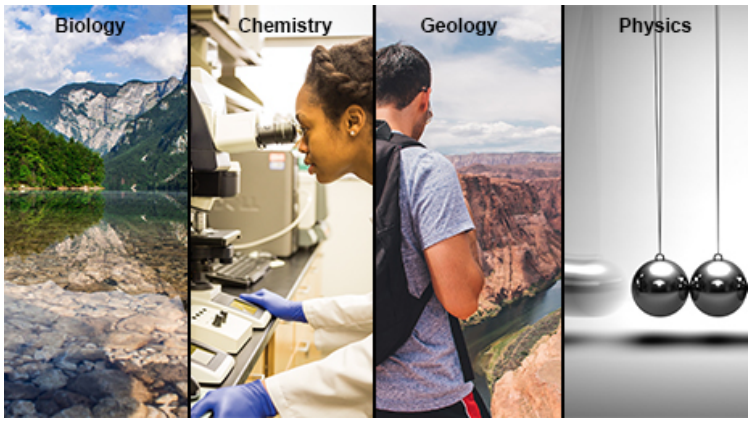
Information about the Composite Science Program



Welcome to the Composite Science program! 7-12th grade science teachers are in high demand in Texas public schools. With this degree you will be certified to teach biology, chemistry, earth science, and physics/astronomy – and it is this combination of certifications that will make you so highly employable in schools throughout the State of Texas.

This degree combines science coursework with the Secondary Education teaching certification and it also allows students to focus in an area of science that interests them. Accordingly, after having completed the common core of science classes, students can then focus their remaining coursework in an area of particular interest to them, such as chemistry or geology. Given that this degree encompasses several science certifications, plus the Secondary Education (SED) coursework, it requires 124-129 hours of coursework, depending upon the area of specialization.

Because you are obtaining a degree in science that is coupled with a teaching certification, you will need to coordinate with faculty and staff in both the College of Science and Engineering Technology (COSET) and the College of Education (COE) as you follow your path to graduation. To help you navigate this path, this document is being provided to you. It contains information about the degree requirements, required examinations, fees, advisor information, and contact information for both the COSET and the COE. (*The fee information is subject to change.) If you have any questions regarding the degree, please contact Dr. Marcus Gillespie, Associate Dean in the COSET (936-294-1945 or marcusg@shsu.edu), or Dr. Lisa Brown in the COE at 936-294-4038 or lob002@shsu.edu, or Dr. Robert Maninger, the SED Program Coordinator at 936-294-1145 or rmm023@SHSU.EDU.

Financial Aid

1. **TEACH Grant**: As a student in the Composite Science program, you may be eligible for the Teach grant. According to the Teach Grant website (https://studentaid.ed.gov/sa/types/grants-scholarships/teach#eligible-programs) "A *Teacher Education Assistance for College and Higher Education (TEACH) Grant* is different from other federal student grants because it requires you to take certain kinds of classes in order to get the grant, and then do a certain kind of job to keep the grant from turning into a loan.... A TEACH-Grant-eligible program is a program of study that is designed to prepare you to teach as a highly qualified teacher in a high-need field and that leads to a bachelor's or master's degree, or is a post-baccalaureate program. The TEACH Grant Program provides grants of up to $4,000 a year to students who are completing or plan to complete course work needed to begin a career in teaching.... As a condition for receiving a TEACH Grant, you must sign a *TEACH Grant Agreement to Serve* in which you agree to (among other requirements) teach

- in a high-need field;
- at an elementary school, secondary school, or *educational service agency* that serves students from low-income families; and
- for at least four complete academic years within eight years after completing (or ceasing enrollment in) the course of study for which you received the grant."

"IMPORTANT: If you do not complete your service obligation, all TEACH Grant funds you received will be converted to a Direct Unsubsidized Loan. You must then repay this loan to the U.S. Department of Education, with interest charged from the date the TEACH Grant was disbursed (paid to you or on your behalf)."

Degree Requirements

The degree Requirements are shown on the next page: *These requirements, along with the semester-by-semester course sequence, can also be found in the online SHSU undergraduate catalog at: http://catalog.shsu.edu/undergraduate/colleges-academic-departments/science-and-engineering-technology/bs-composite-science/ .

GenEd Courses	42 Hours		COSET Core Content	49-50 Hours
CA 01 Communication			BIOL 1413 Zoology	4
ENGL 1301 Composition I	3		BIOL 2440 Cell Biology	4
ENGL 1302 Composition II	3		CHEM 1411 Gen Chem I	4
			CHEM 1412 Gen Chem II	4
CA 02 Mathematics			GEOG 1401 Weather and Climate	4
MATH 1316 or other approved prerequisite for PHYS 1301/1101	4		GEOL 1403 Physical Geology	4
			GEOL 1404 Historical Geology	4
CA 3 Life and Physical Science			PHYS 1301/1101 Mechanics and Heat	4
BIOL 1436 Foundations of Science	4		PHYS 1302/1102 General Physics Sound, Light, Electricity and Magnetism	4
BIOL 1411 Botany	4		PHYS 1403 (Stars and Galaxies - to be taken by students with a Biology or Earth Science focus; *CHEM 2323/2123 Organic Chemistry I to be taken by students with a Chemistry of Physics focus*	4
			GEOL 3330 Oceanography or CHEM 3438. CHEM 3438 is required for the Chemistry track if you plan to take BioChem II (CHEM 3339)	3 or 4
CA 4 Language, Philosophy, and Culture			STAT 3379 Statistics	3
Any	3		BIOL 3390 Science Methods	3
			Focus Area **For the Focus Area, take the number of courses indicated. See the Composite Science degree plan in the catalog for the list of approved options.**	
CA 5 Creative Arts	3		**Biology** - 3 courses (12 hours)	12
Any			**Chemistry** - Chem 2325/2125 plus CHEM 3367 plus 2 courses (13-14 hours depending upon options selected)	13 to 14
			Geology - 3 courses (9-12 hours depending upon options selected)	9 to 12
CA 6 U.S. History			**Physics** - 3 courses (9-10 hours depending upon options selected)	9 to 10
HIST 1301 U.S. History to 1876	3			
HIST 1302 U.S. History Since 1876	3		**CISE Courses**	**24**
			Semester 1: CISE 3384 The Teaching Profession (32 hours prerequisite)	3
CA 7 Political Science/Government				
POLS 2305 American Government	3		***Semester 2****: CISE 4380 Roles and Responsibilities of the Professional Educator*	3
POLS 2306 Texas Government	3		***Semester 2:*** *CISE 4378 Content Literacy*	3
CA 8 Social and Behavioral Sciences			**Semester 3 (Methods)** CISE 4364 Methods of Teaching in Secondary Schools.	3
Any (Recommend PSYC 1301 Introduction to Psychology)	3		**Semester 3 (Methods)** CISE 4379 Differentiated Instruction	3
CA 9 Component Area Option Take any 3 credit course in CA 9 (recommend COMS 1361 Public Speaking) plus additional 1-credit course for a total of 4 credits in CA 9	3		***Semester 4 (Student Teaching Block)*** *CISE 4394 Creating an Environment for Learning*	3
			Semester 4 (Student Teaching Block) *CISE 4396 and CISE 4397 Student Teaching Secondary Classroom*	6

Below (on the next 4 pages) is the same list of courses shown above, but with the addition of the *course options* in each of the focus areas. In addition, this list also indicates *when* the courses are offered and their *prerequisites* (if any). This list is important because not all courses are offered each semester and, because some require perquisites, you must take the prerequisites first. You can use this information to help plan you semester-by-semester course sequence.

Composite Science	Fall	Spring	Summer	Sum 1	Sum 2	Even Fall	Even Spr	Odd Fall	Odd Spr	Fall alt	Spr alt	May Mini
Gen-Ed Core+A27A5A3:A26A3:L50												
Area 1: ENGL 1301, ENGL 1302	x	x	x									
Area 2: Take MATH 1316 (or other approved prerequsite for PHYS 1301/1101). **As regards the math requirement for CHEM 1411 (see below), if you do not meet it, you will also need to take one of the designated math courses, such as MATH 1314. This will add 3 hours to your degree.*	x	x	x									
Area 3: BIOL 1436 Foundations of Science and BIOL 1411 Botany *(These are required for the degree)*	x	x	x									
Area 4: Lang, Phil & Cultural	x	x	x									
Area 5: Creative Arts	x	x	x									
Area 6: HIST 1301, HIST 1302	x	x	x									
Area 7: POLS 2305, POLS 2306	x	x	x									
Area 8: Soc & Behav Science	x	x	x									
Area 9: Communication or Lang, Phil, Cultural: Choose one 3-credit course from BUAD 2321, COMS 1361, COMS 2382, or MCOM 1371) *plus* 1 additional credit (choose from ECON 1100, KINE 2115, MCOM 1130,or NGLI 1101)	x	x	x									
Degree Specific Requirements												
BIOL 1411 General Botany (CL: R,W,M) (*Taken in CA 3*)	x	x	x									
BIOL 1436 Foundations of Science (*Taken in CA 3*)												
BIOL 1413 General Zoology (CL: R,W,M)	x	x	x									
BIOL 2440 Cell Biology	x	x	x									
BIOL 3390 Science Methods								x Tentative				
CHEM 1411 General Chemistry 1 (*Minimum grade of C in MATH 1410, MATH 1314, MATH 1324 or MATH 2384 or equivalent, or a minimum Math score of 23 on the ACT or 560 on the SAT (580 on new SAT) or equivalent*)	x	x		x								
CHEM 1412 General Chemistry 2 (*C in MATH 1314 or 1410 or 1324 or 2384 and CHEM 1411*)	x	x			x							
CHEM 2323/2123 Organic Chemistry (*C+ in CHEM 1411 and CHEM 1412*) *Take only if you have a Chemistry or Physics focus; otherwise, do not take this course*	x	x		x								
CHEM 3438 Biochemistry (A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2323, CHEM 2123, CHEM 2325, CHEM 2125) *Take only if you plan to take CHEM 3339 as part of the Chemsitry focus*	x			x								
GEOG 1401 Weather and Climate	x	x	x									
GEOL 1403 Physical Geology	x	x	x									
GEOL 1404 Historical Geology	x	x	x									
GEOL 3330 Oceanography *for students with Biology, Eath Science or Physics focus. If you have a Chemistry focus, do not take this course.* (*Geol 1403*)		x		x								
PHYS 1301/1101 Mechanics and Heat (*PHYS 1301 and MATH 1316 or MATH 1410 or MATH 1420*)	x	x		x	x							
PHYS 1302/1102 Sound, Light, Electricity and Magnetism (*PHYS 1301 and MATH 1316 or MATH 1410 or MATH 1420*)	x	x		x	x							
PHYS 1403 Stars and Galaxies (for Bilogy or Earth Science focus (*No prerequisites*)	x	x		x	x							
STAT 3379 Statistics *(TSI math requirement met)*	x	x	x	x	x							

Focus Areas	Fall	Spring	Summer	Sum 1	Sum 2	Even Fall	Even Spr	Odd Fall	Odd Spr	Fall alt	Spr alt	May Mini
Biology Concentration (Choose 3 courses = 12 hours)												
BIOL 3364 Plant Taxonomy		x										
BIOL 3409 Ecology (*Biol 14111 and BIOL 1413*)	x	x										
BIOL 3410 Human Biology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, BIOL 2440*)	x	x										
BIOL 3420 Vertebrate Anatomy (*Minimum grade of C in BIOL 1411 and BIOL 1413 or consent of the instructor*)	x											
BIOL 3430 Plant Physiology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, BIOL 2440, CHEM 1311, CHEM 1111 or CHEM 1411 and CHEM 1312, CHEM 1112 or CHEM 1412*)							x					
BIOL 3450 Genetics (*Minimum grade of C in BIOL 2440, CHEM 1311, CHEM 1111 or CHEM 1411 and CHEM 1312, CHEM 1112 or CHEM 1412*)	x	x										
BIOL 3461 Wildlife Biology (*BIOL 1411, BIOL 1413, and BIOL 3409*)							x					
BIOL 3470 Microbiology (*Minimum grade of C in BIOL 1411, 1413, 2440, CHEM 1312/1112 or CHEM 1412*)	x	x										
BIOL 3480 Developmental Biology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, BIOL 2440*)						x						
BIOL 3490 Histology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, BIOL 2440, CHEM 1312, CHEM 1112 or CHEM 1412* .)		x										
BIOL 3492 Plant Morphology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, and BIOL 2440*)	x		x									
BIOL 4330 Aquatic Biology (*Minimum grade of C in BIOL 1411 and BIOL 1413 and Junior standing*)		x										
BIOL 4410 General Entomology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, and BIOL 2440*)		x										
BIOL 4430 Vertebrate Natural History (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, and Junior standing*)		x										
BIOL 4460 Parisitology (*Minimum grade of C in BIOL 1411 and BIOL 1413, and Junior standing*)	x											
BIOL 4470 Animal Behavior (*Minimum grade of C in BIOL 1411 and BIOL 1413 and Junior standing*)	x											
BIOL 4471 Invertebrate Zoology (*Minimum grade of C in BIOL 1311, BIOL 1111, BIOL 1313, BIOL 1113, BIOL 2440 and Junior standing*)						x						
BIOL 4490 Advanced Cell Biology (Minimum grade of C in BIOL 1411, BIOL 1413, BIOL 2440, BIOL 3450, CHEM 1311, CHEM 1111 or CHEM 1411 and CHEM 1312, CHEM 1112 or CHEM 1412, and Junior standing)		x										
*Because all of the advanced elective biology courses are 4-credit courses, taking three advanced classes to meet the advanced credit requirement will require 127 hours. Accordingly, this track will include 45 advanced credit hours. Including the Gen-Ed biology courses, students in this track will take 24 hours of biology, not including the Foundations of Science course - BIOL 1436.												

Focus Areas	Fall	Spring	Summer	Sum 1	Sum 2	Even Fall	Even Spr	Odd Fall	Odd Spr	Fall alt	Spr alt	May Mini
Chemistry focus (129-130 hrs)												
*Chem focus requires 2325/2125 Organic Chemistry II (*A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2323, and CHEM 2123*)	x	x			x							
*CHEM 3367 Introductory Inorganic Chemistry (required) (*A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2323*)	x											
Choose 2 electives from below												
CHEM 3339 Biochemistry II (*A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2323, CHEM 2123, CHEM 2325, CHEM 2125 and CHEM 3438*)		x										
CHEM 3368 Environmental Chemistry (*A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2401, CHEM 2323 and CHEM 2325 (or concurrent enrollment in CHEM 2325*)							x					
CHEM 4442 Air Quality (*A minimum grade of C in CHEM 1411, CHEM 1412, CHEM 2401, CHEM 2323 and CHEM 2325*)									x			
CHEM 3361 Discovery in Chemistry and Textiles *This is a Study Abroad course (*CHEM 1406 or CHEM 1411, junior standing, and permission of the instructor*) Offered odd years during the spring/summer break												
The total number of hours for the Chemistry track is 129-130, with 43-44 advanced credit hours (depending upon the advanced elective). Including the Gen-Ed chemistry courses, students in this track will complete 27-28 hours of chemistry.												
Geology Focus (124-127)												
Students in this track must take 3 advanced courses in order to meet the 42 credit advanced hour requirement. Students may take any combination of the following courses; but, because some courses are 3-credit courses and some are 4-credit courses, the number of hours for this track can range from 124 to 127 hours.												
GEOL 3326 Environmental Geology (*GEOL 1303, GEOL 1103*)						x						
GEOL 3332 Forensic Geology (*GEL132/112 or GEOL 1303, GEOL 1103 plus CHEM 1311, CHEM 1111, CHEM 1312, CHEM 1112, and MATH 1316*)						x						
GEOL 4312 Economic Geology (*GEOL 1403 or GEOL 1405 plus GEOL 1404*)									x			
GEOL 4331 Geology of North America (*GEOL 1303/GEOL 1103 or GEOL 1403 or GEOL 1305/1105 or GEOL 1405 and GEOL 1304/GEOL 1104 or GEOL 1404*)							x					
GEOL 4337 Plate Tectonics (*GEOL 1303/1103 or GEOL 1403 or GEOL 1305/1105 or GEOL 1405 and GEOL 1304/1104 or GEOL 1404*)								x				
GEOL 4402 Structural Geology (*GEOL 1303, GEOL 1103, PHYS 1301, PHYS 1102, MATH 1316*)									x			
GEOL 4426 Hydrogeology (*GEOL 1403 and MATH 1316*)	x											
GEOG 4432 Geomorphology (*GEOL 1303*)							x					
Of the 124-127 hours required for this track, 42-45 hours are advanced credit. Including the Gen-Ed geology courses, students who complete this track will complete at least 24 hours of earth science coursework, including Weather and Climate (GEOG 1401).							x					

Focus Areas	Fall	Spring	Summer	Sum 1	Sum 2	Even Fall	Even Spr	Odd Fall	Odd Spr	Fall alt	Spr alt	May Mini
Physics Focus												
Students in the Physics track must complete 3 of the following Physics courses												
PHYS 3395 Electronics and Circuit Analysis (*Grade of C or better in PHYS 1422 and PHYS 3115 must be taken concurrently*)		x					2020					
PHYS 3397/3117 Astronomy (*No prerequisite*) Not taught on a regular basis)												
PHYS 4333 Light and Optics (*PHYS 1422 with a C or better*)												
ASTR 3303 Life in the Universe (*PHYS 1403, PHYS 1404*)							?					
ASTR 3383 Cosmic Catastrophes (*PHYS 1403, PHYS 1404*)								?				
PHYS 3391 Modern Physics *(MATH 1314 or 1316, MATH 1420, MATH 1430, MATH 2440 and PHYS 1422*)		x										
Because these physics and astronomy courses range in credit value from 3 to 4 credits, students who complete this degree will earn 124 to 125 credit hours, of which 42-43 will be advanced credits. Including the Gen-Ed science coursework in Phyics, students who complete this track will earn 17-18 hours of physics credits.												
CISE (EDUCATION COURSES)												
Program Entry: CISE 3384 The Teaching Profession (*Minimum of 32 hours of completed coursework*)	x	x										x
Professional Block: CISE 4380 Roles and Pesponsibilities of Professional Educators and CISE 4378 Content Literacy	x	x										x
Methods Block: CISE 4364 Methods of Teaching in Secondary Schools and CISE 4379 Differentiated Instruction	x	x										
Student Teaching Block: CISE 4394 Creating an Environment for Learning, CISE 4396 Student Teaching Secondary Classroom, and CISE 4397 Student Teaching Secondary Classroom	x	x										

Secondary Education (SED) 4-Semester Program Course Sequence

The SED course sequence leading to teacher certification is divided into four sections/semesters consisting of a total of eight courses. Below is the information regarding the course semester sequence, as well as other requirements for each semester. Please note that the courses *within a given semester* must be taken concurrently. If you have any information regarding this information, please contact Dr. Lisa Brown in the COE at 936-294-4038 or lob002@shsu.edu, or Dr. Robert Maninger, the SED Program Coordinator at 936-294-1145 or rmm023@SHSU.EDU.

1. Intro to Secondary Education/Semester 1 in the SED program (One course)

1) *CISE 3384 – The Teaching Profession*

- This course is the first course you will take in your set of teacher certification courses, and it is a prerequisite to all other Secondary Education Program Courses.

- To enroll in this course, you MUST have at least 32 hours of completed coursework on your transcript. So, you can enroll in this in your Sophomore year.

- You will apply for admission to the Teacher Certification program (EPP Program fee) while taking this course. The application is done online. **Fee of $100**.

- You must pass a criminal background check during the CISE 3384 course and once again prior to student teaching. **Fee of $55.**

2. Professional Block/Semester 2 in SED program (Consists of two courses which require a total of 20 hours of field experience)

1) *CISE 4380 – Roles & Responsibilities of the Professional Educator*

2) CISE 4378 – Content Literacy

- 20 hours of Field Experience is required for these courses (10 hours per course)

- Teacher Candidates MUST take their content **practice certification exam** during this semester

- An information session is provided in CISE 4380 - choose **option 1b when selecting the session**

- MUST apply (during designated days) for the Methods Block (Semester 3) in your TK20 account – choose **option 3C when applying for the Methods Block.**

- MUST meet Ed Prep and the Secondary Education Program requirements including a **2.75 GPA** to begin your Methods Block in Semester 3.

Students should be finished with most of their science content coursework before beginning their Methods block (semester 3 in the SED program). This is because candidates will take their content certification exams during the Methods block and will score better if they have completed the background coursework for the exam.

3. Methods Block/Semester 3 in SED Program (Consists of two courses which require 60 hours of field experience)

1) *CISE 4364 – Methods of Teaching in Secondary Schools and*
2) *CISE 4379 – Differentiated Instruction (replaces CISE 4377 - Assessment of Student Learning)*

- Prerequisites: CISE 3384, CISE 4378 & CISE 4380; Admission to the Educator Preparation Program and Departmental Approval; successful completion of Semester 1 & 2 courses

- CISE 4364 and 4379 are both Writing Enhanced courses

- 60 hours of Field Experience is required for these course (30 hours per course)

- **Please be aware that you cannot schedule other classes on the days of your Methods block field courses** because you will spend the entire day in class or completing your 60-hour field experience requirement.

- Teacher Candidates MUST apply for Student Teaching during this semester.

- Teacher Candidates MUST take their **TExES Content certification exam** during this semester.

- Teacher Candidates MUST take the **practice TExES Pedagogy and Professional Responsibilities (PPR)** certification test during this semester.

- It is advisable that Teacher Candidates take the Pedagogy and Professional Responsibilities (PPR) certification test and Content certification test *before the job fair held each semester* (Usually in late October and late March). Not taking these exams or failure to pass will result in a delay of your teacher certification by the State. Note that the State of Texas is transitioning to a requirement that these tests must be attempted (and hopefully passed) before the Student Teaching block (Semester 4) begins.

4. Student Teaching Block/Semester 4 in the SED program (Consists of three courses). In CISE 4396 and CISE 4397, students will actually teach in one or more schools, under the supervision of a teacher.

1) CISE 4394 – Creating an Environment for Learning – Secondary *This is the companion course that is held **BEFORE** the regular SHSU semester begins. You must be able to attend class the week(s) before the semester begins; the rest of the coursework will be done online.

2) CISE 4396 – Student Teaching Secondary Classroom

3) CISE 4397 – Student Teaching Secondary Classroom

- Prerequisites: CISE 3384, CISE 4380, CISE 4364, CISE 4378, CISE 4379; Senior status; Admission to Educator Preparation Program

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The list below also shows the courses required in the degree; but, in this case, they are *organized by subject area* so that you can readily see how many courses in each discipline you will complete as part of your degree.

Biology

BIOL 1436 Foundations of Science

BIOL 1411 Botany

BIOL 1413 Zoology

BIOL 2440 Cell Biology

BIOL 3310 Science Methods

For the Biology focus – take 3 additional advanced courses (each is worth 4 credits and choose from the following options:

BIOL 3364 Plant Taxonomy	4
BIOL 3409 Ecology	4
BIOL 3410 Human Biology	4
BIOL 3420 Vertebrate Anatomy	4
BIOL 3430 Plant Physiology	4
BIOL 3450 Genetics	4
BIOL 3461 Wildlife, Rec Mgmnt *Requires BIOL 3409	4
BIOL 3470 Microbiology	4
BIOL 3480 Vertebrate Embryology	4
BIOL 3490 Histology	4
BIOL 3492 Plant Morphology	4
BIOL 4330 Aquatic Biology	4
BIOL 4410 General Entomology	
BIOL 4430 Vertebrate Natural History	4
BIOL 4460 Parisitology	4
BIOL 4470 Animal Behavior	4
BIOL 4471 Invertebrate Zoology	4
BIOL 4490 Advanced Cell Biology	4

Chemistry

CHEM 1411 General Chemistry I (fall of first year)

CHEM 1412 General Chemistry II (Spring of second year)

**CHEM 2323/2123 (Organic Chemistry I) will be taken by those students in the Chemistry and Physics foci (fall of second year)*

**GEOL 3330 (Oceanography) or CHEM 3438 (Biochemistry I – fall of 3rd year)*

**CHEM 3438 is required for the Chemistry track if you plan to take BioChem II (CHEM 3339 – spring of 3rd year)*

For the Chemistry focus – take CHEM 2323/2125 (Organic Chemistry 2 - spring of 2nd year), CHEM 3367 (Intro Inorganic Chem – fall of 3rd year), and 2 additional advanced CHEM electives (see options in degree plan). *For the Chemistry focus, choose from among the following options:*

CHEM 3367 Introductory Inorganic Chemistry (required)	*3*
Choose 2 electives from below	
CHEM 3339 Biochemistry II	*4*
CHEM 3368 Environmental Chemistry	3
CHEM 4442 Air Quality *Prereq. CHEM 2401	4
*CHEM 3361 Discovery in Chemistry and Textiles *This is a Study Abroad course*	3

Geography/Geology

GEOG 1401 Weather and Climate

GEOL 1403 Physical Geology

GEOL 1404 Historical Geology

**GEOL 3330 (Oceanography) or CHEM 3438 (Biochemistry I – fall of 3rd year)*

For the Geology/Earth Science focus, take 3 additional advanced GEOG/GEOL electives from among the following options:

GEOL 3326 Environmental Geology	3
GEOL 3332 Forensic Geology	3
GEOL 4312 Economic Geology	3
GEOL 4331 Geology of North America	3
GEOL 4337 Plate Tectonics	3
GEOL 4402 Structural Geology	4
GEOL 4426 Hydrogeology	4
GEOG 4432 Geomorphology	4

Physics/Astronomy

PHYS 1301/1101 Mechanics and Heat

PHYS 1302/1102 General Physics Sound, Light, Electricity

*PHYS 1403 (Stars and Galaxies) will be taken by students in the biology and earth science foci

For the Physics focus, take 3 advanced PHYS electives and choose from among the following options:

PHYS 3395 Electronics and Circuit Analysis	3
PHYS 3397/3117 Astronomy	4
PHYS 4333 Light and Optics	3
PHYS 3391 Modern Physics	3
ASTR 3303 Life in the Universe	3
ASTR 3383 Cosmic Catastrophes	3

Math

MATH 1316 Trigonometry This course satisfies the prerequisite requirements for the required physics course. **If you meet the math requirements for the Chemistry 1411 course, then you do not have to take an additional Math course, other than STAT 3379. The requirements for CHEM 1411 are: Minimum Math score of 23 on the ACT or 560 on the SAT (580 on new SAT) or equivalent, or Minimum grade of C in MATH 1410, MATH 1314, MATH 1324 or MATH 2384 or equivalent.*

STAT 3379 Statistical Methods in Practice

Secondary Education (CISE/Teaching Certification) Coursework

First Semester of CISE coursework

1. CISE 3384 The Teaching Profession - 1st semester in CISE/SED program (i.e., 32-hours of coursework completed)

Second semester

2a. CISE 4380 Roles and responsibilities of the Professional Educator – 2nd semester of CISE program

2b. CISE 4378 Content Literacy – 2nd semester

Third Semester - Methods Block

3a. CISE 4364 Methods of Teaching in Secondary Schools

3b. Methods CISE 4379 Differentiated Instruction

Fourth semester - Student Teaching Block

4a. CISE 4394 Creating an Environment for Learning

4b. CISE 4396 and CISE 4397 Student teaching Secondary Classroom

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Semester-by-Semester Plan

Below is a model semester-by-semester plan for completing the degree. Please note that, for the focus area/concentration courses, you will need to consider when the courses are available and what the prerequisites are for these courses when planning your schedule.

First Year			
Fall	**Hours**	**Spring**	**Hours**
Component Area I	3	Component Area I	3
Component Area V	3	CHEM 1412	4
CHEM 1411	3	Component Area IX	1
BIOL 1411[1]	4	BIOL 1436[1]	4
MATH 1316 or 1410[2]	3	Component Area VI	3
	16		**15**

Second Year					
Fall	**Hours**	**Spring**	**Hours**		
Component Area IV	3	Component Area VII	3		
Component Area VII	3	Component Area VIII[3]	3		
BIOL 1413	4	Component Area IX	3		
CHEM 2323 & CHEM 2123 (or PHYS 1403)[4]	4	PHYS 1301 & PHYS 1101	4		
GEOG 1401	4	GEOL 1403	4		
	18		**17**		
Third Year					
Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**
BIOL 2440	4	Concentration Courses	6-10	CISE 3384	3
Concentration Course	3-4	BIOL 3390	3	CISE 4380	3
Component Area VI	3	GEOL 3330 or CHEM 3438[5]	3	CISE 4378	3
GEOL 1404	4	STAT 3379	3		
PHYS 1302 & PHYS 1102	4				
	19-20		**15-19**		**9**
Fourth Year					
Fall	**Hours**	**Spring**	**Hours**		
CISE 4364	3	CISE 4394	3		
CISE 4379	3	CISE 4396	3		
		CISE 4397	3		
	6		**9**		
Total Hours: 124-129					

The 4+1 Teacher Certification Program

You may be interested to know that the College of Education offers an alternative version of the Composite Science degree that would enable you to obtain not only your Composite Science certification but also a **Masters in Education (M. Ed.) degree in Curriculum and Instruction Administration**. It can be obtained with one additional year of course work, and so, appropriately enough, it's called the 4+1 Teacher Certification program. The degree is designed for those interested in researching, developing, and implementing curriculum changes to support student development. Preservice teachers in this program will be given a ***paid internship*** by the

employing school district. Students admitted to this program will take 9 credit hours of graduate coursework in lieu of Student Teaching (i.e., in lieu of taking CISE 4394, CISE 4396, and CISE 4397. In addition, students will take the following coursework (7 courses) to complete the M.Ed. degree: CIED 5085, CIED 5384, CIED 5333, CIED 5383, CIED 5370, CIED 5398, and CIED 5399. For additional information, please contact Dr. Cristina Ellis (cellis@shsu.edu).

Advisors and other Contacts

Advisors in the College of Science and Engineering Technology (Science coursework)

Dr. Marcus Gillespie - Associate Dean in the College of Science and Engineering Technology and Program Coordinator/Advisor for the Composite Science degree program

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Dr. Donovan Haines Chair for the Department of Chemistry

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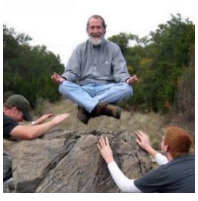

Dr. Brian Cooper Chair and Advisor for the Department of Geography and Geology

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Advisors and Contacts in the College of Education (Secondary Education Coursework/CISE)

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Dr. Andrea Foster – Composite Science advisor

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Jean Hubbartt – Certification Officer (***Contact for taking the TExES Exams)***

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Janet Williams – Director of Educator Preparation Services

TEC 102B

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Shawnna Sandles – Education Advisor at the Sam Center

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Benji Cantu – College of Education liaison for Career Services

TEC 111 B

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Exams Required for Teacher Certification

There are two exams that are required by the State of Texas in order to become a certified teacher in Texas public schools. These two are described below, and you will be notified when you need to take them by **Jean Hubbartt and/or your professors** in the College of Education (see above). *You have the option of taking these at the Testing Center here on campus or at a designated testing center approved by the State of Texas. Both are completed online.*

1. 

Texas Examination of Educator Standards (TExES) test frameworks (*Science 7-12 #236*) – This test is one of the most important you will take in your path toward teacher certification. It assesses your knowledge of ***science content*** and is *taken in your junior year prior to your Methods block (Semester 3)*. It can be taken online at the Testing Center on Campus. Information about the test can be found at http://cms.texes-ets.org/. As stated on the TExES website (TExES Tests at a Glance *for Science 7-12*) http://cms.texes-ets.org/texes/prepmaterials/tests-at-a-glance/

"The test framework outlines the specific competencies to be measured on the test; it is based on the educator standards for that particular field – in this case, science...

The test consists of **140** questions and is a computer-assisted test. Students have up to 5 hours to complete the exam. The content of a test is organized into broad areas of content called **domains**. Each domain covers one or more of the educator standards for that field. Within each domain, the content is further defined by a set of **competencies**. Each competency is composed of two major parts:

1. the **competency statement**, which broadly defines what an entry-level educator in this field in Texas public schools should know and be able to do, and
2. the **descriptive statements**, which describe in greater detail the knowledge and skills eligible f
3. or testing."

The ten **domains** for this test, and the approximate percentage of the test represented by each, are as follows:

Domain	Percentage
I. Scientific Inquiry and Process	10
II. Physics	20
III. Chemistry	20
IV. Cell Structure and Processes	8
V. Heredity and Evolution of Life	8
VI. Diversity of Life	8
VII. Interdependence of Life and Environmental Systems	6
VIII. Earth's History and the Structure and Function of Earth's Systems	9
IX. Components and properties of the Solar System and the Universe	6
X. Science Learning, Instruction, and Assessment	5

If you compare the domains on this test to the course requirements for the degree (shown above), you can see that they are well aligned to ensure that you will have the requisite knowledge and skills to pass the test. For example, earth history is covered in the geology courses, astronomy is covered in both the astronomy course and in the *Foundations of Science* course – which also covers heredity, evolution, scientific inquiry, and other topics within the domains. Instruction and Assessment are covered in the in the CISE courses required for teacher certification and, to some degree, in the *Science Methods* course (BIOL 3310).

To prepare for this test, consult the *Test at a Glance* document for 7th – 12th grade science. This document identifies the educator standards assessed in each domain. The standards are followed by a complete set of the framework's competencies and descriptive statements. Read each competency with its descriptive statements to get a more specific idea of the knowledge you will be required to demonstrate on the test. Most importantly, preparation manuals are available on the TExES website. These contain sample test questions and more. So, you will definitely want to consult these when preparing for the test.

Also, you should **KEEP YOUR COURSE MATERIALS and TEXTBOOKS** so that you can review them prior to taking the TExES exam. And remember, you should always try to *retain* the knowledge, as opposed to memorizing it just long enough to take a test in a class☺. To do well on the TExES test, you'll need to remember what you have learned – as is expected of someone who is going to teach science to their own students!

2. 

Pedagogy and Professional Responsibilities (PPR) certification test. This test is taken during or immediately after your Methods block (Semester 3); i.e., before you begin your Student Teaching block (semester 4). Again, it can be taken at the Testing Center here on campus or at a designated testing center approved by the State of Texas.See the Website below **for the TExES Pedagogy and Professional Responsibilities EC – 12 Exam for detailed information.**

(https://www.texespractice.com/160-texes-pedagogy-and-professional-responsibilities-ec-12-exam/)

In brief, the *TExES Pedagogy and Professional Responsibilities EC–12 Exam* is a certification examination, required by the State of Texas, which is designed to determine whether or not an individual possesses a basic understanding of the *teaching methods and professional responsibilities* associated with becoming an entry-level educator in the Texas public school system. The exam consists of **100 multiple-choice questions.** The **four domains** for this test, and the approximate percentage of the test represented by each, are as follows:

Domain	Percentage
Designing Instruction and Assessment to Promote Student Learning	34
Creating a Positive, Productive Classroom Environment	13
Implementing Effective, Responsive Instruction and Assessment	33
Fulfilling Professional Roles and Responsibilities	20

Important: Study guides are available online for both the TExES Science content and Pedagogy and Professional Responsibilities exams. **You will be required to take the practice versions of these two exams before taking the actual tests**. You must score 80% or higher on the practice exams in order to obtain permission to take the actual tests. If you do not earn 80% or higher on the practice exams, you will be required to meet with an advisor/tutor to help you with the domains in which you had difficulty before you take the actual exams.

Cost of the TExES exams

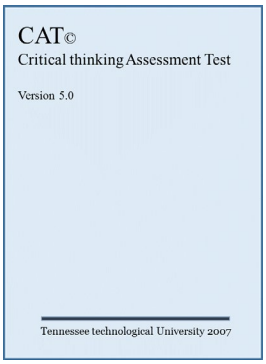
Below are the costs of the exams as of 2018. Please note that if you retake an exam, you must pay for it again.

Practice exams for Science Content and PPR (Representative TExES) - $33.50 for each

Certification exams for Science Content and PPR (Certification TExES) - $131.50 for each

Total cost for four exams = $330.00

Additional Exams and Program Requirements



1. **Critical Thinking Assessment Test (CAT)** or FSE exam – The test was developed by Tennessee Tech University and is first given in the *Foundations of Science* course (BIOL 1436) and again in the *Science Methods* course (BIOL 3310). It is an assessment of critical thinking skills which align with the scientific reasoning process. It does not require knowledge of a specific scientific discipline; rather, it assess a student's ability to think critically/logically based on a set of 15 questions. Most require a short, written response and the test takes about an hour to complete. The *Foundations of Science* course teaches these specific skills and your subsequent coursework will improve upon them. The test will also be given a second time in the *Science Methods* (BIOL 3310) course. With all of the science coursework you will have completed by then, your scores will undoubtedly be better! (*There is no cost to you for this exam*.) *If it is not possible to give the CAT exam, you will be asked to take the FSE exam, which was developed for the *Foundations of Science* (BIOL 1436) course. As with the CAT exam, it examines critical thinking, as well as attitudes and dispositions toward science.

2. Safety Plan – Completed in the *Science Methods* course (BIOL 3310)
3. Nature of Science project - Completed in the *Science Methods* course (BIOL 3310)
4. Focused Content Observation – This is done during the Student Teaching block
5. P-TESS – This is done during the Student Teaching block
6. Lesson Plan/Unit Plan - – This is done during CISE 4364
7. Capstone Portfolio – submitted during last semester (Teaching Block)
8. Student Teaching Assessment

Additional information about Curriculum Requirements

The Texas Higher Education Coordinating Board, which establishes the academic standards for university programs within the state, requires that all university students develop skills pertaining to **critical thinking, communication, teamwork, and empirical and quantitative work**. These skills are deemed essential to success in professional careers. *Teachers in 7th-12th grade are also expected to teach these skills to their students.* Accordingly, you will be asked to do assignments and projects which require these skills. So, for example, much of the work in the *Foundations of Science* course requires critical thinking and teamwork (in a fun way); and, of course, the work in

science courses in general requires empirical and quantitative skills. Needless to say, teachers make their living communicating, so that skill is essential and that is why it is recommended that you take COMS 1361 (Public Speaking) in Component Area IX of the GenEd Core (see course list above).

The Final Step!

Texas Educator Certificate

This certifies that

has fulfilled requirements of state law and regulations of the State Board for Educator Certification and is hereby authorized to perform duties as designated below:

STANDARD

Description	Effective Date	Expiration Date	Status
Classroom Teacher			
Mathematics Grades (4-8)	04/04/2009	12/31/2014	Valid
Secondary Basic Business Grades (6-12)	01/01/2009	12/31/2014	Valid
Mathematics Grades (8-12)	07/30/2011	12/31/2014	Valid

Once you have completed your coursework, you will apply to the **State Board of Educator Certification (SBEC)** for your certificate to teach in Texas public schools. Note that this certification must be renewed every five years and requires 150 hours of professional development. (Fee of $78)

Summary of SED Costs

***The approximate total indicated assumes successful completion of the TExES practice and certification exams on the first attempt. For additional attempts, the fee is charged again.**

$100.00 - Admission application to SED program (EPP fee) (First semester)
$55.00 – 1st Criminal background check (CBC) (First semester)
$33.50 – TExES Practice Science Content exam (Third semester)
$33.50 – Texas Practice PPR exam (Third semester)
$131.50 - TExES Science Content certification exam (Third semester)
$131.50 – TExES PPR certification exam (Third semester)

$78.00 - Application for Educator Certificate upon completion of the program (Upon completion of program)