

# BIOCHEMISTRY

<http://www.rit.edu/cos/chemistry>

## PROGRAM OVERVIEW FOR EMPLOYERS

Biochemistry is an exciting variation of the BS chemistry program, with an emphasis on gaining an understanding of biology through chemistry. Students who enroll in the program often have an interest in combining the life and health sciences with a chemistry degree. During the first two or three years students take a year of general biology, in addition to the typical chemistry curriculum. During upper-level years students take a substantial core of biochemistry courses, physical chemistry, and chemical literature, plus elective courses in biology/biotechnology/clinical sciences, and liberal arts requirements.

### Degree(s) Awarded

Bachelor of Science  
BS/MS (dual degrees, Biochemistry/Chemistry)

### Enrollment

Approximately 65 undergraduate students

### Cooperative Education Component

All students have the option (recommended) of participating in quarter(s) of co-op employment during any quarter following completion of 1<sup>st</sup> year courses.

### Salary Information (Avg/Range)

Co-op:	\$14.62	\$8.57 - \$21.00
*BS:	\$37,090	\$28,000 - \$45,000

\*Statistics from the Nat'l Assn. Of Colleges & Employers (NACE) for 2009-2010 graduates

### Equipment & Facilities

- Windows Computer Network with Chemical Drawing and Modeling Software
- Agilent 8453 Photodiodearray UV-Visible Spectrophotometer
- 3 Shimadzu 2401 Scanning UV-Visible Spectrophotometers
- Perkin Elmer LS55 Fluorescence Spectrometer
- 3 Waters 650E Bio Chromatography Stations
- Hewlett Packard 3DCE Capillary Electrophoresis System
- Sorvall RC5C Plus Superspeed Centrifuge
- Sorvall RC6 Plus Superspeed Centrifuge
- Agilent 1100 HPLC
- Agilent GC/MS
- Bruker 300 MHz NMR
- Bruker 500 MHz NMR
- FTIR + Fluorescence Spectroscopy
- Walk-in refrigerated cold room
- Biochemistry majors can also utilize the extensive equipment provided for general chemistry majors
- Can also utilize extensive equipment provided for general chemistry majors

### Accreditation

Two curriculum tracks:

- Following the guidelines of the American Society for Biochemists and Molecular Biologists,  
OR
- Approved by the Committee on Professional Training of the American Chemical Society (for those most interested in a graduate program in chemistry)

### Student Skills & Capabilities

- In a technician capacity, students are able to perform many general chemistry and analytical chemistry laboratory tasks, with minimal supervision, even after their first year of coursework. They continue to enhance their lab skills in upper level courses to increase their ability to eventually contribute to research initiatives independently.
- Based on their elective choices, senior students may have skills in microbial and genetic manipulations, separations and environmental applications.

# Biochemistry

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## Course Sequence BS degree

### First and Second Years:

General Biology (3 courses, with labs)  
Cell Biology  
Molecular Biology  
Chemical Safety  
General Chemistry I & II (with lab)  
Quantitative Analysis I & II (with labs)  
Calculus I-III (with labs)  
Multivariate Calculus OR Statistics  
Instrumental Analysis (with lab)  
Organic Chemistry I-III  
Preparative Organic Chemistry I & II Lab  
Systematic ID of Organic Compounds Lab  
Liberal Arts Courses (12 cr hr)  
Cooperative Education (optional; after first year)\*

### Third and Fourth or Fifth Years\*:

Biochemistry specific [mostly in 4<sup>th</sup>/5<sup>th</sup> years]:  
Conformation & Dynamics  
Nucleic Acids  
Metabolism  
Experimental Techniques Lab

Two upper division biology electives  
Physics I-III (University OR College) with labs  
Differential Equations  
Chemical Thermodynamics (with lab)  
Chemical Kinetics (with lab)  
Chemical Literature  
Institute-wide and science electives and/or  
Liberal Arts courses (24 cr hr)  
Cooperative Education (optional)\*

### For ACS certified, include:

Quantum Chemistry  
Inorganic Chemistry & Preparative Lab

\*For a student electing to participate in co-op during the academic year, the sequence may vary and/or some courses may need to be taken during a fifth year.

### Employers of Biochemistry Co-op and/or Graduating Students:

Baltimore Police Dept, Ortho-Clinical Diagnostics (Johnson & Johnson), University of Illinois – Urbana, University of Rochester – Med. Ctr (Pharmacology), Rural/Metro Medical Services, UCB, Inc., Fraser Papers, Merck & Co., National Renewable Energy Lab, Genencor, Syngenta, Harvard Stem Cell Institute, LMI

### Contact Us:

We appreciate your interest in hiring RIT co-op, graduating students or alumni. We will make every effort to make your recruiting endeavor a success. Call our office and ask to speak with Charles Dispenza, the program coordinator who works with the Biochemistry program. For your convenience, you can access information and services through our web site at <http://www.rit.edu/recruit>.

### Charles W. Dispenza

#### Program Coordinator

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