Guide to Undergraduate Majors

Biochemistry, BS
Biochemistry is the branch of science that explores the chemical processes within and related to living organisms. It is a laboratory-based science that brings together biology and chemistry. By using chemical knowledge and techniques, biochemists can understand and solve biological problems. The program is jointly administered by the chemistry and biology departments.

Biology, BS
Offers a vibrant curriculum and extensive opportunities for mentoring and hands-on research experiences as a means of developing a deeper understanding of biology at the levels of molecules, cells, organisms, and ecosystems.

Chemistry, BS/BA
Designed to prepare students for the challenges that face the chemist in a modern society. Graduates may go directly into industry or may continue their education at the graduate level in chemistry, medicine, dentistry, or other fields.

Computer Engineering, BS
Integrating aspects of electrical engineering and computer science, computer engineering focuses on the design, analysis, and application of computers and on their applications as components of systems. Computer engineers work on projects ranging from microprocessors to supercomputers to circuit design, as well as related fields such as robotics.

Computer Science, BS/BA
Take courses in database-backed web development, system administration, and artificial intelligence. Investigate biodiversity informatics, data mining, distributed software systems, and network information systems. Faculty will help you apply your knowledge to real world situations and prepare you for exciting careers in this high-growth industry.

Electrical Engineering, BS
Extremely broad and relevant to almost everything in our daily life, electrical engineering ranges from fancy toys to highly sophisticated electronics like computers and audio and video components. A BS degree in electrical engineering prepares students for work in diverse fields such as telecommunications, microelectronics, power electronics, and RF electronics.

Environmental Science, BS/BA
Highlights geological, oceanic, geographic, and environmental sciences. This major, housed in the School for the Environment, uses an interdisciplinary approach to address relationships between physical, natural, and human environments.

Information Technology, BS
Designed for students who want to work in IT but who do not want to become programmers. IT majors can choose from four tracks: system administration, information architecture, business intelligence, or computer forensics.

Mathematics, BS/BA
A degree in mathematics provides you with strong portable skills that will give you a competitive edge in virtually any career. For students interested in teaching, the College of Education and Human Development offers a master of education degree for professional licensure in secondary mathematics and a post-master’s certificate for professional licensure in secondary mathematics.

Physics, BS/BA
A BS in physics will prepare you for demanding scientific research in any of the following areas of inquiry: nonlinear optics and photonics, which can relate to laser eye protection; biomedical imaging; quantum dynamics; semiconductors; and even biological applications such as the acoustics of whale sonar.
Frequently Asked Questions

I want to be premed, but I don't see it listed. Does that mean I can't be premed while at UMass Boston? Is premed even a major?

Premedical studies is not a major, but a set of courses that are prerequisites for admission to medical, dental, and all other allied health professional schools. Many students interested in pursuing a career in medicine or allied health fields choose a biology major, because premedical coursework is closely aligned with requirements of the biology major. UMass Boston does offer a formal program of study for premedical students as an option, though it is not required. Students must have completed at least three semesters of coursework in math and science with at least a 3.2 average in the premedical courses (excluding labs) before declaring the program of study.

I want to work with computers. What's the difference between information technology, computer science, and computer engineering?

The main differences among these three majors lie in how you will work with computers. Information technology deals largely with computer systems, networks, and data use and storage. Computer science deals with the language of computers, and is heavily focused on programming or writing code. Computer engineering deals with the science behind development of computer hardware and software.

I'm not sure of which major to choose. What should I do?

There are many resources on campus that can help you decide which major may be right for you. The Office of Career Services and Internships offers the Focus 2, a web-based, personalized career and education planning system. Once you complete the Focus 2, you'll be provided with a complete picture of your interests, values, personality, and skills. It is free to complete, and you can discuss your results with a career counselor as well. Academic and student success advisors are also available to help you sort through all of your academic options.

I want to make a lot of money. Which major should I pick?

No one major is going to come with a guarantee of a great job after graduation. Focus on choosing a major and career path that is the right fit for your skills and interests. UMass Boston has so many opportunities that will help set you up for a lifetime of success. Doing well academically, and pursuing internships, research opportunities, extracurricular activities, and leadership positions on campus, you'll have a great resume in time for graduation and job searching.

What's the difference between a BA and a BS degree?

“BS” stands for bachelor of science. “BA” stands for bachelor of arts. Both degrees require 120 credits for completion, consisting of your major courses, general education courses, and electives. The general education requirements differ somewhat depending upon which degree you choose to pursue. The BA provides a broader education while the BS devotes more courses to the major and closely related areas. Student pursuing a BS degree must take additional courses in natural sciences and mathematics, specifically Calculus I.