

# BIOCHEMISTRY

Biochemistry majors study the intersection of biology and chemistry to investigate complex biological systems found in nature. Biochemists study life from the macro to the microscopic level, understanding how the molecular world plays a vital role in creating intricate ecosystems, the development of organisms and the processes of life.

## STUDENT EXPERIENCE

### Learn and Do More at RWU

With a focus on experiential learning at RWU, biochemistry majors can:

- Conduct original research and immerse themselves in fieldwork. Undergraduate biochemistry majors conduct graduate-level research and can receive credit for their experience working in a laboratory.
- Use sophisticated lab instrumentation to run experiments. A teaching assistant won't test the sample for you – you get to do it.
- Present research at the national meeting of the American Chemical Society, National Aeronautics and Space Administration R.I. Space Grant, National Science Foundation R.I. C-AIM, and many local symposiums. These conferences help students see how their work contributes to society and provide time for networking. This often leads to a job opportunity or an invitation to apply to a graduate program.



- + Ever wonder how fireflies light the night sky?
- + Did you ever think about how and why your blood type matters?
- + Is it interesting to think about how your daily vitamin supplement is used by your body?
- + Are you fascinated by what is happening at the molecular level when leaves change color in the fall?

## CAREER OUTLOOK

RWU **biochemistry** alumni are:

- Completing doctoral programs in various areas of chemistry, including materials science, inorganic, organic, and biochemistry
- Working as physician assistants and nurses
- Enrolled in medical, veterinary, and pharmacy school
- Working in the pharmaceutical industry
- Working in the biotech industry in university, corporate, and start-up settings

## ALUMNI SPOTLIGHT

👏 My undergraduate courses utilized instrumentation and incorporated student-led projects that allowed me to develop practical skills as a chemist. I learned to use technology that I work with every day as a graduate student in organic chemistry. The skills and analytical mindset I developed at RWU enabled me to thrive as a graduate student, a teaching assistant, and researcher. 🗨️

Meagan Hackey '17

Ph.D. candidate in organic chemistry at Boston College.

## CURRICULUM

Certified by the American Chemical Society, the Bachelor of Science in biochemistry offers students the opportunity to delve into the chemistry of biology as well as the biological applications of chemistry. The program provides a deep and comprehensive curriculum in both biology and chemistry, with a focus on research, fieldwork and laboratory work.

### Get a Great Internship

As a biochemistry major, you'll gain real-world experience through an internship, which often leads to full-time employment. Our students have interned at:

- Pfizer, Inc.
- The Audubon Society
- Woods Hole Oceanographic
- New England Aquarium
- Save The Bay

### Special Courses

Students also choose from a number of elective courses, including:

- Neurobiology
- Quantum chemistry
- Advanced environmental chemistry
- Virology
- Biotechnology

### Research Projects

Students spend hundreds of hours conducting research in a lab setting. These are just some of their research areas:

- Characterization of viruses in Mount Hope Bay
- Examining the molecular evolution of myelin basic protein
- Analyzing the degradation rate of halo-carbons into the atmosphere
- Creating novel chemosensors for environmental monitoring
- Developing a chemical testing method to combat cyanide fishing

### Laboratories & Technology

The chemistry labs house the latest instrumentation found in sophisticated research centers and private corporations, such as Nuclear Magnetic Resonance (NMR), Inductively Coupled Plasma (ICP), Gas Chromatography-Mass Spectrometry (GC-MS) and High Performance Liquid Chromatography (HPLC).

On board RWU's research vessel, the *InVincible Spirit*, students head out on the bay for water quality testing, to cast a trawl net to inspect aquatic species and to seine coastlines for bottom-dwelling inhabitants.

### Earn a Pharm.D. in 7 Years

Instead of taking eight years to get a Pharm.D., the accredited 3+4 Chemistry-Pharm.D. dual degree program enables students to earn a B.S. or B.A. in Chemistry or a B.S. in Biochemistry at RWU and a Pharm.D. from the Albany College of Pharmacy and Health Sciences in only seven years.

**OVER 80% OF  
RWU STUDENTS  
GRADUATE WITH  
MORE THAN JUST  
A SINGLE MAJOR**

RWU students  
have paired  
**biochemistry** with:

- Marine Biology
- Applied Mathematics
- Environmental Science