

College of Computer, Mathematical and Natural Sciences (CMNS)

Department of Atmospheric and Oceanic Science

Bachelor's - Atmospheric and Oceanic Sciences

- Students will demonstrate competence in the design and execution of research in Atmospheric and Oceanic Science.
- Students will demonstrate a competence in the standard media of professional communications in the Atmospheric and Oceanic Sciences, including written manuscripts, oral presentations, and poster presentations.
- Students will demonstrate competent knowledge of a broad cross-section of Atmospheric and Oceanic science subject material
- Students will demonstrate the ability to gain in-depth knowledge of a specific area of Atmospheric and Oceanic science in the context of active research.

Department of Astronomy

Bachelor's - Astronomy

- Identify basic concepts from many areas of astronomy.
- Blend mathematical skills with physics knowledge to applications in astrophysics.
- Use telescopes, instruments, & computers to gather and reduce astronomical data
- Demonstrate advanced level knowledge in several different areas of astronomy.

Departments of Biology, Molecular & Cell Biology, and Entomology

Bachelor's - Biological Sciences

- Students should have mastered the critical knowledge at each level in the curriculum that is necessary to move on to the next level in the curriculum
- Students should demonstrate an ability to use and apply appropriate quantitative methods in chemistry, biochemistry and biology.
- Students at the upper level should be able to integrate and apply a relevant body of basic knowledge to the evaluation of existing scientific studies and to the design of studies to test specific hypotheses that includes design elements typically found in a specific field of the chemical and life sciences.
- Students should effectively communicate in writing the processes of science and the results of scientific inquiry.
- Students at all levels should master basic technical laboratory skills and basic understanding of the process of science.

Department of Chemistry & Biochemistry

Bachelor's - Biochemistry and Bachelor's - Chemistry

- Students should demonstrate mastery of a body of knowledge represented by the curricula in Chemistry and Biochemistry. Students should have mastered the critical knowledge and each level in the curriculum that is necessary to move on to the next level in the curriculum.
- The ability to read, evaluate and interpret chemical and numerical and information for a novel problem using their foundational knowledge in science.
- Students should have knowledge of appropriate safe-handling procedures and disposal of chemicals.
- Students at lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
- Students at upper level should be able to design experiment to test specific hypotheses, carry out these experiments using appropriate instrumentation and analyze the results.
- Students should demonstrate the ability to use the broader scientific literature to select appropriate information to support his/her work.
- Students should effectively communicate, both verbally and in writing, the processes of science and the results of scientific inquiry using appropriate language and models of chemistry (i.e. equations, symbolism, etc).
- Students should understand the importance of good ethical practices in scientific research.
- Students should continue their career in science through gainful employment or entrance into a graduate or professional school.

Department of Computer Science

Bachelor's - Computer Science

Graduates will learn to create, augment, debug and test computer software, developing the needed skills in the introductory sequence of courses. Graduates of this program will develop mathematical and analytical reasoning skills. Graduates will experience design and implementation of programming projects that are similar to those that would be seen in a real world environment. In addition to those skills mentioned above needed by all computer science graduates, the students must also gain skills and knowledge in one or more of the following areas of computer science: Computer Systems, Information Processing, Software Engineering, Programming Languages, Algorithms and Computation Theory, Numerical Analysis or Bioinformatics. Graduates will be exposed to working closely with other people. This human interaction is manifested in several ways: design of software/hardware based on user input and feedback, working as a member of a programming team, and making presentations to groups about what has been designed and/or implemented. Graduates will be exposed to some form of academic research or real world programming/business environments. This exposure makes their transition to either graduate school or the work environment smoother. Graduates will obtain a high level of skill in mathematical reasoning about algorithms, data structures, protocols and other objects in computer science.

Department of Geology

Bachelor's - Geology

- Demonstrate competence in the design and execution of research
- Demonstrate competence in oral and written presentations
- Demonstrate broad knowledge of geosciences subject material
- Demonstrate learning of knowledge base for research

Department of Mathematics

Bachelor's - Mathematics

Students will acquire problem-solving skills in a broad range of significant Mathematics. Students will gain an understanding of what constitutes mathematical thinking, including the ability to produce and judge the validity of rigorous mathematical arguments. Students will be able to communicate mathematical ideas and arguments. Students will be prepared to use mathematics in their future endeavors, not only in the discipline of mathematics but also in other disciplines.

Department of Physics and Physical Sciences

Bachelor's - Physical Sciences

Students will demonstrate analytic thinking and problem solving skills in a variety of areas of the Physical Sciences. Students will demonstrate advanced levels of knowledge in three areas of concentration within the Physical Sciences. Students will be prepared to enter the workforce in careers that require a broad scientific background.

Bachelor's - Physics

Students will demonstrate a thorough knowledge of the core areas of physics, including mechanics, electricity and magnetism, thermal physics, and quantum mechanics. This knowledge will be at a level compatible with admission to graduate programs in physics at peer institutions. Students will demonstrate a thorough knowledge of the necessary mathematics required for qualitative and quantitative analysis of problems in the core areas of physics. Students will demonstrate the ability to analyze and interpret quantitative results, both in the core areas of physics and in complex problems that cross multiple core areas. They will also have the ability to assess and solve unfamiliar problems in physics using the knowledge and skills acquired. Students will demonstrate the ability to use contemporary experimental apparatus common to the study of physical phenomena, and have the ability to acquire, analyze and interpret scientific data. Students will demonstrate the ability to communicate scientific results effectively, both verbally and in writing.