

(SC) SCIENCE

Courses

SC 134. Introduction to Geology. 3 Hours.

The course, specifically designed for the Environmental Science majors, introduces fundamentals of geology in the environmental context. The issues of local and global environmental changes are placed into a broader perspective of the functioning of the Earth system. Students are introduced into the science of Earth's materials: rocks, minerals, soils, and waters and the processes forming them. The internal processes (plate tectonics, earthquakes, volcanoes) and surface processes (streams, flooding, coastal zones, mass movements, glaciers, winds, desertification) are presented from the point of view of their influence on the geologic hazards, and on the distribution of natural resources. The interrelation of geology and human activities is examined in such contexts as waste disposal, air pollution, water contamination, climate change, land degradation, and resource and energy consumption. The format of this course includes one local field trip, lab activities on rocks and minerals identification, and introduction to topographic and geologic maps.

SC 141. Environmental Science. 3 Hours.

This course is a survey of the important topics in environmental science. Concepts of energy flow and nutrient cycling are explored in the context of human impacts upon these processes. Sources of pollution and their total effect on ecosystem and biosphere function are also explored. Management of material wastes and energy efficiency is an integral theme of the class. This class satisfies the laboratory science requirement with a series of in-class lab experiences and field trips.

SC 167. Energy and Society. 3 Hours.

This course examines the basic physical principles underlying various energy technologies and develops the quantitative skills necessary to evaluate these technologies. Students present their work in both written and oral form. The end goal of this course is to help students become citizens that have the requisite background and communication skills to intelligently participate in energy policy discussions and decisions. Topics typically include basic scientific literacy and notation, introductory physics (such as force, work, energy, power), circuit analysis, thermodynamics, various energy technologies (fossil fuels, nuclear power, solar, hydroelectric, etc.), and placing these technologies in a broader environmental, social, and economic context. This course includes an integrated laboratory in order to introduce basic laboratory skills. Prerequisite(s): MS 141 or MS 180 or MS 181 or MS 182.

SC 193. Foundational Concepts in Research I. 1 Hour.

This course introduces students to conducting independent research while an undergraduate student at Husson University. Student will visit faculty laboratories and gain an understanding of basic research concepts. Should students elect to participate in the Husson Undergraduate Scholars Program, this course serves as the first foundational course.

SC 199. Topic/. 1-6 Hour.

This course is intended to provide the opportunity to offer introductory courses in science that would not normally be a part of the Husson curriculum. As such the topics will depend upon the interests of students and faculty.

SC 213. Sustainability Science Projects. 3 Hours.

This course serves as the capstone project for the sustainability minor. Students will collaborate within multidisciplinary teams to propose and evaluate a solution (or solutions) to a sustainability problem developed by the team or proposed by the instructor. At the end of the semester each team will present its results in the form of a written thesis and an oral presentation. Prerequisite(s): EH 124 and (MS 141 or MS 180 or MS 181 or MS 182).

SC 224. Research Design. 3 Hours.

This course introduces basic concepts and skills needed for understanding and conducting research in the social, educational and health sciences. Students will receive a basic introduction to the fundamentals of research—what it involves, what types exist, and how to design and conduct such research. Examined are the essential terms and concepts of research necessary for students to critically evaluate research literature, develop solid research questions, and plan simple research projects. Active engagement with the research process will occur through class participation, exercises, literature reviews, development of research questions, and creation of inquiry strategies for answering research questions. Prerequisite(s): MS 132.

SC 251. Astronomy. 3 Hours.

This is an introductory course that will describe, develop and create physical models for many of the observable astronomical events in the sky. The topics may include motion in the night sky, the solar system, light, stars, star groups, the origin of the universe, life in the universe, and UFO's. The course has a required night sky/constellation observation component.

SC 261. Integrated Physical Science I. 3 Hours.

Integrated Physical Science I is the first course in the two semester sequence of Physical Science. The sequence is intended for, but not limited to, students planning career in elementary education. Using physical environment as a theme, principles of chemistry, physics, geology, atmospheric science, and space science are introduced, and reinforced through inquiry-based lab activities and field trips. This first course of the sequence, covers fundamental concepts of chemistry and physics, which include: motion, waves and particles, energy, structure and properties of inorganic and organic matter and their mixtures, interactions of energy and matter, order and equilibrium of physical systems.

SC 262. Integrated Physical Science II. 3 Hours.

Integrated Physical Science II is the second course in the two semester sequence of Physical Science. The sequence is intended for, but not limited to, students planning careers in elementary education. Using environment as a theme, principles of physical sciences are introduced and reinforced through inquiry-based lab activities. The course covers fundamental concepts of geology, atmospheric science, and space science.

SC 271. Physics I. 3 Hours.

Physics I is the first course in a two semester general physics sequence. The goal of this course is to introduce the student to the concepts of force and motion, work and energy, fluids and gases, heat and thermodynamics, and periodic motion. The class meets for three hours each week in lecture and recitation, and two hours each week in the lab. This course assumes no prior background in physics. Prerequisite(s): MS 180 or MS 181.

SC 272. Physics II. 3 Hours.

This course continues the development of the basic physical concepts begun in SC 271. Topics include electricity and magnetism, optics, atomic theory, relativity. Quantum mechanics, nuclear physics, and elementary particles. The class meets for three hours each week in lecture and recitation, and two hours each week in the lab. Prerequisite(s): SC 271.

SC 285. University Physics I. 3 Hours.

University Physics I is the first course in a two semester, calculus based university physics sequence. The goal of this course is to introduce students to the concepts of force and motion, work and energy, simple harmonic motion, and waves. The class meets for three hours each week in lecture, two hours each week in recitation, and two hours each week in the lab. This course assumes no prior background in physics. Prerequisite(s): MS 181.

SC 286. University Physics II. 3 Hours.

This course continues the development of the basic physical concepts begun in SC285. Topics include electricity, magnetism, and optics. The class meets for three hours each week in lecture, two hours each week in recitation, and two hours each week in the lab. Prerequisite(s): MS 181 and SC 285.

SC 299. Topic/. 1-6 Hour.

This course is intended to provide the opportunity to offer introductory courses in science that would not normally be a part of the Husson curriculum. As such the topics will depend upon the interests of students and faculty.

SC 312. Adult, Infant, and Child CPR First Aid. 3 Hours.

This is a standard American Heart and American Red Cross course in adult, infant and child emergency care of injuries and CPR. Standard certificate awarded on successful completion of course.

SC 383. Junior Science Seminar. 3 Hours.

This course introduces students to careers in science, the scientific research process, and research expectations within the biology, health science, chemistry and environmental science majors. The major focus is to develop a senior research proposal on the basis of what is attainable, interesting, and meaningful. Students learn, in detail, both the limits and expectations of undergraduate research in the sciences. Students are introduced to the important role of library resources and the professional literature as they investigate their chosen topic. Students are also expected to write a resume and career goals statement, give an oral presentation on a chosen career field in science, lead a class discussion of a scientific article, and submit a written research proposal that includes a scientific literature review, problem statement or hypothesis, a timeline for completion, and detailed budget for their proposed senior thesis research. Students present their proposed research and evaluate other student's research proposals. Prerequisite(s): MS 132.

SC 399. Topic/. 1-6 Hour.

This course is intended to provide the opportunity to offer advanced courses in science that would not normally be a part of the Husson curriculum. As such the topics will depend upon the interests of students and faculty.

SC 481. Senior Science Capstone Project I. 3 Hours.

This course serves as the capstone project for science majors in the School of Science & Humanities. The course provides experiential learning relevant to the student's area of study. Acceptable projects include laboratory or field research, an internship with an approved mentor, research survey or some other project deemed appropriate by the faculty. During the course, students meet periodically with their faculty advisor to plan their progress through the project. At the end of the semester, students present the final results of their research or a summary of their experience in the form of an oral presentation and a written thesis. Prerequisite(s): SC 224 or SC 383.

SC 482. Senior Science Capstone Project II. 3 Hours.

This course serves as a continuation of the science capstone course SC481. Students who wish to continue with their laboratory or field research may elect to take this course. Additionally, students who wish to explore other research projects or internship opportunities may elect to take this course. Students are encouraged to share their final results with the Husson University community and to publish their work in the peer-reviewed literature. Prerequisite(s): SC 481.

SC 499. Topic/. 1-6 Hour.

This course is intended to provide the opportunity to offer advanced courses in science that would not normally be a part of the Husson curriculum. As such the topics will depend upon the interests of students and faculty.

SC 624. Research Methods and Application. 3 Hours.

This course is designed to provide students with a comprehensive understanding of the research process, basic methodology, and how to apply and interpret both qualitative and quantitative data. Topics include the fundamentals of the scientific method and scientific inquiry, literature review, ethical considerations and requirements in research, strengths and weaknesses of various data collection methods, and basic methods of quantitative and qualitative data collection. Through discussions, article analysis, and hands-on practice, this course teaches students how to understand the components of research from start to finish, and be able to evaluate and interpret data.

SC 791. Professional Capstone. 3 Hours.

The Professional Capstone is a culminating course for students to apply skills and knowledge achieved during the program. Students are guided to develop an in-depth project illuminating career interests, applying their knowledge to the career, and analyzing a problem or situation within it. Students are expected to apply interdisciplinary problem-solving, analyze complex systems, and propose solutions to questions derived from their project.