesis in addition to active research. May be repeated. This course can also be used for students pursuing the COS Undergraduate Thesis Option. Students completing directed research under the SCI subject code need prior approval from their major's Department Chair to count it towards their degree. This course has Differential Tuition.