

BIOCHEMISTRY

The Department of Chemistry

Department website: <http://chemistry.barnard.edu>

Location TBA pending RDSC Move-In

Phone number TBA pending RDSC Move-In

Chair: Prof. Andrew Crowther

Associate Chair: Prof. Michael Campbell

Department Manager: Tiffany Nesbitt

Department Assistant: Rebecca Perrington

The Study of Biochemistry

The department provides Barnard College students with a working knowledge of biochemistry—the study of matter and its transformations, particularly at the molecular scale—within a vibrant community of students, faculty, and staff. Students gain familiarity with the core areas of the field; inorganic, physical, organic, analytical, and biological chemistry; while developing broadly applicable skills in problem solving and critical thinking. Through extensive laboratory work, students apply chemical concepts and theories to the tangible world.

The laboratories of the department are modern and well-equipped for both coursework and independent projects. Students may undertake research projects under the guidance of members of the department during the academic year or the summer. Opportunities are also available for research with Columbia faculty as well as at many medical schools and research institutions in New York City.

The department strives to prepare majors and non-majors alike to meet post-graduation goals, including graduate study in chemistry, employment in chemistry or related technical fields, science teaching, and professional school (particularly in the health-related professions). The department is an important contributor to Barnard's effort to produce scientifically literate graduates and to be a source of distinguished scientists.

Programs of Study

The department offers a major but no minor.

Major

- Biochemistry Major

There is no Minor in Biochemistry

4+1 Programs

The Department of Chemistry offers 4+1 programs in chemical engineering and biomedical engineering.

Pre-Medical Program

Non majors who are interested in the pre-health professions should work with the pre-health adviser to determine the best selection of chemistry courses for their goals. Information about the topics covered in each chemistry course is available through the prehealth professions office to facilitate student choice.

Program-level Student Learning Outcomes

Students who graduate from Barnard College with a major in biochemistry will be able to attain the following objectives:

- Demonstrate a thorough grounding in the core areas of chemistry: inorganic, physical, organic, biological, and analytical;
- Work effectively and safely in the chemistry laboratory, designing and conducting experiments, analyzing experimental results, and drawing conclusions from that data;
- Access, search, and interpret the chemical literature to obtain and critically evaluate scientific information;
- Clearly communicate scientific ideas and results both in writing and orally;
- Conduct themselves professionally and ethically as members of the scientific community;
- Pursue careers that require a high degree of technical expertise, including those in chemistry, science teaching, and the health professions.

Student Advising

Advising Resources

- Prospective biochemistry majors should review the requirement coursework on the departmental website at <https://chemistry.barnard.edu/major-and-minor-requirements-0>
- To be added to the department emailing list for current and prospective majors and minors, please contact Rebecca Perrington at rperring@barnard.edu
- The Department of Chemistry holds a program planning meeting each semester to over course for the upcoming semester. This meeting is announced in chemistry courses and via the department email list.

Guidance for First-Year Students

Please consult the department webpages below for information for prospective and first-year students and for information on registering for general biochemistry.

<https://chemistry.barnard.edu/prospective-and-first-year-students>

<https://chemistry.barnard.edu/general-chemistry-registration-information>

Enrolling in Courses

Please consult the department webpages below for information on registering for general biochemistry.

<https://chemistry.barnard.edu/general-chemistry-registration-information>

Be aware that the biochemistry curriculum is very sequential, with most courses having one or several prerequisite courses.

Preparation for Graduate Study

The required coursework for biochemistry majors provides the necessary preparation for graduate study in both Master's and Ph.D. programs.

Performing chemical research in a faculty member's research lab, either at Barnard College or at an external institution, is an important step to determine if a Ph.D. program is the right choice.

Coursework Taken Outside of Barnard

AP Credit

Students with scores of 4 or 5 on the Chemistry AP test or a 5, 6 or 7 on the IB chemistry exam can receive 3 credits of unspecified chemistry credit. Students may not "place out" of CHEM BC2001 unless they have taken the equivalent course(s) in college.

Columbia Courses

For information on Columbia courses in biochemistry, please see the department website at:

<https://chemistry.barnard.edu/prospective-and-first-year-students>

Transfer Credit

When students wish to transfer credit to Barnard from other institutions, their coursework is first evaluated for college elective credit by the Registrar's Office. Once approved, courses can be considered by the department for credit toward the major or minor.

For information on biochemistry department course approval for courses at other institutions, please see the department website at:

<https://chemistry.barnard.edu/external-course-credit>

You are strongly encouraged to get departmental approval before taking the course. Approval is not guaranteed.

Study Abroad Credit

- Classes taken abroad through Columbia-led programs are treated as Columbia courses, equivalent to those taken on the Morningside Heights campus.
- Classes taken abroad through other institutions or programs are treated as transfer credit and are subject to the same policies as other transfer courses. Accordingly, there will be a limit on the number of study abroad courses taken at other institutions that can be counted toward the major or minor.
- To receive credit toward the major or minor for a study abroad course (whether taken through a Columbia program or another institution/program), students must submit a Study Abroad Approval form through Slate and obtain the approval of the Chair or departmental representative.
- You are strongly encouraged to get departmental approval before taking the course. Approval is not guaranteed.

Summer Credit

- Courses that fulfill requirements for the chemistry and biochemistry majors and the chemistry minor are not typically taught at Barnard College in the summer.
- Courses taken at other institutions (including Columbia) are considered transfer credit and are subject to the same policies governing other transfer courses. To receive major or minor credit for a summer course taken at another institution, students must submit

a Summer Course form through Slate and have it approved by both the Registrar's Office and the Chair or department representative.

- You are strongly encouraged to get departmental approval before taking the course. Approval is not guaranteed.

Senior Capstone Project

A student may complete their senior capstone project by either 1) doing one semester of chemical research or 2) completing a senior honors thesis, which involves a full year of research and an associated seminar that is focused on creating the thesis document and final presentation.

Departmental Awards

- AIC Chemistry Award
- AIC Biochemistry Award
- Royal Society of Chemistry Certificate of Excellence
- NY ACS Excellence in Chemical Sciences Award
- ACS Award in Organic Chemistry
- ACS Award in Inorganic Chemistry
- ACS Award in Analytical Chemistry
- ACS Award in Physical Chemistry
- ACS Award in Biochemistry or Chemical Biology
- Ida & John Kauderer Prize
- Marie Reimer Scholarship Fund Prize
- Excellence in Research Award
- Sally Chapman Award for Departmental Leadership

Chair: Andrew Crowther

Assistant Chair: Michael Campbell

Professors:

Rachel Narehood Austin (Diana T. and P. Roy Vagelos Professor of Chemistry)

Marisa Buzzeo (Helene L. and Mark N. Kaplan Professorship of Physical & Natural Sciences)

Andrew Crowther

Dina Merrer (Dean of Science)

Christian Rojas

Associate Professors:

Michael Campbell

Christina Vizcarra

Assistant Professors

Rebecca Donegan

Senior Lecturers

Meena Rao (Director of the Organic Chemistry Labs)

Jean John Vadakkan

Lecturers

Angela Paoletta

Term Assistant Professors

Romina Mancusso

Teaching Staff

Craig Allen (Laboratory Instructional Support Specialist)

Grace Lee (Laboratory Instructional Support Specialist)

Marina Orman (Laboratory Instructional Support Specialist)

Suqing Liu (Senior Associate Laboratory Director)

Kaitlyn Dutton (Core Facilities and Instruments Manager)

Requirements for the major in Biochemistry can be found on the Requirements tab under Chemistry.

Courses for the major in Biochemistry can be found on the Courses tab under Chemistry.