BESC - BIOENVIRONMENTAL SCI (BESC)

BESC 201 Introduction to Bioenvironmental Sciences
Credits 3. 3 Lecture Hours.
A broad survey of environmental science with an emphasis on scientific literacy, current events, global and international issues and historic context.

BESC 204 Molds and Mushrooms: The Impact of Fungi on Society and the Environment
Credits 3. 3 Lecture Hours.
Introduction to the fungi and the impact these organisms have on society and the environment; includes life cycles of fungi; classification schemes, pathogens of plants, animals and humans, fungi in food production; toxic fungi and the law, and others.

BESC 285 Directed Studies
Credits 1 to 4. 1 to 4 Other Hours.
Individually supervised research or advanced studies for lower-division undergraduate students to independently investigate special problems not available in existing courses.
Prerequisite: Approval of instructor in consultation with departmental advisor.

BESC 291 Research
Credits 1 to 4. 1 to 4 Other Hours.
Research conducted under the direction of faculty member in bioenvironmental sciences. May be repeated 3 times for credit.
Prerequisites: Freshman or sophomore classification and approval of instructor.

BESC 311 International Perspectives on Environmental Issues
Credits 3. 3 Lecture Hours.
Role of the United Nations and other institutions that promote international cooperation toward sustainable development goals; influence of cultural views on critical thinking about environmental issues, including population, water and agriculture, biodiversity and energy.
Prerequisite: Junior classification or approval of instructor; must attend two mandatory pre-departure meetings.

BESC 314 Pathogens, the Environment and Society
Credits 3. 3 Lecture Hours.
The impact of microorganisms (bacteria, fungi and viruses) on the development of modern culture and society; the role pathogens played in the history of mankind and the influence of the changing environment on emerging diseases.
Prerequisite: Junior or senior classification.

BESC 320 Water and the Bioenvironmental Sciences
Credits 3. 3 Lecture Hours.
Critical understanding of salient issues relating to fresh water as a limited and important bioenvironmental resource.
Prerequisite: Junior or senior classification.

BESC 357 Biotechnology for Biofuels and Bioproducts
Credits 3. 3 Lecture Hours.
Biotechnology issues in developing bioenergy as a renewable energy source; emphasis on the three generations of bioenergy and enabling technologies; special topics include recent advances in bioenergy research, government policy, and industrial development.
Prerequisite: BESC 201 and junior or senior classification.

BESC 367 U.S. Environmental Regulations
Credits 3. 3 Lecture Hours.
Investigation of the legal infrastructure of the U.S. associated with regulating environmental impacts; examination of major U.S. environmental statutes associated with air and water quality, toxic substances, waste and hazardous substance release, energy and natural resources; review the relationship between U.S. policy and international environmental regulations.
Prerequisites: BESC 201 and junior or senior classification.

BESC 401 Bioenvironmental Microbiology
Credits 3. 3 Lecture Hours.
The interactions of microorganism in diverse environments; applied aspects of microbial interactions in the environment, their effects on the environment, and potential use to solve environmental problems.
Prerequisites: SCSC 405 and 3 hours of organic chemistry, or equivalents; or approval of instructor.

BESC 402 Microbial Processes in Bioremediation
Credits 3. 3 Lecture Hours.
Metabolic pathways of microbes involved in the biodegradation of hazardous materials will be presented; ecological requirements for biotreatability of contaminated sites will be discussed emphasizing factors affecting microbial growth; strategies for in situ bioaugmentation will be presented.
Prerequisite: One semester of organic chemistry.

BESC 403 Sampling and Environmental Monitoring
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Introduction to environmental sampling and methodology; strategies and analyses of sampling data; overview of current applications of sampling and monitoring in the environmental sciences; emphasis on practical aspects of sampling from air, soil and water; detection and quantification of microbial and chemical unknowns in environmental media.
Prerequisite: Junior or senior classification or approval of instructor.

BESC 411 Environmental Health and Safety Compliance
Credits 3. 3 Lecture Hours. 1 Lab Hour.
Investigation of various Environmental Health and Safety (EHS) practices necessary for compliance with state and federal regulations; reinforcement of real-world understanding; tour several regulated facilities on campus and learn about the particular TAMU-EHS compliance management strategies for each (utilities, underground storage tanks, wastewater treatment and hazardous waste facility).
Prerequisite: BESC 367 or similar regulation intensive course and approval of instructor.

BESC 481 Seminar
Credit 1. 1 Lecture Hour.
Capstone course for topics in bioenvironmental sciences; critical analysis of environmental issues through written themes and presentations. May be taken three times for credit.
Prerequisites: BESC 201 and senior classification in BESC major.

BESC 484 Field Experience
Credits 1 to 4. 1 to 4 Other Hours.
An on-the-job supervised experience program conducted in the area of the student's specialization.
Prerequisite: Junior or senior classification or approval of department head.

BESC 485 Directed Studies
Credits 1 to 4. 1 to 4 Other Hours.
Special problems for advanced undergraduates to permit study of subject matter not available in existing courses.
Prerequisite: BESC 201 or approval of instructor.
BESC 489 Special Topics in...
Credits 1 to 4. 1 to 4 Lecture Hours. 1 to 4 Lab Hours.
Selected topics in an identified area of bioenvironmental sciences. May be repeated for credit.
Prerequisite: BESC 201 or approval of instructor.

BESC 491 Research
Credits 1 to 4. 1 to 4 Other Hours.
Research conducted under the direction of faculty member in bioenvironmental sciences. May be repeated 3 times for credit.
Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded.
Prerequisites: Junior or senior classification and approval of instructor.