College of Science & Technology

Founded 1998

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Introduction

Science and technology were responsible for a profound transformation of the world in the 20th century and will drive the economy of the 21st century. The objectives of the undergraduate programs of the College of Science and Technology are to prepare students for careers in these important areas and to graduate informed, responsible citizens.

The college approaches science and technology as a body of knowledge that has an advancing frontier and a complex interface with society. The traditional mandate for a university is to provide undergraduate students with a comprehensive education and the opportunity to focus closely on a particular area of study. The College of Science and Technology embraces this mandate and extends additional opportunities to our students. Science and Technology students are encouraged to participate in faculty research projects and thus experience the advancement of this body of knowledge.

Bachelor of Science programs offer a greater concentration in major coursework, while Bachelor of Arts programs offer a greater variety of coursework. All programs offer undergraduates the opportunity to work with distinguished faculty and a richly-diverse and stimulating student body as they prepare for active roles in society.

Mission Statement

The mission of the College of Science and Technology is to seek academic excellence by providing outstanding instruction in the sciences, and to foster scientific research of the highest quality. In pursuing its mission the College is committed to meeting the needs of a diverse student body, and is truly dedicated to the founding principles of Temple University in providing a superior education to the prepared student. The educational mission of the College is pursued through offering a current curriculum that incorporates the fundamental principles as well as the latest discoveries in the major scientific disciplines.

Interdisciplinary degree programs and independent research projects allow the student to explore scientific boundaries. The College offers a general education curriculum that provides the opportunity for non-science majors to be better informed of the complex scientific and ethical issues facing society. The College also strives to improve science and mathematics education in the Philadelphia schools. All of these aspects of the educational mission of the College are achieved through the dedicated efforts of the faculty, who are leading scholars in their field.

The research mission of the College is pursued through a sustained effort to recruit the best and brightest new faculty, to aggressively develop promising research initiatives, and to create a modern science campus with facilities fully supportive of cutting-edge research. The College also strives to support the scholarly pursuits and professional activities of its faculty, who in turn advance their respective disciplines. In doing so, the College provides an outstanding environment for graduate and undergraduate research, with the Departments and Centers as focal points for interdisciplinary research initiatives and graduate degree programs. In pursuing its research mission the College of Science and Technology will be a vital participant in establishing Temple University as a recognized center of excellence in scientific research and development.

Admissions

See Undergraduate Admissions (http://bulletin.temple.edu/undergraduate/about-temple-university/general-admissions-information) for more details.

Financial Aid / Scholarships


Special Programs

Accelerated Bachelor of Arts/Professional Programs

Temple Professional School Programs (within the Lewis Katz School of Medicine at Temple University, Temple University Kornberg School of Dentistry, Temple University School of Podiatry, and Temple University School of Pharmacy) agree to cooperate in providing an accelerated 3 + 4 undergraduate/professional school education leading to both a Bachelor of Arts degree in the College of Science and Technology and a Doctorate degree from the Professional School. The Temple University College of Public Health agrees to cooperate in providing an accelerated 3 + 3 undergraduate/graduate education leading to both a Bachelor of Arts degree in the College of Science and Technology and a Doctorate of Physical Therapy in the College of Public Health.
Students in the College of Science and Technology who are in the joint program above, have been admitted to the professional program at the end of their third year, and have completed 90 semester hours, including all course requirements for the major, College and University, may transfer their first year in professional study toward the completion of the credit requirements for the degree of Bachelor of Arts. Biology and Chemistry majors may also transfer approved courses in their first year of professional study toward the elective courses in their major.

Students in the College of Science and Technology who have been admitted to other health-related professional schools at the end of their third year with a cumulative GPA of at least 3.5 and who have completed 90 semester hours, including all course requirements of the major, College and University, may petition the dean for the transfer of their first year of professional study toward the completion of the credit requirements for the degree of Bachelor of Arts. University residency (http://bulletin.temple.edu/undergraduate/academic-policies/academic-residency-requirements) requirements must also be met.

**Accelerated Bachelor of Science/Professional Programs**

The Temple University School of Pharmacy agrees to provide in cooperating in providing an accelerated 3 + 4 undergraduate/professional school education leading to both a Bachelor of Science degree in Pharmaceutical Sciences in the College of Science and Technology and a Doctor of Pharmacy degree from the Temple University School of Pharmacy.

Students in the College of Science and Technology who are in the joint program above, have been admitted to the professional program at the end of their third year, and have completed 90 semester hours, including all course requirements for the major, College and University, may transfer their first year in professional study toward the completion of the credit requirements for the degree of Bachelor of Science.

**Accelerated Bachelor/Master in CST Programs**

Many departments in the College of Science and Technology cooperate in providing an accelerated +1 undergraduate/graduate education leading to a Bachelor of Arts or Science degree in the College of Science and Technology as well as a Master of Arts or Science degree from the Graduate School.

**Accelerated Bachelor/Master of Education Programs with Teacher Certification**

Temple’s College of Education cooperates in providing an accelerated +1 undergraduate/graduate education leading to a Bachelor of Arts or Science degree in the College of Science and Technology as well as a Master of Education degree from the College of Education. The Biology, Chemistry, Earth & Environmental Science, Mathematics, and Physics Departments enable talented students to complete both a Bachelor's degree in one of the above departments and a Master of Education degree typically in a total of five years. After completing the Bachelor’s degree in one of the aforementioned disciplines, students spend an additional year as a graduate student in the College of Education. Students must apply for the accelerated +1 Bachelor’s/Master’s of Education program during their sophomore year. If accepted, they will take both undergraduate major courses as well as Master of Education courses beginning in their junior year. They typically complete their undergraduate major in their fourth year and their Master of Education degree in their fifth year. Students who complete this program earn a Master of Education degree and may apply for a Pennsylvania Instructional I Teaching Certificate after passing all required licensure examinations. See the College of Education (http://bulletin.temple.edu/undergraduate/education) for more details.

**CST Science Scholars Program**

The CST Science Scholars Program (https://cst.temple.edu/academics/science-scholars) offers exceptional and motivated students additional paid research opportunities and academic and professional development. Students must be invited to apply based on their admissions information or performance in their first year of courses.

**CST TUnTeach Certification for Secondary Education**

Eight Bachelor of Science programs enable students to prepare for secondary education certification while mastering the content of their field. The programs are: Biology with Teaching, Chemistry with Teaching, Earth and Space Science with Teaching, General Science with Teaching, Mathematics with Teaching, Mathematics and Computer Science with Teaching, Mathematics and Technology with Teaching, and Physics with Teaching. See the TUnTeach Programs (http://bulletin.temple.edu/undergraduate/science-technology/tu-teach-programs) for more details.

**CST Undergraduate Research Program**

The CST Undergraduate Research Program (https://cst.temple.edu/research/undergraduate-research) offers students in the College of Science and Technology an opportunity to work directly with world-class scientists on real-world research. Completing hands-on independent research is critical to the next step in a student’s educational or professional career.

**Study Abroad**

See Education Abroad (http://bulletin.temple.edu/undergraduate/about-temple-university/academic-opportunities/#education-abroad) in the Opportunities section of the Bulletin and Temple University’s Education Abroad and Overseas Campuses web site at http://studyabroad.temple.edu/ for more information about study abroad options, including the new Temple Rome program for Biology majors.

**University Honors Program**

Students in the College of Science and Technology may apply to the University Honors Program. Honors students are eligible to enroll in CST honors courses, provided that they have satisfied the prerequisites and co-requisites. Honors courses are designated with a nine as the second digit in the four-
digit number, e.g. MATH 1941 is *Honors Calculus I*. See Academic Opportunities: University Honors Program ([http://bulletin.temple.edu/undergraduate/about-temple-university/academic-opportunities/#honors](http://bulletin.temple.edu/undergraduate/about-temple-university/academic-opportunities/#honors)) for more information.

**Awards and Achievements**

**Awards & Scholarships**

Rising sophomores, juniors and seniors are often honored for outstanding performance in a variety of academic areas and for exceptional service to the College and the University. The college offers both awards ([https://cst.temple.edu/academics/scholarships-and-awards/cst-awards](https://cst.temple.edu/academics/scholarships-and-awards/cst-awards)) and scholarships ([https://cst.temple.edu/academics/scholarships-and-awards/cst-scholarships](https://cst.temple.edu/academics/scholarships-and-awards/cst-scholarships)).

**Distinction in Major**

Many programs allow exceptional students to receive a Distinction in Major. Please see the *Bulletin* program pages for the specific requirements for any particular major.

**Honor Societies**


**Student Associations**

Many of the departments within the College of Science and Technology support student interest organizations known as Majors' Associations and Societies ([http://cst.temple.edu/students/clubs](http://cst.temple.edu/students/clubs)). Each department organization provides an opportunity for students to interact with faculty and other students who share similar interests. It is through these venues that students may influence course offerings, faculty recruitment, and departmental policy. Temple University has many pre-professional health organizations ([http://cst.temple.edu/students/clubs](http://cst.temple.edu/students/clubs)) that may interest students in the College of Science and Technology. These organizations allow students to interact with others with similar professional interests and gain more knowledge about admissions requirements and examinations.

**Contact Information**

For information about the College of Science & Technology, please contact the Center for Academic Advising and Professional Development, 215-204-2890 or at cstadv@temple.edu.

Contact information for academic programs can be found under the listing for each individual program.

**Academic Policies & Regulations**

Please see the Undergraduate Academic Policies ([http://bulletin.temple.edu/undergraduate/academic-policies](http://bulletin.temple.edu/undergraduate/academic-policies)) in this *Bulletin*. Students are responsible for complying with all university-wide academic policies that apply to their individual academic status. Additional and unique policies, or exceptions for the College of Science and Technology (CST), appear below.

**Backtracking**

Advanced students should consult with an advisor in the CST's Center for Academic Advising and Professional Development before taking a lower-level CST course. If the student has progressed two levels beyond a lower-level CST course, the credits may not count towards the degree program. For example, a student who has successfully completed PHYS 1062 Elementary Classical Physics II may not subsequently take PHYS 0847 How Things Work: The Physics of Everyday Life for degree credit.

**Changing Majors or Minors**

**CST Students**

In order to add or change majors or minors within the College of Science and Technology, a CST student must meet with an advisor in the CST's Center for Academic Advising and Professional Development. The advisor will evaluate the student's record in accordance with the following policy:

1. CST students in their first semester at Temple University who wish to add or change majors or minors within the CST will be automatically approved, provided they are taking, have satisfied or placed higher than a GenEd level or higher Mathematics course.
2. Continuing CST students who wish to add or change declared majors or minors within the CST should have a cumulative grade point average (GPA) of 2.00 or higher. Continuing CST students who wish to change their major to undeclared will be automatically approved, provided that the total of completed and registered credits is fewer than 60 credits.
3. CST students can complete a second major in the CST. For more details, please refer to the Second Major section within the Requirements page.

**Non-CST Students**

To transfer into the College of Science and Technology (CST), a non-CST student must be in accordance with the following policy:
1. Students in their first semester at Temple University who wish to transfer into CST will be automatically approved, provided that they are
   a. taking or have satisfied Math 1021 or higher with a grade of C (2.00) or better. If they are currently in the course, they need to have earned an "S" midterm progress rating,
   b. taking or have satisfied a GenEd level CST Science course or higher with a grade of C- (1.67) or better. If they are currently in the course, they need to have earned an "S" midterm progress rating.

2. Continuing students who wish to transfer into CST must
   a. have a cumulative grade point average (GPA) of 2.00 or higher,
   b. have completed Math 1021 or higher with a grade of C (2.00) or better,
   c. be taking or have satisfied a GenEd or higher level CST Science course (or additional GenEd or higher level Mathematics) course with a grade of C (2.00) or better. If they are currently in the course, they need to have earned an "S" midterm progress rating.

Please see Changing your Major or Minor (http://cst.temple.edu/students/changing-your-major-or-minor) for further information.

Co-requisites and Prerequisites

Students may be de-enrolled from courses for which they do not meet prerequisites and co-requisites. (Please see the Prerequisites and Co-requisites (http://bulletin.temple.edu/undergraduate/academic-policies/prerequisites-corequisites) policy for more information.) Students are responsible for reviewing and abiding by all course prerequisites and co-requisites in the Course Catalog (http://www.temple.edu/apply/common/catcheck.asp). The requirements are designed to assure that students are appropriately prepared to be successful in their courses. Prerequisites provide an efficient manner for students to register for the next course in a sequence for which they are prepared. Please see the CST prerequisite (https://cst.temple.edu/students/registration/banner) page for additional information.

Course Eligibility

The College of Science and Technology offers four types of undergraduate courses as well as graduate courses:

1. Preparatory courses numbered 0700-0799: open to all students, including non-degree seeking students who have completed appropriate course prerequisites and have completed or are in the process of completing required co-requisite courses. If required, students must complete these courses before enrolling in any higher level courses in the same department.

2. General Education courses numbered 0800-0999: open to all students, including non-degree seeking students who have completed appropriate course prerequisites and have completed or are in the process of completing required co-requisite courses. These courses satisfy University General Education requirements as indicated in the course description.

3. Lower-Level courses numbered 1000-1999: open to all students, including non-degree seeking students who have completed appropriate course prerequisites and have completed or are in the process of completing required co-requisite courses. These are general foundation level courses in the various disciplines.

4. Upper-Level courses numbered 2000-4999: open to all students, including non-degree seeking students who have completed appropriate course prerequisites and have completed or are in the process of completing required co-requisite courses. These courses build on the foundation courses (and on other upper-level courses) to provide a focused exploration of field-specific content.

5. Graduate-Level courses numbered 5000-9999: undergraduate students are generally prohibited from taking Graduate-Level courses. In rare circumstances, special permission may be granted for undergraduate students to take graduate courses. Graduate-Level courses numbered 5000-5999 require permission of the course instructor, the Undergraduate Faculty advisor for the student's undergraduate major, the Graduate Chair of the department housing the course, and the College of Science and Technology's Center for Academic Advising and Professional Development. Graduate-Level courses numbered 8000-8999 require permission from those listed above as well as the Vice Provost for Undergraduate Studies and the Vice Provost for Graduate Studies.

Courses Over Five Years Old

In admitting transfer or returning students, the College of Science and Technology will, when possible, allow credit for courses taken five or more years prior to the date of admission or re-enrollment. The College of Science and Technology may choose not to accept courses regardless of age for credit in the major. Foundation courses, courses of a technical nature or courses in a particularly dynamic field may not be accepted for credit.

Courses over five years old will be reviewed by the College to determine whether they will be accepted toward the degree. Final determination of the acceptability of such courses is the responsibility of the Center for Academic Advising and Professional Development and generally occurs after the student has matriculated or been rematriculated.

Dean's List

Each fall and spring semester, those undergraduates who have met the credit hour and academic criteria for their school or college are placed on the Dean's List. See the Dean's List (http://bulletin.temple.edu/undergraduate/academic-policies/deans-list) policy for specific GPA and credit-hour requirements.
Fly in 4
Fly in 4 is a partnership between incoming freshmen and the university, potentially saving them thousands of dollars in debt. For more information on this program, see fly.temple.edu.

Grading
Major, Minor, and GenEd courses must be completed with a letter grade of C- or higher unless otherwise specified. Certain courses require a higher minimum grade in order to advance to the next level.

Graduation Procedures
All College of Science and Technology students are required to complete a graduation review with an advisor in the Center for Academic Advising and Professional Development prior to the start of their senior year. The graduation review involves a detailing of the courses and credits completed and those that remain to be completed for graduation. Students are expected to be active participants in the review and have equal responsibility for assuring the accuracy and completeness of the review.

Students must apply for graduation online via Self-Service Banner (SSB) early in the semester in which they will complete their degree requirements. For application deadlines, see the University's Undergraduate Graduation Procedures (http://bulletin.temple.edu/undergraduate/academic-policies/graduation-procedures).

Non-Traditional Credits
A maximum of 12 semester hours of credit will be allowed by CST for life experience, upper-level military science (ROTC) courses, and CLEP/DSST examinations.

CLEP
A maximum of 8 semester hours of credit will be allowed by CST for CLEP examinations.

Life Experience
A maximum of 8 semester hours of credit will be allowed by CST for Life Experience. Students are required to write what proficiencies are developed by their life experience and designate courses similar to their background. The experience will be reviewed by the appropriate faculty. Students need a 2.5 minimum cumulative GPA in order to apply.

ROTC
A maximum of 4 courses or up to 12 semester hours will be allowed for upper-level Military Science (Army ROTC), Naval Science (Navy ROTC) or Aerospace Studies (Air Force ROTC) courses.

Overload Requests
Students in the College of Science and Technology must petition through the Center for Academic Advising and Professional Development for approval of an overload when they request to take more than 18 credits in either the fall or spring semesters or more than 8 credits in either summer session. The following items are considered when reviewing an overload petition:

- Minimum 2.75 GPA overall and in the last semester of graded coursework.
- The number of credits completed in previous semesters.
- The number of science and math courses taken previously in each semester.
- The amount of credits requested.
- The type of courses requested. The office focuses particularly on the number of science and math courses in the student's proposed roster.

Each petition will be reviewed individually based on the number of credits requested.

Permission to Complete a Course(s) at Another Institution After Matriculation
Students in the College of Science and Technology who wish to take courses at another institution after matriculation must petition for approval prior to enrolling in such a course. To access this petition, students can sign in to the TUportal, click on the Student Tools tab and under University Forms channel select Permission to Take Courses Elsewhere. Students should first discuss their academic plans with their advisor.

Please see the University policy on Permission to Complete a Course at Another Institution after Matriculation (http://bulletin.temple.edu/undergraduate/academic-policies/permission-complete-course-institution-matriculation) for more information.

Placement Assessment
The results of placement assessments determine the best place for students to start in their English and Mathematics courses. Please see Placement Assessment (http://www.temple.edu/ira/exam-services/placement-assessments.html) for additional information. Both prior to completing the Placement Assessments and after to better be ready for fall classes, CST students should review their English and Mathematics work. The Math Placement
Assessment is delivered online using the web-based learning platform ALEKS. After the initial assessment, ALEKS provides adaptive learning modules to help students improve their math skills.

All CST transfer students are required to complete the Math placement assessment, regardless of transfer credits. For students who have already completed their program’s mathematics requirement or the prerequisite requirement through transfer credits, the test will be used as a diagnostic tool. The assessment results will be informational only and will not restrict or dictate course selection nor negate the transferability of credits. The results of the placement assessment should be discussed with an academic advisor at the time of the initial registration.

If students are unsuccessful in courses beyond their placement results, they may be asked to repeat the prerequisite course at Temple regardless of transfer credits.

Transfer students who have not completed ENG 0802 are also required to take the English placement test.

**Plagiarism and Academic Cheating**

Plagiarism and academic cheating are prohibited by Temple University. The development of independent thought and a respect for the thoughts of others is essential to intellectual growth. The prohibition of plagiarism and cheating is intended to foster this independence and respect. See the policy on Academic Honesty (http://bulletin.temple.edu/undergraduate/about.temple-university/student-responsibilities/#academichonesty) in this Bulletin.

The penalty for plagiarism or cheating as a first offense is normally an F in the work or F in the course in which the offense is committed. In all cases, the instructor completes the Settlement of a Charge of Academic Dishonesty form. The student has the option to sign the Settlement form or dispute the charge. The form is sent to the Center for Academic Advising and Professional Development. The Office of Student Conduct and Community Standards generally adjudicates all disputed cases and student appeals.

**Pre-Pharmacy Track Students**

Students can be admitted to the Pre-Pharmacy track. Pre-Pharmacy students will need to declare a major before reaching 30 earned credits. Pre-Pharmacy students who have completed 30 or more credits without declaring a major will have a "declaration of major" hold added to their account and will need to see an advisor to declare a major before being able to register for a future semester.

**Prerequisites and Co-Requisites**

Students may be de-enrolled from courses for which they do not meet prerequisites and co-requisites. (Please see the Prerequisites and Co-requisites (http://bulletin.temple.edu/undergraduate/academic-policies/prerequisites-corequisites) policy for more information.) Students are responsible for reviewing and abiding by all course prerequisites and co-requisites in the Course Catalog (http://www.temple.edu/apply/common/catcheck.asp). The requirements are designed to assure that students are appropriately prepared to be successful in their courses. Prerequisites provide an efficient manner for students to register for the next course in a sequence for which they are prepared. Please see the CST prerequisite (https://cst.temple.edu/students/registration/banner) page for additional information.

**Re-enrollment to the College of Science and Technology**

College of Science and Technology students who have not enrolled for one or more semesters and are not on an approved Leave of Absence (http://bulletin.temple.edu/undergraduate/academic-policies/leave-absence) must submit a Request to Re-Enroll (http://www.temple.edu/vpus/documents/request_to_reenroll.pdf). Any existing holds, including financial, must be cleared prior to the re-enrollment deadline. Official transcripts must be submitted for any college-level courses completed after leaving Temple University by the re-enrollment deadline as well. Courses over five years old will be reviewed by the College to determine whether they will be accepted toward the degree. Final determination of the acceptability of such courses is the responsibility of the Center for Academic Advising and Professional Development and generally occurs after the student has been rematriculated.

The deadline for application to re-enroll for the fall semester is August 1; the deadline to re-enroll for the spring semester is December 1, and the deadline for summer semester I and II is April 1. Also see the policy on Academic Standing (https://www.temple.edu/secretary/sites/secretary/files/policies/02.10.11.pdf).

Students are required to follow the most current curriculum or choose another current curriculum, upon return. This applies to any student who has not registered for a single fall or spring semester. This can have significant impacts on degree progress and students are encouraged to discuss any planned absences with an advisor.

Full-time degree-seeking students have the option of pursuing a Leave of Absence for a period of no more than two consecutive semesters by submitting the Leave of Absence application. To access the Leave of Absence application, students can sign in to the TUportal and under TUapplications, select Enrollment Services, and then select Services. Select Leave of Absence from the Services menu and complete the necessary information. Please refer to the Leave of Absence Policy (https://www.temple.edu/secretary/sites/secretary/files/policies/02.10.16.pdf) for more information.

**Repeating a Course**

Students may attempt a course two times without restriction. Students in the College of Science and Technology should meet with an advisor prior to attempting a course for the second time to discuss changes to make prior to and during the next registration of the course. A third attempt of any course is not guaranteed and requires permission of the Center for Academic Advising and Professional Development. Approvals for a third attempt
frequently require remediation, including additional coursework, and/or academic/personal planning. **Third attempt petitions must be submitted at least one week prior to the start of Fall/Spring courses.** Petitions will not be processed one week before the start of class and throughout the add/drop period of the Fall/Spring semesters. Please plan accordingly. Please refer to the University policy on Repeating a Course (http://bulletin.temple.edu/undergraduate/academic-policies/repeating-course) for further information.

**Undeclared Majors**

Due to the sequencing of our coursework, CST encourages undeclared students to declare a major by the time they have earned 30 credits. In accordance with University policy, students must declare a degree-earning major by the time they have earned 60 credits. Undeclared students who have 60 or more credits will have a "declaration of major" hold added to their account and will need to see an advisor to declare a major before being able to register for a future semester.

**General College Graduation Requirements**

The College of Science and Technology offers two undergraduate degrees: a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.). The B.A. degree gives students a broad-based education, including the study of a foreign language. The B.S. degree is for those students who wish for more specialized training in their chosen disciplines.

**General Education**

All students are required to complete the General Education (GenEd (http://bulletin.temple.edu/undergraduate/general-education)) requirements.

**Credit Hour Requirements**

The College of Science and Technology requires that students complete a total of 123 credits for most programs. The TUteach programs (Biology with Teaching, Chemistry with Teaching, Earth & Space Science with Teaching, General Science with Teaching, Mathematics with Teaching, Mathematics and Computer Science with Teaching, Mathematics and Technology with Teaching, and Physics with Teaching) require students to complete a total of 124 credits. Of those totals, 90 credits must be in the College of Science and Technology or the College of Liberal Arts (CLA). A course shall count as a College of Science and Technology or College of Liberal Arts course if it is offered by a department or program in either of the respective colleges, or if it is in the department of Art History, or if it is taken to satisfy a major or minor requirement in the College of Science and Technology. Of those 90 credits, 45 must be in upper-level courses. Upper-level courses consist of course numbers at the 2000 level or above. Students receiving a Bachelor of Arts (as opposed to Bachelor of Science) degree must take at least two courses numbered 2000 or above in the College of Liberal Arts. Certain courses fulfill multiple requirements. In careful consultation with your advisor, you will be able to optimize curriculum choices.

**Grade Point Average (GPA) Requirement**

The College of Science and Technology requires that students have a GPA of at least 2.00 overall and at least 2.00 in the courses applicable to their major and/or minor GPA.

**Residency Requirements**

Students must satisfy general Temple University residency requirements (http://bulletin.temple.edu/undergraduate/academic-policies/academic-residency-requirements). In addition, half of the courses required in the department of the major must be taken at Temple. Please refer to degree programs for the specific number of major, minor, or certificate courses required.

**Bachelor of Science Requirements**

**Major**

Students must also complete the requirements of a departmental major. The minimum acceptable grade in a course taken to fulfill major requirements is a C- unless otherwise specified. Bachelor of Science majors are offered in the following programs:

- Applied Mathematics
- Biochemistry
- Biology
- Biology with Teaching
- Biophysics
- Chemistry
- Chemistry with Teaching
- Computer Science
- Computer Science and Physics
- Data Science with Concentration in Computational Analytics
- Data Science with Concentration in Computation and Modeling
- Data Science with Concentration in Genomics and Bioinformatics
• Earth and Space Science with Teaching
• Environmental Science
• General Science with Teaching
• Geology
• Information Science and Technology
• Mathematics
• Mathematics and Computer Science
• Mathematics and Physics
• Mathematics with Teaching
• Mathematics and Computer Science with Teaching
• Mathematics and Technology with Teaching
• Natural Sciences
• Neuroscience: Cellular & Molecular
• Pharmaceutical Sciences
• Physics
• Physics with Teaching

Bachelor of Arts Requirements

Language Requirement
In addition to the University General Education requirement, Bachelor of Arts candidates must complete a second language requirement. B.A. degree candidates are required to successfully complete the second semester (typically courses numbered 1002) of a second language or demonstrate proficiency in a second language. Languages include: American Sign Language, Arabic, Chinese, French, German, Greek, Hebrew, Hindi, Italian, Japanese, Korean, Latin, Portuguese, Russian, Spanish, and Vietnamese.

Upper-level Distribution Requirements
Bachelor of Arts students must complete upper-level distribution requirements by taking two upper-level courses in one or more departments of the College of Liberal Arts or the department of Art History. Upper-level courses consist of course numbers at the 2000 level or above.

Students who have second majors, one of which is in the College of Liberal Arts or Art History, automatically satisfy the distribution requirement.

Major
Bachelor of Arts candidates must complete the requirements of a major. It is important to note that students enter the College of Science and Technology as Bachelor of Science majors. If students wish to change their degree choice to Bachelor of Arts, they must do so with an advisor in the Center for Academic Advising and Professional Development. The minimum acceptable grade in a course taken to fulfill major requirements is a C- unless otherwise specified. B.A. majors are offered in the following programs:

• Biology
• Chemistry
• Computer Science
• Geology
• Information Science and Technology
• Mathematics
• Mathematical Economics
• Natural Sciences
• Physics

Specific Program Requirements
Listed under each degree program are the courses students must successfully complete to earn that particular B.A. or B.S. degree.

Optional Minors, Certificates, and Second Majors

Minors
Students may also choose to complete the requirements for a minor. The minimum acceptable grade in a course taken to fulfill minor requirements is a C- unless otherwise specified. At least three of the courses credited towards the minor must be courses that were not credited towards the major,
additional minor, or certificate. If the primary major is not within CST, the student should follow the policies of the home college regarding distinct courses. Minors are available in the following programs:

- Biology
- Chemistry
- Computer Science
- Data Science: Computational Analytics
- Digital Media Technologies (CIS/MSP)
- Geology
- Information Science and Technology
- Mathematics
- Physics

Certificates

Students may also choose to complete the requirements for a certificate. The minimum acceptable grade in a course taken to fulfill certificate requirements is a C- unless otherwise specified. At least two of the courses credited towards the certificate must be courses that were not credited towards the major or minor. If the primary major is not within CST, the student should follow the policies of the home college regarding distinct courses. Certificates are available in the following programs:

- Computer Security & Digital Forensics
- Data Science: Computational Analytics
- Environmental Professional Training
- Fundamentals of Programming
- Genome Medicine

Second Major

Students may complete a second major by fulfilling all requirements for the primary and second majors, including at least four distinct courses in the primary major and four distinct courses in the second major. General Education requirements must be satisfied in accordance with the requirements of the primary major. In instances of a double major, only one degree will be conferred.

Academic Advising

The Center for Academic Advising and Professional Development
First Floor of the Paley Library
Suite 150
215-204-2890
http://cst.temple.edu/
cstadv@temple.edu

The College of Science and Technology’s Center for Academic Advising and Professional Development utilizes best practices to facilitate undergraduate student development and academic growth while guiding students from pre-admission to degree completion. By establishing a support network of connections with faculty, campus resources and the Temple University community, our academic advisors encourage positive and independent thinking, provide professional planning, promote resource utilization and foster quality academic strategies for the students we serve. Through teamwork, collaboration and open lines of communication, we empower our students to take ownership of their decisions, choices, and goals relating to academic, personal, and professional aspirations.

Professional advisors (http://cst.temple.edu/students/advising-and-student-services/academic-advisors) help students plan courses, explore majors, research career opportunities, and understand Temple’s resources. CST’s advising model consists of a First Year Advising team, which serves students from the time of admission throughout the successful completion of the first academic year, and advising by two Discipline teams for sophomores through to graduation. One discipline team oversees the majors, minors, and certificates in the Biology, Chemistry and Earth and Environmental Science (BCE) departments and the other does the same for the Computer and Information Sciences, Mathematics and Physics (CMP) departments. This model allows students to develop a connection with advisors who specialize in their area of study.

CST also has Faculty advisors (http://cst.temple.edu/students/advising-and-student-services/faculty-advisors). Faculty advisors use their knowledge of departmental curriculum to help students choose courses consistent with their specific career objectives. Each faculty advisor is knowledgeable within their field and can help with questions involving research and real work experience within each field. Faculty advising is very important in developing ties between a student’s academic program and his or her professional goals. Faculty advisors may assist students in finding research opportunities and professional internships and will help students choose courses that will best prepare them for their field of interest within a particular discipline. A list of Faculty Advisors (http://cst.temple.edu/students/advising-and-student-services/faculty-advisors) may be found on the CST web site.
The Student Professional Development (http://cst.temple.edu/academics/student-professional-development) office prepares students for academic and professional careers through a variety of workshops, professional development training sessions, networking events, and job fairs. Hands-on independent research and internships are considered to be critical steps in a students’ preparation for pursuing additional educational opportunities or their professional career.

The office facilitates the Undergraduate Research Program (URP) (https://cst.temple.edu/research/undergraduate-research) which provides world class research opportunities for undergraduate students in labs on campus as well as at the Temple University Health Science Campus.

Specialized Services

- **New Student Orientation:** Group advising and registration for all newly-admitted first-year students and transfer students.
- **Advising and Registration Services:** Students should meet regularly with professional advisors during their academic career to discuss their academic progress, develop educational and career goals, discover academic success strategies and check on their remaining graduation requirements. CST offers regular Same Day Appointments (SDAs) for walk-in advising as well as advising-by-appointment. Please see our web site (https://cst.temple.edu/students/advising-and-student-services/online-appointment-scheduler) for additional appointment information. Students are encouraged to register during the priority registration period (http://www.temple.edu/registrar/students/registration/info.asp). Continuing students who register after priority registration may have a limited course selection. Degree Audit Reports (DARS) provide a compact summary of a student's progress toward a degree, including a list of requirements yet to be completed.
- **Petition Processing:** The Director and Assistant Directors of the Center for Academic Advising and Professional Development review petitions on a rolling basis. Typical petition requests include those for a third registration for the same course, for an overload of credits, to complete a course at another institution after matriculation, for a withdrawal with an approved excuse, and for Exceptions to Policy.
- **Progress Report:** At 60 credits, students should schedule a progress report with their academic advisor to lay out a semester plan for completing the remaining requirements before graduation.
- **Graduation Review:** All College of Science and Technology students are required to complete a graduation review with an advisor in the Center for Academic Advising and Professional Development prior to the start of their senior year. The advisor will explain the remaining course and credit requirements needed to graduate. Students are expected to be active participants in the review and have equal responsibility for assuring the accuracy and completeness of the review.

Academic Advising and Student Responsibility

All academic advisors are trained to read and evaluate information carefully to give students the best possible advice. Every student must be aware of the requirements of his or her degree and should collaborate with an advisor regularly to ensure timely completion of his or her program.

Student Ambassadors/Ombudspersons

Each department in the College of Science and Technology has a Student Ambassador/Ombudsperson (SA/O) who is a qualified undergraduate student in that department. The SA/O is thoroughly familiar with requirements and curricula of the department and can competently advise fellow students on the courses and faculty members of the department. He or she also has information about career options for the department's graduates. The SA/O also coordinates the student grievance procedure. A list of Student Ambassadors/Ombudspersons (https://cst.temple.edu/students/undergraduate-academic-advising/student-ambassadorsombudspersons) is available on the CST web site. Each SA/O has an office in his or her department, and the SA/O program coordinator is located in the Center for Academic Advising and Professional Development.

Student Grievance Procedure

The SA/O is familiar with the College of Science and Technology Grievance Procedure and is the first person to consult in case of an academic grievance. The SA/O will serve as a student-faculty liaison and attempt to resolve the grievance through mediation. The College of Science and Technology grievance procedure (http://cst.temple.edu/students/advising-and-student-services/student-grievance-procedure) is available on the CST web site. A list of Student Ambassadors/Ombudspersons (https://cst.temple.edu/students/undergraduate-academic-advising/student-ambassadorsombudspersons) is available on the CST web site.

Pre-Professional Advising

The College of Science and Technology works in conjunction with the Office of Pre-Professional Health Studies (http://www.temple.edu/healthadvising) to advise students interested in professional schools. Knowledge gained in the College of Science and Technology curricula provides the foundation needed in preparing for Professional Health School entrance exams. Many of the courses required by professional programs such as dentistry, medicine, pharmacy, and veterinary medicine are incorporated into College of Science and Technology curricula. This approach allows our students to fulfill degree requirements, while at the same time meeting admissions criteria for professional and graduate programs. Students interested in professional health programs should contact the Office of Pre-Professional Health Studies early in their academic career for detailed advising.

CST offers a variety of ways in which students can pursue health professional programs.

- Students may complete a bachelor’s degree and apply to health professional programs.
- Students may apply to the 3+4 and 3+3 accelerated programs (http://bulletin.temple.edu/undergraduate/science-technology/accelerated-programs) linked to particular Temple health professional programs by which they may complete both their bachelor and professional degree.
• Students may apply to the direct admit 3+4 Pharmaceutical Sciences (http://bulletin.temple.edu/undergraduate/science-technology/accelerated-programs/pharmaceutical-sciences-bs) & Temple University School of Pharmacy (https://pharmacy.temple.edu) by which students would complete a Bachelor of Science in Pharmaceutical Sciences (BS-PS) and a Doctor of Pharmacy (PharmD).

• Students who have completed prerequisite courses (https://pharmacy.temple.edu/academics/pharmd/prerequisites-pharmd) may apply to the Temple University School of Pharmacy (https://pharmacy.temple.edu) without completing their Undergraduate degree requirements such that students would only complete a Doctor of Pharmacy (PharmD).

• Students who have completed prerequisite courses may apply to the Temple University School of Podiatric Medicine (http://podiatry.temple.edu) without completing their Undergraduate degree requirements such that students would only complete a Doctor of Podiatric Medicine (DPM).

Faculty

Please go to the College of Science & Technology web site at cst.temple.edu and click on the individual department at the bottom of the page for a list of faculty in each department. See also https://directory.temple.edu/.

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