Minor and Certificate Programs

In the College of Natural Sciences, only one transcript-recognized minor or transcript-recognized certificate may be declared per major.

A student who wishes to pursue more than one transcript-recognized minor or transcript-recognized certificate per major must consult with his or her academic advisor to get permission from the College. When considering whether to grant an exception and allow pursuit of another transcript-recognized credential, the academic advisor will take into account the student's long-term education/professional goals and the student's ability to graduate within four years of entering the university.

Students admitted to transcript-recognized certificate and transcript-recognized minor programs must contact their academic advisors to have approved programs added to their degree audit profiles. This allows progress toward the programs to be tracked and ensures that certificates and minors are added to official transcripts upon graduation, if all requirements are met.

Minors

The College of Natural Sciences does not offer any minor programs. To see a full list of minors offered at the University, please see The University section of the *Undergraduate Catalog*.

The transcript-recognized undergraduate academic minor must be completed in conjunction with an undergraduate degree at The University of Texas at Austin. For more information regarding the requirements for achieving a minor, including a comprehensive list of minors, please visit the Minor and Certificate Programs section of the *Undergraduate Catalog*.

Robotics Minor

The transcript-recognized undergraduate academic Robotics Minor must be completed in conjunction with an undergraduate degree at The University of Texas at Austin in one of the following majors: Aerospace Engineering, Electrical and Computer Engineering, Computational Engineering, Mechanical Engineering, or Computer Science. The minor is administered by Texas Robotics as a collaboration between the Cockrell School of Engineering and the College of Natural Sciences. Details about the minor in robotics are available at https://robotics.utexas.edu/.

Admissions

To be considered for admissions into the Robotics Minor, students must meet the following requirements:

- The minor must be completed in conjunction with an undergraduate degree in one of the following supported majors of Computer Science, Aerospace Engineering, Electrical and Computer Engineering, Computational Engineering, or Mechanical Engineering.
- Students who have completed 24 hours or more in residence will be encouraged to apply online at the earliest possible date. Applications will be reviewed once a semester (Fall and Spring).

Requirements

The requirements for the Robotics Minor consist of 15 credit hours towards the minor. All students will be required to take a three-credit-hour, gateway course (Robotics 350) that will prepare students to take robotics minor courses in areas outside of their declared major. In addition to the gateway course, students must take 4 courses; each course must be from a different content area. There are five content areas: hardware; programming; modeling and control; sensing, perception and planning; and machine learning. Below is a list of approved courses in each content area that count towards the Robotics Minor.

All classes must be taken on the letter-grade basis. The student must earn a combined grade point average of at least 2.00 in these courses.

Requirements		Hours
RBT 350	Gateway to Robotics	3
One course from at least four different content areas:		12
Hardware Courses:		
M E 348E	Advanced Mechatronics I	
M E 350R	Robot Mechanism Design	
Programming Courses:		
M E 369P	Application Programming for Engineers	
C S 330F	F1/10 Autonomous Driving	
ECE 445L	Embedded Systems Design Laboratory	
ECE 445M	Embedded and Real-Time Systems Laboratory	
ASE 479W	Aerial Robotics	
Modeling and Control Courses:		
M E 364L	Automatic Control System Design	
ASE 370C	Feedback Control Systems	
ECE 362K	Introduction to Automatic Control	
ASE 330M	Linear System Analysis	
M E 354M	Biomechanics of Human Movement	
M E 372J	Robotics and Automation	
C S 330F	F1/10 Autonomous Driving	
Sensing, Perception, and Planning Courses:		
C S 330F	F1/10 Autonomous Driving	
M E 372J	Robotics and Automation	
ASE 479W	Aerial Robotics	
ECE 445L	Embedded Systems Design Laboratory	
ECE 445M	Embedded and Real-Time Systems Laboratory	
ECE 374N	Neural Engineering	
C S 376	Computer Vision	
ECE 371P	Introduction to Computer Vision	
Machine Learning Courses:		
C S 342	Neural Networks	
C S 343	Artificial Intelligence	
C S 363M	Principles of Machine Learning I	
COE 379L	Topics in Computational Engineering (Topic 1: Introduction to Machine Learning and Data Sciences)	
ECE 460J	Data Science Laboratory	
ECE 361E	Machine Learning and Data Analytics for Edge Artificial Intelligence	
ECE 374N	Neural Engineering	
ECE 461P	Data Science Principles	
Total Hours		**15**

Statistics and Data Science Minor

The minor in Statistics and Data Science will give students experience manipulating, summarizing and visualizing data and applying statistical and machine learning methods. Students are exposed to the principles of and tools for conducting reproducible data analysis and are taught to think critically about relevant ethical issues (e.g., data privacy, misrepresention of findings).

The minor requires 15 semester hours of coursework with a grade of at least C- in each course. No credit-by-exam may be used to fulfill minor course requirements. The following courses are required:

Requirements		Hours
Three hours selected from each of the following foundational areas:		
Statistics		3
SDS 320E	Elements of Statistics	
SDS 320H	Elements of Statistics: Honors	
SDS 315	Statistical Thinking	
Data Science		3
SDS 322E	Elements of Data Science	
SDS 313	Introduction to Data Science	
Programming		3
C S 303E	Elements of Computers and Programming	
C S 312	Introduction to Programming	
C S 312H	Introduction to Programming: Honors	
Six hours selected from any of the following supplementary courses and areas:		6
Regression/Modeling		
SDS 324E	Elements of Regression Analysis	
SDS 334	Intermediate Statistical Methods	
Machine Learning		
SDS 326E	Elements of Statistical Machine Learning	
SDS 336	Practical Machine Learning	
Databases		
C S 327E	Elements of Databases	
Probability/Mathematical Statistics/Statistical Inference		
SDS 321	Introduction to Probability and Statistics	
SDS 431	Probability and Statistical Inference	
M 362K	Probability I	
M 378K	Introduction to Mathematical Statistics	
Data Visualization		
SDS 366	Data Visualization	
Total Hours		**15**

Certificates

Undergraduate certificate programs encourage students to explore academic areas that support and extend their degree plans. The following certificates require at least 18 semester hours of coursework, some of which may also be used to fulfill degree requirements. Undergraduates who complete the certificate requirements in conjunction with their degree requirements or within one year after earning the degree will receive a certificate and recognition on their University transcript. A maximum of nine hours in the certificate program may be taken after completion of the undergraduate degree. At least half of the required coursework in the certificate program must be completed in residence at the University.

Advanced Mathematics Certificate

More advanced mathematical understanding and sophistication enhance nearly every technical degree. The Advanced Mathematics Certificate will allow students from a broad range of disciplines to receive formal recognition for obtaining additional skills, training, and knowledge in advanced mathematics.

The certificate program requires 18 semester hours of coursework with a grade of at least a C- in each course. Courses that appear in multiple approved course lists may be used to satisfy only one requirement. No credit-by-exam may be used to fulfill certificate course requirements. The following courses are required:

Requirements		Hours
Foundational Coursework		
Three hours selected from the following IBL coursework as designated in the Course Schedule:		3
M 325K	Discrete Mathematics (must be IBL or II)	
M 328K	Introduction to Number Theory (must be IBL or II)	
M 333L	Structure of Modern Geometry (must be IBL or II)	
Three hours selected from the following:		3
M 340L	Matrices and Matrix Calculations	
M 341	Linear Algebra and Matrix Theory	
M 343K	Introduction to Algebraic Structures	
M 361K	Introduction to Real Analysis	
M 365C	Real Analysis I	
M 373K	Algebraic Structures I	
Supplementary Coursework		
Six hours selected from the following:		6
M 365D	Real Analysis II	
M 367K	Topology I	
M 367L	Topology II	
M 362M	Introduction to Stochastic Processes	
M 373L	Algebraic Structures II	
M 378K	Introduction to Mathematical Statistics	
Six hours selected from the following:		6
M 343K	Introduction to Algebraic Structures	
M 343L	Applied Number Theory	
M 346	Applied Linear Algebra	
M 348	Scientific Computation in Numerical Analysis	
M 358K	Applied Statistics	
M 361	Theory of Functions of a Complex Variable	
M 361K	Introduction to Real Analysis	
M 362M	Introduction to Stochastic Processes	
M 365C	Real Analysis I	
M 365D	Real Analysis II	
M 367K	Topology I	

M 367L	Topology II
M 368K	Numerical Methods for Applications
M 372K	Partial Differential Equations and Applications
M 373K	Algebraic Structures I
M 373L	Algebraic Structures II
M 378K	Introduction to Mathematical Statistics
M 374M	Mathematical Modeling in Science and Engineering
M 378N	Generalized Linear Models
M 339D	Introduction to Financial Mathematics for Actuaries
M 339G	Predictive Analytics
M 339J	Probability Models with Actuarial Applications
M 339U	Actuarial Contingent Payments I
M 339V	Actuarial Contingent Payments II
M 349P	Actuarial Statistical Estimates
M 349R	Applied Regression and Time Series
M 378P	Decision Analytics
M 375D	Discovery: An Introduction to Advanced Study in Mathematics

Please Note:

With the approval of the certificate program faculty, other appropriate courses may be counted toward the certificate requirements.

Total Hours **18**

Applied Statistical Modeling Certificate

The certificate in Applied Statistical Modeling equips undergraduate students with the tools necessary to understand how to apply statistics to their primary field of study. This certificate program is designed to complement diverse degree programs and to appeal to students across the University in engineering, science, economics, mathematics, and many other disciplines. Certificate students will complete one course in the mathematical foundations of statistics, a two-course sequence in applied statistics, and nine additional hours in statistics, machine learning, econometrics, and other relevant courses from the approved list below.

Admission to the certificate is by application only. Students may download an application from the Department of Statistics and Data Sciences webpage. Students seeking the certificate must also complete the prerequisite course Mathematics 408C, 408L, 408N, 408R, or 408S with a grade of at least *C-*.

The certificate consists of 18 hours. Students must receive a grade of at least *C* in each course applied toward the certificate and have a cumulative grade point average of at least 3.0 in the courses presented to fulfill the certificate. Courses that appear in multiple approved course lists may be used to satisfy only one requirement. Students must contact the Department of Statistics and Data Sciences in the semester in which they are completing the requirements and graduating.

Requirements		**Hours**
Mathematical foundation of statistics		3
BME 335	Engineering Probability and Statistics	
ECE 351K	Probability and Random Processes	
M 362K	Probability I	
SDS 321	Introduction to Probability and Statistics	
Sequence in applied statistics		6
Choose one of the following:		
ECO 329	Economic Statistics	
EDP 371	Introduction to Statistics	
GOV 350K	Statistical Analysis in Political Science	
M 358K	Applied Statistics	
PSY 420M	Psychological Methods and Statistics	
SOC 317L	Introduction to Social Statistics	
SDS 302F	Foundations of Data Analysis	
SDS 320E	Elements of Statistics	
SDS 320H	Elements of Statistics: Honors	
STA 301	Introduction to Data Science	
STA 301H	Introduction to Data Science: Honors	
And one of the following:		
ECE 461P	Data Science Principles	
ECO 441K	Introduction to Econometrics	
M 349R	Applied Regression and Time Series	
PSY 325K	Advanced Statistics	
SDS 322E	Elements of Data Science	
SDS 326E	Elements of Statistical Machine Learning	
SDS 324E	Elements of Regression Analysis	
Electives: Choose Three: [1]		9
ADV 344K	Advertising and Public Relations Research	
C S 342	Neural Networks	
C S 343	Artificial Intelligence	
C S 363M	Principles of Machine Learning I	
C S 371R	Information Retrieval and Web Search	
CMS 348	Communication Research Methods	
ECO 354K	Introductory Game Theory	
ECO 348K	Advanced Topics in Econometrics	
ECO 342L	Advanced Econometrics	
ECO 353M	Empirical Public Economics	
GEO 325K	Computational Methods	
GEO 365N	Seismic Data Processing	
HED 343	Foundations of Epidemiology	
HED 373	Evaluation and Research Design	
KIN 376	Measurement in Kinesiology	
LIN 350	Special Topics in the Study of Language (Topic 15: Computational Semantics)	
M 339J	Probability Models with Actuarial Applications	
M 349P	Actuarial Statistical Estimates	
M 362M	Introduction to Stochastic Processes	
M 378K	Introduction to Mathematical Statistics	
or SDS 378	Introduction to Mathematical Statistics	

M 378P	Decision Analytics
or SDS 378P	Decision Analytics
MIS 372T	Topics in Management Information Systems (Topic 11: Advanced Analytics Programming)
MIS 372T	Topics in Management Information Systems (Topic 22: Predictive Analytics and Data Mining)
PBH 354	Epidemiology I
PGE 378	Applied Reservoir Characterization
SDS 322E	Elements of Data Science
SDS 324E	Elements of Regression Analysis
SDS 326E	Elements of Statistical Machine Learning
SDS 353	Advanced Multivariate Modeling
SDS 358	Special Topics in Statistics
SDS 375	Special Topics in Scientific Computation
SDS 379R	Undergraduate Research
STA 372T	Topics in Statistics (Topic 21: Time Series Forecasting)
STA 235	Data Science for Business Applications
STA 235H	Data Science for Business Applications: Honors

Please Note:

SDS 322E, 326E, and 324E may only be counted toward one requirement each.

---

1. Students are encouraged to select courses within their own majors or colleges as appropriate. The Statistics and Data Sciences courses listed are available to students in all majors.

Computational Science and Engineering Certificate

The Computational Science and Engineering Certificate program is sponsored by the Cockrell School of Engineering, the Jackson School of Geosciences, the College of Liberal Arts, and the College of Natural Sciences; it is administered by the Institute for Computational Engineering and Sciences (ICES). Information regarding the specific requirements of the Certificate can be found in the Cockrell School of Engineering's Minor and Certificates section of the Undergraduate Catalog.

Programming and Computation Certificate

The Programming and Computation Certificate, administered by the Department of Computer Science, is designed to support computational work in disciplines other than computer science and to provide students with skills in the use of computer applications. Any non-computer science major may take any Programming and Computation course for which the student meets the prerequisite. No application process is required.

To earn the Programming and Computation Certificate, students must complete 18 semester hours of coursework with a grade of at least *C-* in each course.

The following coursework is required:

Requirements		Hours
C S 303E	Elements of Computers and Programming (or the equivalent)	3
C S 313E	Elements of Software Design (or the equivalent)	3
Four of the following courses:		12
C S 323E	Elements of Scientific Computing	
C S 324E	Elements of Graphics and Visualization	
C S 326E	Elements of Networking	
C S 327E	Elements of Databases	
C S 328E	Topics in Elements of Computing	
C S 329E	Advanced Topics in Elements of Computing	
C S 330E	Elements of Software Engineering I	
C S 331E	Elements of Software Engineering II	

Please Note:

1. With the approval of the certificate program faculty committee, up to two appropriate substitute courses may be counted toward the elective requirement. This includes courses that are transferred in from other universities and/or study abroad.

2. Students will be allowed a maximum of two attempts at C S 303E and C S 313E. Symbols of CR, Q, and W count as course attempts, as do grades below C-.

3. Undergraduate students will be allowed to enroll in a maximum of two upper division courses in a semester and four upper division courses in total.

Evidence and Inquiry Certificate

The Evidence and Inquiry Certificate, pursued by students in the Polymathic Scholars Program and open by application to others, allows students to design an area of study shaped by questions that require evidence and methodologies outside their major. Students work with faculty to identify interests, map them onto academic disciplines at the University, and determine questions related to those interests that might be answerable by research that combines expertise from at least two disciplines. Students describe their area of study, identify primary questions, name two University of Texas at Austin faculty members with research experience relevant to their field, and justify the courses they would take in a written proposal that must be reviewed by three members of the program's faculty steering committee. Students complete an original research thesis in their final year. Those who plan to pursue the certificate must apply no later than the end of their third long semester. More information about the Evidence and Inquiry Certificate is available on the College of Natural Sciences website.

The certificate program requires 22 semester hours of coursework, including at least 11 hours completed in residence. Students must meet the following requirements:

Requirements		Hours
UGS 303	First-Year Signature Course	3
NSC 109	Topics in Natural Science (Topic 4: Polymathic Capstone Field Invention)	1
Four additional courses, including at least six semester hours of upper-division coursework, from the student's approved evidence and inquiry area of study		12
Senior Capstone Sequence		6

NSC 323	Natural Sciences Topics (Topic 1: Polymathic Capstone Thesis Preparation Seminar)	
NSC 371	Capstone Thesis Seminar	

In the College of Natural Sciences, the Evidence and Inquiry Certificate may be used to complement any major. Some certificate courses will also fulfill degree requirements established by the student's major department and are given later in this section; however, some of the 22 hours required for the certificate may be in addition to the number of hours required for the degree.

Food and Society Certificate

Though food-related issues vary widely in focus, they are all linked by their complexity and are deeply interdisciplinary nature, each relating to topics of health and nutrition, genetics, politics, culture, the environment, economics, and business. Students will be able to appreciate the full range of these interdisciplinary ties and apply new perspectives to their primary academic majors and careers.

Students completing the certificate will be able to apply a more comprehensive understanding of the implications of their food-related actions and decisions; find better solutions to today's complex problems; formulate more effective public policy; become better informed and active citizens; and make healthier choices for themselves and their families.

No admission to the certificate is required. Students must contact the advising office in the School of Human Ecology to apply for the certificate the semester before the certificate requirements are met. The certificate consists of 18 hours, of which nine hours must be in upper-division coursework. Courses must be completed with minimum grades of at least *C-* unless the course is offered only on the pass/fail basis. Students also seeking the Bachelor of Science in Nutrition may count a maximum of six hours in nutrition toward the food and society certificate.

Some of the courses may contain prerequisites that are in addition to the coursework for the certificate.

Requirements		Hours
Three hours of introductory nutrition chosen from the following:		3
NTR 306	Fundamentals of Nutrition	
NTR 312	Introduction to Nutritional Sciences	
NTR 312H	Introduction to Nutritional Sciences: Honors	
Fifteen hours selected from a minimum of two themes chosen from table 1, 2 and 3 below. [1]		15
---		

1. No more than nine hours in a single theme may be applied toward the certificate.

1. Nutrition and Health

Requirements		Hours
NTR 218 & NTR 118L	Assessment of Nutritional Status and Assessment of Nutritional Status Laboratory	3
NTR 307	Introductory Food Science	3
NTR 315	Nutrition through the Life Cycle	3
NTR 330	Nutrition Education and Counseling	3
NTR 321	International Nutrition: The Developing World	3
NTR 334	Foodservice Systems Management	3
NTR 353	Field Experience in International Nutrition	3
NTR 365	Selected Topics in Nutritional Sciences (Topic 4: Obesity and Metabolic Health)	3
SOC 308S	Introduction to Health and Society	3
N 309	Global Health	3

2. Culture and History

Requirements		Hours
NTR 316	Culture and Food	3
AMS 370	Seminar in American Culture (Topic 26: American Food)	3
ANT 307	Culture and Communication	3
C C 340	Advanced Topics in Classical Archaeology (Topic 6: Food, Health, and Culture in the Ancient Mediterranean)	3
C C 348	Topics in Ancient Civilization (Topic 14: Ancient Greek Medicine)	3

3. Politics, Economics, and Environment

Requirements		Hours
NTR 331	International Nutrition: Social and Environmental Policies	3
NTR 332	Community Nutrition	3
GRG 331K	Nature, Society, and Adaptation	3
GRG 344K	Global Food, Farming, and Hunger	3
GRG 339K	Environment, Development, and Food Production	3
GOV 370I	The Politics of Food in America	3
MNS 308	Humans and a Changing Ocean	3
MNS 367K	Human Exploration and Exploitation of the Sea	3

Forensic Science Certificate

The Forensic Science Certificate provides an interdisciplinary perspective for students interested in careers in forensic science.

Students seeking employment in forensic science laboratories upon graduation are encouraged to select biology and chemistry courses. Some of these courses may require introductory biology and chemistry courses as prerequisites.

Students must apply online for admission to the certificate through the university-wide portal for transcript-recognized certificates as soon as they decide to pursue the certificate. The certificate consists of 18 hours, including six upper-division hours, with grades of at least C-:

Requirements		Hours
ANT 301	Biological Anthropology	3
NSC 309	Topics in Natural Science (Topic 6: Introduction to Forensic Science)	3
Six hours chosen from any of the following courses relevant to forensic science:		6
Criminalistics:		
SOC 302	Introduction to the Study of Society	
SOC 325K	Criminology	

SOC 325L	Sociology of Criminal Justice	
SOC 336P	Social Psychology and the Law	
Behavioral Science:		
PSY 301	Introduction to Psychology	
PSY 308	Biopsychology	
PSY 319K	Social Psychology	
Pharmacology:		
NEU 365D	Principles of Drug Action	
Forensic Science:		
ANT 366	Anatomy and Biology of the Human Skeleton	
Six hours chosen from any of the following areas:		6
Anatomy and Physiology:		
ANT 432L	Primate Anatomy	
INB 365S	Human Systems Physiology	
INB 446L	Human Microscopic and Gross Anatomy	
INB 361T	Comparative Animal Physiology	
INB 165U	Human Systems Physiology Laboratory	
INB 371L	Experimental Physiology	
Chemistry:		
BCH 369	Fundamentals of Biochemistry	
CH 220C	Organic Chemistry Laboratory	
CH 320M	Organic Chemistry I	
CH 320N	Organic Chemistry II	
CH 455	Fundamentals of Analytical Chemistry	
Genetics and Microbiology:		
ANT 349C	Human Variation	
ANT 349D	Anthropological Genetics	
BIO 325	Genetics	
BIO 325L	Laboratory Experience in Genetics	
MBS 325T	Human Genetics	
MBS 226L	General Microbiology Laboratory	
MBS 326R	General Microbiology	
Statistics and Computation (One course chosen from the following):		
INB 321G	Principles of Computational Biology	
SDS 301	Elementary Statistical Methods	
SDS 302F	Foundations of Data Analysis	
SDS 320E	Elements of Statistics	
Additional coursework from the criminalistics, behavioral science and forensic science sections above. [1]		

---

1. A course may not count toward both six-hour requirements above

Marine Science Certificate

The Marine Science transcript-recognized certificate enables students to explore the field of marine science. The certificate provides a foundation of basic competency in the fundamentals of marine science, along with specialized upper-division coursework in aquatic science. The knowledge of aquatic science that students gain through the certificate will help them to be competitive for employment or graduate study in this field.

The certificate consists of a minimum of 19 hours with grades of at least C-. Most of the courses in the certificate contain prerequisites of one year of general biology and one year of general chemistry.

Marine and Freshwater Biology and Marine and Freshwater Science majors are not eligible to earn the certificate. Environmental Science majors may count no more than nine hours of degree requirements toward the Marine Science certificate.

Requirements		Hours
MNS 310	Fundamentals of Marine Science	3
MNS 320	Marine Ecology	3
MNS 120L	Laboratory Studies in Marine Ecology	1
Three hours chosen from:		3
BIO 311C	Introductory Biology I	
BIO 311D	Introductory Biology II	
BIO 315H	Advanced Introduction to Genetics: Honors	
CH 301	Principles of Chemistry I	
CH 301C	Foundations of Chemistry I	
CH 302	Principles of Chemistry II	
CH 302C	Foundations of Chemistry II	
Nine hours from the following, including at least six hours at the Marine Science Institute in Port Aransas, Texas:		9
MNS 440	Limnology and Oceanography	
MNS 152L	Principles of Marine Science: Laboratory Studies	
MNS 252L	Principles of Marine Science: Laboratory Studies	
MNS 152S	Principles of Marine Science: Undergraduate Seminar	
MNS 252S	Principles of Marine Science: Undergraduate Seminar	
MNS 152T	Principles of Marine Science: Special Topics	
MNS 252T	Principles of Marine Science: Special Topics	
MNS 348	Training Cruise(s) (Topic 1: Training Cruise(s): Research in Biological Oceanography)	
MNS 352	Principles of Marine Science	
MNS 352C	Estuarine Ecology	
MNS 352D	Marine Botany	
MNS 352E	Marine Conservation Biology	
MNS 353	Topics in Marine Science	
MNS 354	Marine Invertebrates	
MNS 354C	Biology of Fishes	
MNS 354E	Aquatic Microbiology	
MNS 354J	Marine Chemistry	
MNS 354Q	Marine Environmental Science	
MNS 354T	Biological Oceanography	
MNS 354U	Biology of Sharks, Skates, and Rays	
MNS 355C	Physiology of Fishes	
MNS 356	Ecosystem Oceanography	
MNS 357	Marine Phytoplankton Diversity	
MNS 367K	Human Exploration and Exploitation of the Sea	
MNS 170	Special Studies in Marine Science	

MNS 270	Special Studies in Marine Science
MNS 370	Special Studies in Marine Science

Pre-Health Professions Certificate

The Pre-Health Professions Certificate assists students in preparing for post-baccalaureate, healthcare professional programs. The certificate consists of a minimum of 20 hours, including nine hours in residence. Each course presented for the certificate must be completed with a grade of at least *C-*.

The certificate is composed of two separate tracks: a track for majors in the College of Natural Sciences, and a track for majors in other colleges across the university. Students must apply online for admission to the certificate through the university-wide portal for transcript recognized certificates.

Students must complete two of the three Natural Sciences 107J, Natural Sciences 107K, or Natural Sciences 107M courses managed by the Health Professions Office to receive the certificate. It is recommended that all three Natural Sciences 107J/Natural Sciences 107K/Natural Sciences 107M courses be taken. These one-hour courses introduce students to the core competencies required as a health care professional, assist the student in discerning the appropriate health professional career, and support the student in completing application to professional school.

Students are encouraged to work closely with the Health Professions Office to select healthcare themes relevant to their professional career goals. Some of the courses may contain prerequisites that are in addition to the coursework for the certificate.

Majors in the College of Natural Sciences must seek the Science Major Track.

Majors outside of the College of Natural Sciences must seek the Non-Science Major Track. The composition of the non-science major track is science coursework necessary for admission to post-baccalaureate, healthcare professional programs. Non-science majors may apply to the certificate program upon completion of the following courses with grades of at least *B-*: Chemistry 301 or 302, and one of the following: Statistics and Data Sciences 302F, Mathematics 408C, 408K, 408N, 408R, Educational Psychology 308, or Psychology 317L. Upon admission, the ability to progress in the certificate is dependent on completion of the certificate courses with satisfactory grades.

Science Major Track

Requirements		Hours
Two of the following:		2
NSC 107J	The Effective Health Care Professional	
NSC 107K	Thriving in a Collaborative Healthcare Environment	
NSC 107M	Introduction to the Health Professions Action Plan	
Complete 18 hours chosen from the following themes relevant to healthcare.		18
Cultural Awareness:		
AAS 301	Introduction to Asian American Studies	
AAS 310	Introductory Topics in Asian American Studies (Topic 1: Psychological Perspectives on Asian American Identity)	
AFR 301	African American Culture	
AFR 352D	Psychology of the African American Experience	
AMS 370	Seminar in American Culture (Topic 49: Twentieth-Century United States Lesbian and Gay History)	
LAS 324L	Topics in Latin American Anthropology (Topic 16: Mexican Immigration Cultural History)	
MAS 307	Introduction to Mexican American Cultural Studies	
MES 301L	Introduction to the Middle East: Adjustment and Change in Modern Times	
SLH 308K	Perspectives on Deafness	
Health and Anatomy:		
ARH 339R	Art, Art History, and Medicine	
C C 306M	Introduction to Medical and Scientific Terminology	
EDP 350L	Human Sexuality	
or HED 366	Human Sexuality	
or PSY 346K	Psychology of Sex	
HED 335	Theories of Substance Use and Abuse	
HED 343	Foundations of Epidemiology	
HED 352K	Studies in Health: Topical Studies	
HED 370K	Topical Seminar in Health Promotion	
HED 373	Evaluation and Research Design	
KIN 320	Applied Biomechanics of Human Movement	
KIN 424K	Applied Human Anatomy	
KIN 425K	Physiology of Exercise	
KIN 326K	Biomechanical Analysis of Movement	
PSY 301	Introduction to Psychology	
PSY 308	Biopsychology	
PSY 332C	Hormones and Behavior	
PSY 341K	Selected Topics in Psychology (Topic 4: Health Psychology)	
PSY 353K	Psychopharmacology	
SLH 306K	Introduction to Speech, Language, and Hearing Sciences	
Healthcare Policy:		
CMS 322E	Communication Ethics	
GRG 322D	Human Health and the Environment	
GRG 334E	Children's Environmental Health	
GRG 344K	Global Food, Farming, and Hunger	
GRG 357	Medical Geography	
HED 378D	Peer Health Leadership I	
HIS 350R	Undergraduate Seminar in United States History (Topic 18: Women in Sickness and Health)	
MAN 334M	Healthcare System Management	
N 309	Global Health	
N 321	Ethics of Health Care	
PBH 317	Introduction to Public Health	
PHL 325M	Medicine, Ethics, and Society	

SOC 307P	Introduction to the Sociology of Health and Well-Being
SOC 319	Introduction to Social Demography
SOC 321G	Global Health Issues and Health Systems
SOC 336D	Race, Class, and Health
SOC 354K	Sociology of Health and Illness
SOC 369K	Population and Society
URB 332D	Human Health and the Environment
Human and Societal Development:	
CMS 310K	Team-Based Communication
CMS 322E	Communication Ethics
EDP 350E	Introduction to Life Span Development
HDF 304	Family Relationships
HDF 313	Child Development
HDF 335	Adult Development
HDF 342	Development of Psychopathology from Infancy through Adolescence
HDF 343	Human Development in Minority and Immigrant Families
HDF 351	Infant Development and Attachment Relationships
HDF 378K	Advanced Child and Family Development (Approved topics)
N 310	Communication in Health Care Settings
PSY 301	Introduction to Psychology
PSY 308	Biopsychology
PSY 332C	Hormones and Behavior
PSY 333D	Introduction to Developmental Psychology
PSY 341K	Selected Topics in Psychology (Topic 4: Health Psychology)
SOC 302	Introduction to the Study of Society
SOC 330C	Death and Dying: Sociological Perspectives
SOC 333K	Sociology of Gender
HED 329K	Child and Adolescent Health
S W 360K	Current Social Work Topics (Topic 9: Loss and Grief: Individual, Family, and Cultural Perspectives)
Nutrition:	
CMS 322E	Communication Ethics
HIS 350R	Undergraduate Seminar in United States History (Topic 5: American Cultural History of Alcohol and Drugs)
NTR 306	Fundamentals of Nutrition
NTR 312	Introduction to Nutritional Sciences
NTR 315	Nutrition through the Life Cycle
NTR 218	Assessment of Nutritional Status
NTR 321	International Nutrition: The Developing World
NTR 326	Intermediate Nutrition and Metabolism
NTR 331	International Nutrition: Social and Environmental Policies
NTR 332	Community Nutrition

Optional: If additional hours are needed to complete the 20 hours for the certificate, a maximum of nine hours chosen from the following may be applied to the science major track. (Only one course from statistics may be applied):

Requirements		Hours
Biochemistry and Chemistry:		
BCH 369	Fundamentals of Biochemistry	
CH 220C	Organic Chemistry Laboratory	
CH 320M	Organic Chemistry I	
CH 320N	Organic Chemistry II	
Biology:		
BIO 206L	Introductory Laboratory Experiments in Biology	
BIO 311C	Introductory Biology I	
BIO 311D	Introductory Biology II	
Physics:		
PHY 301	Mechanics	
PHY 101L	Laboratory for Physics 301	
PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound	
PHY 302L	General Physics Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics	
PHY 102M	Laboratory for Physics 302K	
PHY 102N	Laboratory for Physics 302L	
PHY 303K	Engineering Physics I	
PHY 303L	Engineering Physics II	
PHY 103M	Laboratory for Physics 303K	
PHY 103N	Laboratory for Physics 303L	
PHY 316	Electricity and Magnetism	
PHY 116L	Laboratory for Physics 316	
PHY 317K	General Physics I	
PHY 317L	General Physics II	
PHY 117M	Laboratory for Physics 317K	
PHY 117N	Laboratory for Physics 317L	
Statistics:		
SDS 301	Elementary Statistical Methods	
SDS 302F	Foundations of Data Analysis	
SDS 320E	Elements of Statistics	
Additional upper-division coursework in biochemistry, biology, and chemistry by approval of the undergraduate certificate advisor		

Non-Science Major Track

Requirements		Hours
Two of the following:		2
NSC 107J	The Effective Health Care Professional	
NSC 107K	Thriving in a Collaborative Healthcare Environment	
NSC 107M	Introduction to the Health Professions Action Plan	

Complete 18 hours chosen from one of the health professions preparation sequences. The 18 hours may be composed of introductory coursework, advanced coursework, or a mixture of the two		18
Pre-dental Preparation		
Introductory Coursework:		
	BIO 206L	Introductory Laboratory Experiments in Biology
	BIO 311C	Introductory Biology I
	BIO 311D	Introductory Biology II
	CH 204	Introduction to Chemical Practice
	PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
	PHY 302L	General Physics Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics
	PHY 102M	Laboratory for Physics 302K
	PHY 102N	Laboratory for Physics 302L
Advanced Coursework:		
	BCH 369	Fundamentals of Biochemistry
	MBS 320	Cell Biology
	BIO 325	Genetics
	MBS 326R	General Microbiology
	CH 220C	Organic Chemistry Laboratory
	CH 320M	Organic Chemistry I
	CH 320N	Organic Chemistry II
Pre-medical Preparation		
Introductory Coursework:		
	BIO 206L	Introductory Laboratory Experiments in Biology
	BIO 311C	Introductory Biology I
	BIO 311D	Introductory Biology II
	CH 204	Introduction to Chemical Practice
	PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
	PHY 302L	General Physics Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics
	PHY 102M	Laboratory for Physics 302K
	PHY 102N	Laboratory for Physics 302L
Advanced Coursework:		
	BCH 369	Fundamentals of Biochemistry
	MBS 320	Cell Biology
	BIO 325	Genetics
	MBS 326R	General Microbiology
	CH 220C	Organic Chemistry Laboratory
	CH 320M	Organic Chemistry I
	CH 320N	Organic Chemistry II
Pre-occupational Therapy Preparation		
Introductory Coursework:		
	BIO 311C	Introductory Biology I
	BIO 311D	Introductory Biology II
	BIO 206L	Introductory Laboratory Experiments in Biology
	CH 204	Introduction to Chemical Practice
	PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
	PHY 102M	Laboratory for Physics 302K
Advanced Coursework:		
	BIO 325	Genetics
	INB 446L	Human Microscopic and Gross Anatomy
	INB 365S	Human Systems Physiology
	INB 165U	Human Systems Physiology Laboratory
Pre-optometry Preparation		
Introductory Coursework:		
	BIO 311C	Introductory Biology I
	BIO 311D	Introductory Biology II
	BIO 206L	Introductory Laboratory Experiments in Biology
	CH 204	Introduction to Chemical Practice
	PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
	PHY 102M	Laboratory for Physics 302K
	PHY 302L	General Physics Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics
	PHY 102N	Laboratory for Physics 302L [1]
Advanced Coursework:		
	BCH 369	Fundamentals of Biochemistry
	BIO 325	Genetics
	MBS 326R	General Microbiology
	MBS 226L	General Microbiology Laboratory
	INB 446L	Human Microscopic and Gross Anatomy
	INB 365S	Human Systems Physiology
	INB 165U	Human Systems Physiology Laboratory
	CH 320M	Organic Chemistry I
	CH 320N	Organic Chemistry II
	CH 220C	Organic Chemistry Laboratory
Pre-physical Therapy Preparation		
Introductory Coursework:		
	BIO 311C	Introductory Biology I
	BIO 311D	Introductory Biology II
	BIO 206L	Introductory Laboratory Experiments in Biology
	CH 204	Introduction to Chemical Practice
	PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
	PHY 102M	Laboratory for Physics 302K
	PHY 302L	General Physics Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics
	PHY 102N	Laboratory for Physics 302L [1]
Advanced Coursework:		
	BIO 325	Genetics
	INB 446L	Human Microscopic and Gross Anatomy
	INB 365S	Human Systems Physiology
	INB 165U	Human Systems Physiology Laboratory
Pre-physician Assistant Preparation:		

Introductory Coursework:	
BIO 311C	Introductory Biology I
BIO 311D	Introductory Biology II
BIO 206L	Introductory Laboratory Experiments in Biology
CH 204	Introduction to Chemical Practice
NTR 306	Fundamentals of Nutrition
Advanced Coursework:	
BCH 369	Fundamentals of Biochemistry
MBS 320	Cell Biology
BIO 325	Genetics
MBS 226L	General Microbiology Laboratory
MBS 326R	General Microbiology
MBS 344	Molecular Biology
INB 446L	Human Microscopic and Gross Anatomy
INB 365S	Human Systems Physiology
INB 165U	Human Systems Physiology Laboratory
CH 320M	Organic Chemistry I
CH 320N	Organic Chemistry II
CH 220C	Organic Chemistry Laboratory

Pre-pharmacy Preparation:

Introductory Coursework:	
BIO 311C	Introductory Biology I
BIO 311D	Introductory Biology II
BIO 206L	Introductory Laboratory Experiments in Biology
CH 204	Introduction to Chemical Practice
PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
PHY 102M	Laboratory for Physics 302K [1]
Advanced Coursework:	
BIO 325	Genetics
MBS 226L	General Microbiology Laboratory
MBS 326R	General Microbiology
INB 446L	Human Microscopic and Gross Anatomy
INB 365S	Human Systems Physiology
INB 165U	Human Systems Physiology Laboratory
CH 320M	Organic Chemistry I
CH 320N	Organic Chemistry II
CH 220C	Organic Chemistry Laboratory

Pre-veterinary Preparation

Introductory Coursework:	
BIO 311C	Introductory Biology I
BIO 311D	Introductory Biology II
BIO 206L	Introductory Laboratory Experiments in Biology
CH 204	Introduction to Chemical Practice
PHY 302K	General Physics Technical Course: Mechanics, Heat, and Sound
PHY 105M	Laboratory For Physics 302K, 303K, and 317K
PHY 302L	General Physics Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics
PHY 102N	Laboratory for Physics 302L [1]
Advanced Coursework:	
BCH 369	Fundamentals of Biochemistry
BIO 325	Genetics
MBS 326R	General Microbiology
MBS 226L	General Microbiology Laboratory
MBS 344	Molecular Biology
CH 320M	Organic Chemistry I
CH 320N	Organic Chemistry II
CH 220C	Organic Chemistry Laboratory
SDS 321	Introduction to Probability and Statistics
or SDS 320E	Elements of Statistics

---

1. A completed calculus-based physics sequence may substitute for the purpose of earning the certificate.

2. Previously completed Molecular Biosciences 326M may substitute.

Quantum Information Science Certificate

A certificate in Quantum Information Science will allow students from a broad range of disciplines to receive formal recognition of their skills, training, and knowledge in the burgeoning field of quantum information science, including quantum computing, quantum communication, and quantum sensing. Students are required to take two courses in quantum information science. Courses under the Freshman Research Initiative (FRI) program will be open to all students, with consent of the instructor. Supplementary courses may be selected to emphasize different focus areas in physics, mathematics, and computer science.

Admission to the certificate is by application only. The certificate program requires 18 semester hours of coursework with a grade of at least C- in each course. Courses that appear in multiple approved course lists may be used to satisfy only one requirement. The following courses are required:

Requirements		Hours
Six hours selected from the following courses:		6
C S 309	Topics in Computer Science (Topic 1: Quantum Computing I)	
C S 378	Undergraduate Topics in Computer Science (Topic 1: Quantum Computing II)	
C S 358H	Introduction to Quantum Information Science: Honors	
Twelve hours selected from among the following supplementary courses:		12
PHY 373	Quantum Physics I: Foundations	
PHY 362K	Quantum Physics II: Atoms and Molecules	
C S 331	Algorithms and Complexity	
or C S 331H	Algorithms and Complexity: Honors	
C S 358H	Introduction to Quantum Information Science: Honors	
M 340L	Matrices and Matrix Calculations	
or M 341	Linear Algebra and Matrix Theory	
or SDS 329C	Practical Linear Algebra I	

M 346	Applied Linear Algebra
Independent Research Project. This may be taken, for example, as one of the following courses: [1]	
PHY 371C	Individual Study in Physics
C S 370	Undergraduate Reading and Research
M 375C	Conference Course (Computer-Assisted)
Please Note: C S 358H Introduction to Quantum Information Science:Honors may only be counted toward one of the certificate requirements. With the approval of the certificate program faculty, other appropriate courses may be counted toward the certificate requirements.	

---

1. The student conducts independent research on some aspect of quantum information science and completes a final report describing their work. The topic must be approved by a university faculty or research staff member and will be conducted under their supervision.

Scientific Computation and Data Sciences Certificate

The Certificate in Scientific Computation and Data Sciences helps undergraduates equip themselves with the mathematical, statistical, and computer-based tools necessary to investigate complex systems in a variety of applications. It is designed to appeal to students across the University in science, engineering, economics, premedicine, sociology, and many other disciplines. The program is administered by the Department of Statistics and Data Sciences. To be admitted, a student must be in good standing in an approved undergraduate degree program and must have earned a grade of at least *C-* in each certificate course he or she has completed. Students may apply for admission to the program at any point in their undergraduate study; they are encouraged to apply as early as possible so that they can be advised throughout the program.

The certificate consists of 18 hours. Students must complete Mathematics 408D or 408M as a prerequisite. No single course or topic may be used to meet more than one of these requirements. Students must contact the Department of Statistics and Data Sciences in the semester in which they are completing the certificate requirements and graduating.

Requirements		**Hours**
One course in computer programming chosen from the following:		3
COE 301	Introduction to Computer Programming	
BME 303	Introduction to Computing	
C S 303E	Elements of Computers and Programming	
C S 313E	Elements of Software Design	
COE 322	Scientific Computation	
ECE 312H	Software Design and Implementation I: Honors	
GEO 325J	Programming in FORTRAN and MATLAB	
SDS 322	Introduction to Scientific Programming	
One course in linear algebra, discrete mathematics, or differential equations chosen from the following:		3
M 340L	Matrices and Matrix Calculations	
M 341	Linear Algebra and Matrix Theory	
M 372K	Partial Differential Equations and Applications	
SDS 329C	Practical Linear Algebra I	
Two courses in scientific computing, chosen from two of the following areas:		6
Numerical Methods		
BME 313L	Introduction to Numerical Methods in Biomedical Engineering	
CHE 348	Numerical Methods in Chemical Engineering and Problem Solving	
COE 311K	Engineering Computation	
C S 323E	Elements of Scientific Computing	
C S 323H	Elements of Scientific Computing: Honors	
C S 367	Numerical Methods	
M 348	Scientific Computation in Numerical Analysis	
M 368K	Numerical Methods for Applications	
SDS 335	Scientific and Technical Computing	
Statistical Methods		
BME 335	Engineering Probability and Statistics	
ECO 329	Economic Statistics	
ECE 351K	Probability and Random Processes	
M 358K	Applied Statistics	
M 378K	Introduction to Mathematical Statistics	
M E 335	Engineering Statistics	
SDS 325H	Honors Statistics	
SDS 320E	Elements of Statistics	
Other Computing Topics		
BME 350	Computational Methods for Biomedical Engineers	
CH 354M	Introduction to Computational Methods in Chemistry	
C S 324E	Elements of Graphics and Visualization	
C S 327E	Elements of Databases	
C S 329E	Advanced Topics in Elements of Computing (Approved topics)	
C S 377	Principles and Applications of Parallel Programming	
M 346	Applied Linear Algebra	
M 362M	Introduction to Stochastic Processes	
M 368K	Numerical Methods for Applications	
M 372K	Partial Differential Equations and Applications	
M 375T	Topics in Mathematics (Approved topics)	
M 376C	Methods of Applied Mathematics	
M E 367S	Simulation Modeling	
MIS 325	Database Management	
NEU 466M	Quantitative Methods In Neuroscience I	

SDS 374C	Parallel Computing for Science and Engineering	
SDS 374E	Visualization and Data Analysis for Science and Engineering	
One of the following courses in applied computational science:		3
BCH 339N	Systems Biology and Bioinformatics	
INB 321G	Principles of Computational Biology	
BME 342	Biomechanics of Human Movement	
BME 346	Computational Biomolecular Engineering	
BME 377T	Topics in Biomedical Engineering (Approved topics)	
CH 368	Advanced Topics in Chemistry (Approved topics)	
COE 347	Introduction to Computational Fluid Dynamics	
C S 324E	Elements of Graphics and Visualization	
C S 329E	Advanced Topics in Elements of Computing (Approved topics)	
D S 372T	Topics in Decision Science (Topic 16: Optimization Method in Finance)	
ECO 363C	Computational Economics	
ECE 379K	Topics in Electrical Engineering	
FIN 372T	Topics in Finance (Topic 16: Optimization Method in Finance)	
GEO 325K	Computational Methods	
LIN 350	Special Topics in the Study of Language (Topic 15: Computational Semantics)	
M 375T	Topics in Mathematics (Approved topics)	
M 374M	Mathematical Modeling in Science and Engineering	
PHY 329	Introduction to Computational Physics	
SDS 322E	Elements of Data Science	
An independent research course:		3 or 4
SDS 379R	Undergraduate Research	
SDS 479R	Undergraduate Research	

Textile Conservation and Museum Studies Certificate

The Certificate in Textile Conservation and Museum Studies helps undergraduates equip themselves with the fiber science, exhibition planning, textile conservation, and museum management skills necessary to conserve textiles in various settings. It is designed to appeal to students across the University in science, history, information science, computational science, merchandising, fiber science and apparel design, and many other disciplines. The program is administered by the Division of Textiles and Apparel in the School of Human Ecology. To be admitted, a student must be in good standing in an approved undergraduate degree program and must have earned a grade of at least *C-* in each certificate course he or she has completed. Students may apply for admission to the program at any point in their undergraduate study; they are encouraged to apply as early as possible so that they can be advised throughout the program.

The following coursework is required:

Requirements		Hours
I 301	Introduction to Informatics	3
I 320	Topics in Informatics (any topic)	3
TXA 205 & TXA 105L	Textiles and Textiles Laboratory	3
TXA 219C & TXA 119L	Applied Art in Visual Presentation and Applied Art in Visual Presentation Laboratory	3
TXA 325L	History of Dress and Cultural Change I	3
TXA 325M	History of Dress and Cultural Change II	3
TXA 352C	Field Experience in Textile Conservation Internship	3
TXA 355D	Textiles Artifact Management and Conservation	3

UTeach-Natural Sciences Secondary Teaching Option Certificate

The UTeach-Natural Sciences program offers a secondary teaching option certificate to students who intend to teach at the middle or high school level. UTeach-Natural Sciences prepares students in the College of Natural Sciences, the Jackson School of Geosciences, and Cockrell School of Engineering for middle school or secondary teacher certification in science, technology, engineering, and mathematics (STEM). However, any students in any major at the University may seek STEM teacher certification through UTeach-Natural Sciences.

This certificate is composed of two separate tracks: a track for undergraduates, and an accelerated track for seniors and degree holders within one year of earning an undergraduate degree.

UTeach Undergraduate Track

The following coursework is required, with grades of at least *C-:*

Requirements		Hours
One of the following courses:		3
BIO 337	Selected Topics in Biology (Topic 2: Research Methods: UTeach)	
CH 368	Advanced Topics in Chemistry (Topic 1: Research Methods: UTeach)	
PHY 341	Selected Topics in Physics (Topic 7: Research Methods: UTeach)	
HIS 329U	Perspectives on Science and Mathematics	3
or PHL 329U	Perspectives on Science and Mathematics	
Eighteen hours of professional development coursework consisting of the following:		18
EDC 651S	Secondary School Teaching Practicum (Topic 3: Secondary School Teaching Practicum: Math or Topic 4: Secondary School Teaching Practicum: Science)	
EDC 365C	Knowing and Learning in Math and Science	
or UTS 350	Knowing and Learning in Math and Science	

EDC 365D	Classroom Interactions
or UTS 355	Classroom Interactions
EDC 365E	Project-Based Instruction
or UTS 360	Project-Based Instruction
UTS 101 & UTS 110 & UTS 170	Secondary Teacher Education Preparation: Step 1 and Secondary Teacher Education Preparation: STEP 2 and Student Teaching Seminar

In addition, students must meet the following requirements to graduate and be recommended for certification:

a. University grade point average of at least 2.50
b. Successful completion of secondary teacher certification and identified discipline specific content courses with a grade of at least *C-*. Lists of the required content courses and additional certification requirements are available in the UTeach-Natural Sciences office and online.

Science teacher certification: All courses must be majors level.

Biology: At least 24 hours in biology (some biochemistry and neuroscience courses may count), and six hours in each from chemistry, geology, and physics.

Chemistry: At least 24 hours in chemistry, and six hours in each from biology, geology, and physics.

Geology: At least 24 hours in geology, and six hours in each from biology, chemistry, and physics.

Physics: At least 24 hours in physics, and six hours in each from biology, chemistry, and geology.

Mathematics teacher certification: All courses, except Mathematics 315C, must count toward a math degree.

Mathematics: At least 24 hours in math, including Mathematics 315C, 333L, and 375D.

Life Sciences teacher certification: All courses must be majors level.

Life sciences: At least 24 hours in biology, including Integrative Biology 370; Chemistry 301.

Physics and Mathematics and Physical Science (Physics and Chemistry) teacher certification: All courses must be majors level and/or count towards a physics, chemistry and/or mathematics degree.

Physics and Mathematics: At least 24 hours in physics, and Mathematics 315C, 333L and 375D.

Physical Science (Physics and Chemistry): At least 24 hours in physics, and Chemistry 301, 302, 204, 353 and 455.

Computer Science and Computer Science and Math teacher certification: All courses must count toward a computer science and/or math degree.

Computer Science: At least 24 hours of computer science.

Computer Science and Mathematics: At least 24 hours of computer science and Mathematics 315C, 333L, and 375D.

Mathematics, Physical Science, and Engineering certification: All courses must be majors level.

For Engineering majors: Mathematics 315C, 333L, and 375D, Physics 303K and 105M, Physics 303L and 105N, and Chemistry 301.

For Mathematics majors: Physics 301 and 101L, Physics 316 and 116L, Physics 315 and 115L, Chemistry 301, 302, and 204, Engineering Studies 301, Mechanical Engineering 377K.

For Chemistry majors: Mathematics 315C, 427J or 427K, Mathematics 333L, and 375D, Physics 301 and 101L, Physics 316 and Physics 116L 315 and 115L, Engineering Studies 301, and Mechanical Engineering 377K.

3. Successful passing of final teaching portfolio review, conducted by the UTeach Program in Natural Sciences

UTeach Accelerate Track

The UTeach Accelerate track is limited to degree-holders, and seniors with no more than two (2) long semesters left to earn the undergraduate degree. In addition to admission to The University of Texas at Austin, students must be accepted into the UTeach Accelerate program. The application requires the following:

- application form
- resume
- two letters of recommendation
- transcript
- essay
- interview

The following coursework is required, with grades of at least *C-*:

Requirements		Hours
One of the following courses:		3
BIO 337	Selected Topics in Biology (Topic 2: Research Methods: UTeach)	
CH 368	Advanced Topics in Chemistry (Topic 1: Research Methods: UTeach)	
PHY 341	Selected Topics in Physics (Topic 7: Research Methods: UTeach)	
HIS 329U	Perspectives on Science and Mathematics	
or PHL 329U	Perspectives on Science and Mathematics	
Eighteen hours of professional development coursework consisting of the following:		18
UTS 211	Secondary Teacher Education Prep: Advanced Steps	
EDC 365C	Knowing and Learning in Math and Science	
or UTS 350	Knowing and Learning in Math and Science	
EDC 665	Classroom Interactions and Project Based Instruction	
EDC 651S	Secondary School Teaching Practicum (Topic 3: Secondary School Teaching Practicum: Math or Topic 4: Secondary School Teaching Practicum: Science)	
UTS 170	Student Teaching Seminar	

In addition, students must meet the following requirements to graduate and be recommended for certification:

1. University grade point average of at least 2.50.

2. Successful completion of secondary teacher certification and identified discipline specific content courses with a grade of at least C-. Lists of the required content courses and additional certification requirements are available in the UTeach-Natural Sciences office and online.

3. Pass the T-TESS evaluation protocol.

Special Requirements

Students who successfully complete this certificate may be eligible for recommendation for state teaching certification if they have met all professional development and discipline specific content courses. Students seeking middle grades certification must also complete the following courses with grades of at least *C-*: Educational Psychology 350G or Psychology 301 and 304; and Curriculum and Instruction 339E.

The courses required for all teacher certifications include a minimum of 30 field-based experience (FBE) hours prior to the clinical teaching experience. All students in the field experience courses (UTeach-Natural Sciences 101, 110, 211, Curriculum and Instruction 365C, 365D, 365E, 665 and 651S) are observed by and received feedback from highly-qualified Professors of Practice and select in-service educators throughout each semester. Students must pass the field experience in order to pass these courses. During clinical teaching (UTeach-Natural Sciences 170, Curriculum and Instruction 651S), supervision and feedback are provided by Professors of Practice, field supervisors, and the cooperating teacher.

Information about additional certification requirements is available from the UTeach-Natural Sciences academic advisor.

State of Texas teacher certification requirements are governed by the Texas Education Agency and are subject to change. Students must adhere to current teacher certification requirements, even if they differ from those listed in the University catalogs.