Big ideas.
Infinite possibilities.
Natural Sciences and Mathematics

The world is full of mysteries, and studying natural sciences and mathematics gives you the tools to explore them. At URI, you can develop the skills necessary to turn knowledge into practical solutions to the world’s most pressing problems—from cybersecurity to climate change—as you learn to analyze data, recognize patterns, deconstruct algorithms, think outside the box, and communicate scientific research effectively.

Here you’ll be able to study in innovative, state-of-the-art labs, classrooms, and research facilities. We value multidisciplinary approaches, so you’ll be able to cultivate your strengths while also challenging yourself to expand your comfort zone by working with experts in a variety of fields. We’ll enable you to step outside traditional boundaries, giving you the tools needed to understand and approach complex problems that are anything but stagnant or linear. Most importantly, you’ll receive a solid foundation for a variety of graduate programs and some of the most in-demand career paths. The possibilities are endless.

- Chemistry (B.A., B.S.)
- Chemistry and Forensic Chemistry (B.S.)
- Computer Science (B.A., B.S.)
- Data Science (B.A., B.S.)
- Mathematics (B.A., B.S.—applied option and general option)
- Physics (B.S.)
- Physics and Physical Oceanography (B.S.)
- Combined B.S. and M.S. in Medical Physics

Chemistry Assistant Professor Matthew Kiesewetter and some of his students are teaming up with plant sciences and entomology, animal science, and wildlife and conservation biology faculty and students to study bees and come up with an organic way—using chemistry—to control the harmful mites that have been decimating bee colonies.
Chemistry

Chemistry is everywhere. It explains how things work. Everything from why leaves change color to how to perfect baking recipes can be boiled down to matter and energy and the interaction between them. Here we offer a foundation in all general areas of chemistry, preparing you for specialized research in academics or industry.

At URI, you’ll be able to study in the Richard E. Beaupre Center for Chemical and Forensic Sciences. The facility, which has been awarded a Leadership in Energy and Environmental Design (LEED) gold rating, is home to state-of-the-art teaching labs, organic chemistry labs, and research laboratory modules designed with the latest multimedia capabilities and advanced safety equipment. And because experiential learning is at the heart of our chemistry program, we have 10 active research groups you can join to explore a variety of complex, pressing issues—from medical problems to improving batteries to explosive detection.

“URI has given me a strong foundation in chemistry, math, physics, reading, writing, and research.”
– Melissa Morris ’19, chemistry major, mathematics and physics minor

DEGREE PROGRAMS
• Bachelor of Arts in Chemistry
• Bachelor of Science in Chemistry
• Bachelor of Science in Chemistry and Forensic Chemistry
Computer Science

Computer Science is a vibrant and rapidly changing discipline. Whether your interests lie in web development, creating apps, or developing high-performance machine-learning algorithms, we offer a chance to hone your focus while developing foundational skills that will prepare you for a variety of exciting careers. By studying computer science with us, you will learn to analyze the oceans of data needed to solve the world’s most pressing problems or contribute to vital research—such as securing the nation, curing diseases, developing vaccines, or modeling climate change.

At URI, you will work with faculty doing cutting-edge research in such areas as biostatistics and bioinformatics, digital forensics, machine learning, and interactive 3D graphics. We encourage interdisciplinary collaboration with scientists from other fields to help develop problem-solving skills, which are necessary in a fast-evolving discipline. Here you’ll benefit from a curriculum that integrates computer science, statistics, data science, and cybersecurity. We’ll give you the strong foundation and hands-on experience needed to grow as a professional, scholar, and citizen.

DEGREE PROGRAMS

• Bachelor of Arts in Computer Science
• Bachelor of Science in Computer Science

Rachel Barber ’91 is senior vice president and chief technology officer of gaming and lottery at International Game Technology (IGT) in Providence. Barber, who started with the company 28 years ago as a software engineer, still fondly remembers her love of video games. Her childhood dream of studying computer science and working for a gaming company has become a reality.
The ability to extract knowledge from vast amounts of data is at the core of 21st century discovery and decision-making, as “big data” permeates nearly every aspect of our society. Thus, it’s no surprise that data scientists were No. 1 on Glassdoor’s “Best Jobs in America” for 2019—for the fourth-straight year. This is an innovative field that combines computer science, ethics, mathematics, and statistics that will uniquely position you to take on the challenges of many different fields and interests, including business, health, medicine, policy, education, insurance, or government.

Here you can learn from the expertise of our Big Data Collaborative, a community of more than 100 faculty and staff across campus who work together to enhance the study of data science. They bring a variety of backgrounds to the table—from computational statistics to machine learning, from epidemiology to English, and more—giving you an unparalleled edge in an increasingly global marketplace. Many of our classes allow you to hone skills in multiple areas, including art, biology, business, climate, health, humanities, oceanography, science, social sciences, and more. We offer opportunities for international study, internships with industry, and undergraduate research. Our facilities include DataSpark, a makerspace, and an Artificial Intelligence Lab where you can create and explore with machine learning, visualization, and 3D printers, among other new technologies. We also have data and technology librarians who can provide research, training, consulting, and outreach services.

DEGREE PROGRAMS

• Bachelor of Arts in Data Science
• Bachelor of Science in Data Science
Mathematics

Mathematics is at the heart of many of today’s advancements in science and technology, as professionals with backgrounds in mathematics contribute to progress in a wide range of fields, including industrial and architectural design, economics, biology, linguistics, data science, psychology, and more. Studying mathematics will give you a competitive advantage while also providing a firm foundation for further study in a variety of disciplines. Our graduates have been successful in many different careers, from finance to academia to software engineering. At URI, you can pursue a general or applied option with a mathematics major. The general option will prepare you for graduate study; the applied option will emphasize the applications of mathematics while still providing a crucial theoretical foundation.

DEGREE PROGRAMS

• Bachelor of Arts in Mathematics
• Bachelor of Science in Mathematics

Lauren Black ’19, a native of Middletown, Rhode Island, graduated with a double major in applied mathematics and data science. Lauren now works as an actuary with the PwC firm in Boston—a career she says she was well-prepared to pursue, thanks to URI.

Many of the URI math classes have a project component or little case studies throughout that introduced me to how real-world mathematicians approach real-world problems.”

— Lauren Black ’19
Physics

Physics is a field that knows no limits. It encompasses the study of everything we know about the world around and beyond us, from the largest galaxies to the smallest subatomic particles. Studying physics cultivates inventive thinking and analytical and problem-solving skills that provide a strong basis for a variety of careers, from medicine to finance to astronomy. Many of our world’s most pressing and complex problems—from health crises to sustainable energy solutions—are being solved by professionals with a background in physics.

Here, you have options. A B.S. in physics will give you a solid foundation in theoretical and experimental physics, preparing you for graduate study or a career as an industry or government physicist. A B.S. in physics and physical oceanography allows you to take advantage of the research and teaching infrastructure at one of the most renowned schools of oceanography in the country. Lastly, our combined B.S. and M.S. in medical physics provides rigorous training in essential undergraduate physics courses and graduate physics and medical physics courses.

DEGREE PROGRAMS

• Bachelor of Science in Physics
• Bachelor of Science in Physics and Physical Oceanography
• Combined Bachelor of Science and Master of Science in Medical Physics (five-year program)

Cancer Research

Mark Semco, left, a student in the five-year medical physics track, is seen here with Michael Antosh, assistant professor of physics and Medical Physics Program director. Here they are working with a dosimeter, which measures radiation levels. The goal of their research is to find a way to use less radiation overall and reduce the side effects of radiation in cancer patients.
Interdisciplinary Spotlight

In the College of Arts and Sciences, we embrace the importance of interdisciplinary research as a tool to think big. We also encourage opportunities for our students, faculty, and alumni to form meaningful connections—connections that can transcend disciplinary boundaries and give our students practical career readiness preparation. For example, meet Ryan Vallee ’20, a native of Cumberland, Rhode Island, who is double majoring in chemistry and physics.

In 2018, Vallee attended a lecture given by Christopher Savoie ’92 at URI on hyperfluorescence technology. Among his many other accomplishments, Savoie developed a natural language interface that became the basis for Siri and founded GNI Ltd., a public, global pharmaceutical company in Japan. Vallee stayed after the lecture that night to talk to Savoie and ask questions. He later followed up with an email asking about internship opportunities. This connection led to an internship that summer in the Center for Organic Photonics and Electronics Research lab at Kyushu University in Fukuoka, Japan, where he developed three molecules involved in organic light-emitting diodes (OLEDs).

“My internship dealt with blue light, and how to make thermally activated fluorescents more efficient and cost-effective, as well as working with next-level displays,” Vallee says, adding that the technology is evolving for the next generation of electronics displays, such as phones, watches, and TVs. The goal is to develop light displays that are effective, efficient, and nontoxic—an elusive combination in the industry.

Vallee and Savoie’s mentorship continues to this day. Vallee now plans to become fluent in Japanese and hopes to return to Japan for graduate school. The possibilities are infinite.
THE UNIVERSITY OF RHODE ISLAND
COLLEGE OF ARTS AND SCIENCES

For further information contact:
University of Rhode Island
College of Arts and Sciences
260 Chafee Social Science Center
142 Flagg Road
Kingston, R.I. 02881
uricas@etal.uri.edu | 401.874.2566

URIArtsandSciences
uri_artsandsciences

school/university-of-rhode-island-college-of-arts-and-sciences
@URI_AS
uri.edu/artsci

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