

BIOENVIRONMENTAL SCIENCES - BS

This program equips students with innovative science and technology skills to address environmental challenges, preparing them for diverse and impactful careers.

Major breakthroughs are taking place locally, regionally and globally concerning environmental awareness. Environmental hazards take many forms, including microbial threats, toxic wastes and the indirect impact of man's activities on a fragile ecosystem. As a result, there is a growing recognition that the solutions to environmental problems require innovative multi-disciplinary perspectives and technologically-intensive approaches. The Bioenvironmental Sciences curriculum (BESC) was designed in consultation with numerous industry representatives in order to comply with the most current thinking on the talents needed for tomorrow's environmental fields. Students will be prepared for a breadth of career choices in the environmental sciences. These choices include such areas as research and development, environmental consulting, remediation of wastes, site assessment and environmental sampling, and environmental law. Graduates from BESC find employment in federal, state and municipal environmental agencies; in industries concerned with the generation and clean-up of hazardous wastes; with environmental advocacy and educational groups. In addition, the strong science base in BESC prepares students for professional and graduate schools in a variety of disciplines.

The curriculum described combines a foundation of required courses of technical and free electives to allow the student the maximum flexibility to design a personalized course of study. Students are advised to focus on an area of emphasis with those electives that come from such categories as conservation/ecology, policy/ethics/regulations, the physical environment, engineering, plant studies, genetics/biotechnology and general environmental. The Department of Plant Pathology and Microbiology also supports the extracurricular activities needed to support a successful environmental professional.

Program Requirements

First Year

Fall		Semester Credit Hours
BESC 201	Introduction to Bioenvironmental Sciences	3
BIOL 111 or BIOL 101	Introductory Biology I or Botany	4
ECCB 205	Fundamentals of Ecology	3
ECCB 215	Fundamentals of Ecology--Laboratory	1
Social and behavioral sciences (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) ¹		3
Semester Credit Hours		14
Spring		Semester Credit Hours
BIOL 112 or BIOL 107	Introductory Biology II or Zoology	4
Communication (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication) ¹		3

Government/Political science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) ¹		3
Language, philosophy and culture (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) ¹		3
Bioenvironmental group elective ²		3

Semester Credit Hours 16

Second Year

Fall

CHEM 119	Fundamentals of Chemistry I	4
PLPA 301	Plant Pathology	3
PLPA 303	Plant Pathology Laboratory	1
Government/Political science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) ¹		3
Bioenvironmental group elective ²		3

Semester Credit Hours 14

Spring

CHEM 120	Fundamentals of Chemistry II	4
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ¹		3
Creative arts (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) ¹		3
Bioenvironmental group elective ²		3
Technical elective ³		3

Semester Credit Hours 16

Third Year

Fall

CHEM 222 or CHEM 227	Elements of Organic and Biological Chemistry or Organic Chemistry I	3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ¹		3
Mathematics (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#mathematics) ¹		3
Technical elective ³		3
General elective ¹		3

Semester Credit Hours 15

Spring

GENE 310	Principles of Heredity	3
Mathematics (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#mathematics) ¹		3
Bioenvironmental group elective ²		3
Technical elective ³		3
General elective ¹		3

Semester Credit Hours 15

Fourth Year

Fall

SCSC 301	Soil Science	4
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Select one of the following:	3
STAT 201 Elementary Statistical Inference	
STAT 301 Introduction to Biometry	
STAT 302 Statistical Methods	
STAT 303 Statistical Methods	
Communication (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication) ¹	3
Bioenvironmental group elective ²	3
Technical elective ³	3
Semester Credit Hours	16
Spring	
BESC 481 Seminar	1
BESC 484 Field Experience	3
Bioenvironmental group elective ²	3
Technical elective ³	4
General elective ¹	3
Semester Credit Hours	14
Total Semester Credit Hours	120

¹ Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. Select in consultation with an academic advisor.

² Select 18 hours from BESC 203, BESC 204, BESC 311, BESC 314, BESC 320, BESC 357, BESC 367, BESC 401, BESC 402, BESC 403, BESC 411, BESC 421, BESC 431, BESC 489, SCSC 405. Other courses may be approved by advisor.

³ Courses may be selected from categories designed to reflect the professional aspirations of the student. Courses to be selected in consultation with academic advisor. Select 16 hours from ACCT 209; AGECE 344, AGECE 350, AGECE 429; AGSM 335, AGSM 360, AGSM 337, AGSM 477; ANSC 326/FSTC 326, ANSC 327/FSTC 327; ATMO 201; BESC 485, BESC 491; BICH 303, BICH 410, BICH 411; BIOL 213, BIOL 214, BIOL 357, BIOL 440; CHEM 242, CHEM 228, CHEM 237, CHEM 238, CHEM 316, CHEM 318; ECCB 308, ECCB 309, ECCB 320, ECCB 351, ECCB 403, ECCB 460/RPTS 460; ENSS 105; ENTO 201, ENTO 424; FINC 409; GENE 412, GENE 431/BICH 431, GENE 432/BICH 432; GEOG 201, GEOG 202, GEOG 203, GEOG 205, GEOG 213, GEOG 330, GEOG 380, GEOG 390, GEOG 398, GEOG 434, GEOG 435, GEOL 101, GEOL 104, GEOL 410, GEOL 420; HIST 359, HORT 201, HORT 202, HORT 313; HMG 207; ISTM 209; FSTC 201; MGMT 209, MGMT 309; MKTG 409; OCNG 320; PHIL 314; PHLT 305, PHLT 330, PHLT 331; PHYS 201, PHYS 202, PHYS 206; POLS 306, POLS 347, POLS 461; RWFM 308, RWFM 314, RWFM 375, RWFM 405, RWFM 406, RWFM 411, RWFM 420, RWFM 436, RWFM 440, RWFM 470, SCSC 105, SCSC 201, SCSC 205, SCSC 302, SCSC 310, SCSC 311, SCSC 315, SCSC 330, SCSC 406, SCSC 410, SCSC 411/GENE 411, SCSC 420, SCSC 421, SCSC 444, SCSC 455, SCSC 458; SOCI 328; URPN 360; URPN 370; URPN 460; VTPB 221, VTPP 423, WFSC 425.