

CHEMISTRY AND CHEMICAL BIOLOGY

www.chem.neu.edu/web

GRAHAM B. JONES, PhD, DIC
Professor and Chair

RAYMOND AND CLAIRE BRADSTREET CHAIR

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JAMES A. WATERS PROFESSOR OF ANALYTICAL CHEMISTRY

Barry L. Karger, PhD

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ASSOCIATE PROFESSORS

David E. Budil, PhD

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Patricia A. Mabrouk, PhD

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Sanjeev Mukerjee, PhD

Eriks Rozners, PhD

LABORATORY COORDINATOR

Edward H. Witten, PhD

PROFESSORS EMERITI

John L. Roebber, PhD

Alfred Viola, PhD

The Department of Chemistry and Chemical Biology provides education in basic chemistry and modern chemistry-related disciplines. The department offers an American Chemical Society–certified program leading to a Bachelor of Science in chemistry, and also offers a Bachelor of Science in biochemistry jointly with the Department of Biology. The overall objective of the Bachelor of Science in chemistry major program is to provide the fundamental scientific background and practical training for students as they prepare for chemically related careers or advanced study in fields including the traditional chemical specialties, as well as biochemistry, materials science, forensic science, medicine, education, law, and other endeavors

that may draw upon an understanding of the chemical basis of the world around us.

Key general objectives are the development of qualitative and quantitative problem-solving skills and effective communication skills. Specific learning objectives for the chemistry major include to develop conceptual understanding and problem-solving abilities in the fundamental chemical subfields of analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry; gain a foundation of physics and mathematics and integrate these areas with chemical principles; perform quantitative measurements; synthesize and characterize compounds; learn proper laboratory practices including safety; develop proficiency with modern instruments and computers for data acquisition and analysis; and learn the relevance of chemistry to biology, pharmacology, medicine, manufactured and natural materials, and the environment.

Most of our chemistry majors participate in the cooperative education program and thereby gain invaluable professional experience to augment their classroom and laboratory work. Not only does that experience add immensely to the overall education received, it also provides contacts and references for later employment or graduate school admissions. Chemistry majors also undertake a research project for at least one semester under the supervision of a faculty member. Sufficient electives are available in the program either to take more advanced courses or research within the department, or to add courses in an area of special interest, such as criminal justice in the case of an interest in forensic science.

BS in Chemistry

COLLEGE OF ARTS AND SCIENCES BS CORE REQUIREMENTS FOR NATURAL SCIENCE MAJORS

See page 46 for requirement list.

REQUIRED TECHNICAL COURSES FOR BS IN CHEMISTRY

Mathematics

MTH U151	Calculus and Differential Equations for Biology 1	4 SH
or MTH U241	Calculus 1 for Science and Engineering	4 SH
MTH U152	Calculus and Differential Equations for Biology 2	4 SH
or MTH U242	Calculus 2 for Science and Engineering	4 SH
MTH U345	Ordinary Differential Equations	4 SH
or MTH U343	Differential Equations and Linear Algebra for Engineering	4 SH

Biochemistry

Complete the following two courses and corresponding lab:

BIO U323	Biochemistry	4 SH
with BIO U324	Lab for BIO U323	1 SH
CHM U628	Spectroscopy of Organic Compounds	3 SH

Physics

Complete the following two courses and corresponding labs:

PHY U145	Physics for Life Sciences 1	4 SH
with PHY U146	Lab for PHY U145	1 SH
or PHY U161	Physics 1	4 SH
with PHY U162	Lab for PHY U161	1 SH

PHY U147	Physics for Life Sciences 2	4 SH
with PHY U148	Lab for PHY U147	1 SH
or PHY U165	Physics 2	4 SH
with PHY U166	Lab for PHY U165	1 SH

Advanced Science and Math Elective

Complete one course from one of the following departments:

BIO U500 to BIO U699
CHM U500 to CHM U699
GEO U500 to GEO U699
MTH U500 to MTH U699
PHY U500 to PHY U699

CHEMISTRY MAJOR REQUIREMENTS**General Chemistry**

Complete the following two courses and corresponding labs:

CHM U217	General Chemistry 1 for Chemical Science Majors	4 SH
with CHM U218	Lab for CHM U217	2 SH
CHM U220	General Chemistry 2 for Chemical Science Majors	4 SH
with CHM U221	Lab for CHM U220	2 SH

Intermediate-Level Chemistry

Complete the following five courses and corresponding labs:

CHM U315	Organic Chemistry 1 for Chemistry Majors	4 SH
with CHM U316	Lab for CHM U315	2 SH
CHM U317	Organic Chemistry 2 for Chemistry Majors	4 SH
with CHM U318	Lab for CHM U317	2 SH
CHM U321	Analytical Chemistry	4 SH
with CHM U322	Lab for CHM U321	1 SH
CHM U401	Physical Chemistry 1	4 SH
with CHM U402	Lab for CHM U401	1 SH
CHM U403	Physical Chemistry 2	4 SH
with CHM U404	Lab for CHM U403	1 SH

Advanced-Level Chemistry

Complete the following three courses:

CHM U501	Inorganic Chemistry	4 SH
CHM U522	Instrumental Methods of Analysis Lab	4 SH
CHM U532	Chemical Synthesis Characterization Lab	4 SH

Senior Research

Complete the following course:

CHM U750	Senior Research	4 SH
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Chemistry Capstone

Complete the following course:

CHM U770	Chemistry Capstone	4 SH
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EXPERIENTIAL EDUCATION REQUIREMENT

Complete one course in experiential education. Please see department for approved courses.

CHEMISTRY MAJOR CREDIT REQUIREMENT

Complete 83 semester hours in the major.

GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION

If elected

UNIVERSITY-WIDE REQUIREMENTS

136 total semester hours required
Minimum 2.000 GPA required

Minor in Chemistry**REQUIRED COURSES**

Complete the following six courses with corresponding labs.

Engineering students may take CHM U151 in place of CHM U211 and two other chemistry courses in place of CHM U214 and CHM U401.

CHM U211	General Chemistry 1	4 SH
with CHM U212	Lab for CHM U211	1 SH
CHM U214	General Chemistry 2	4 SH
with CHM U215	Lab for CHM U214	1 SH
CHM U311	Organic Chemistry 1	4 SH
with CHM U312	Lab for CHM U311	1 SH
CHM U313	Organic Chemistry 2	4 SH
with CHM U314	Lab for CHM U313	1 SH
CHM U401	Physical Chemistry 1	4 SH
with CHM U402	Lab for CHM U401	1 SH
CHM U403	Physical Chemistry 2	4 SH
with CHM U404	Lab for CHM U403	1 SH

GPA REQUIREMENT

2.000 GPA required in the minor

CINEMA STUDIES

www.dac.neu.edu/cinema

INEZ HEDGES, PhD, *Professor, Modern Languages*
KATHY HOWLETT, PhD, *Associate Professor, English*
Codirectors of the Program in Cinema Studies

MATTHEWS DISTINGUISHED UNIVERSITY PROFESSOR

Harlow L. Robinson, PhD, *History and Modern Languages*

PROFESSORS

Constance H. Rose, PhD, *Modern Languages*
Michael Ryan, PhD, *English*

ASSISTANT PROFESSORS

Gerald H. Herman, MA, *History*
Rei Okamoto, PhD, *Modern Languages*
Alan West-Durand, PhD, *Modern Languages*

LECTURERS

Michele Cao-Danh, PhD, *Modern Languages*
Emily Fox Kales, PhD, *Interdisciplinary Studies*
Louise McBryde, MA, *Interdisciplinary Studies*