

# MASTER OF ARTS IN CHEMISTRY

The Master of Arts via the BA/MA program is an attractive option for current Wesleyan science majors to enrich their course and research background. The program has a strong research orientation. It also includes course work, seminars, and, in some cases, teaching. A student hoping to enter this program will be expected to declare the intention to do so early enough in his/her undergraduate career to permit the design of an acceptable program with a research advisor. Students are advised to begin research no later than their junior year if they intend to pursue the BA/MA. Admission is competitive and based on GPA, faculty recommendations, and research experience. Students apply in their senior year and if accepted, can continue for one year beyond the bachelor's degree with the goal of completing the master's degree requirements in one additional year. The MA year is tuition free. [[wesleyan.edu/grad/degree-programs/bama.html](http://wesleyan.edu/grad/degree-programs/bama.html)]

The Chemistry Department may grant the degree of Master of Arts to students in the Ph.D. program who do not complete the Ph.D.

## COURSES

Students in the BA/MA or terminated Ph.D. programs are required to earn a minimum of 6.0 credits in order to fulfill the requirements of the master's degree. The minimum 6.0 required credits must include at least 2.0 total credits of Advanced Research, at least two 1.0 credit chemistry elective courses at the 300-level or higher, two semesters of upper-level seminars (CHEM547/548, CHEM557/558, or CHEM587/588), and two semesters of the departmental colloquium (CHEM521/522). Students may petition to have an advanced elective course(s) from another department count toward their two 300-level chemistry elective courses.

All degree-seeking graduate students are required to register for at least one credit in each semester that they are enrolled in the university.

## PROGRESS AND QUALIFYING EXAMS

Students in the terminated Ph.D. program are not required to have passed a specified number of progress examinations in order to complete the master's degree. Students in the BA/MA program are not required to take progress examinations.

## TEACHING

Teaching is not required as part of the BA/MA program, however many students in the BA/MA program choose to contribute to the department to build their pedagogical skills as teaching assistants (TA's). Students in a terminated Ph.D. program have the same teaching responsibilities as those in the Ph.D. program.

## RESEARCH

As outlined above, students in both the BA/MA and terminated Ph.D. programs are required to enroll in 1.0 credits of advanced research each semester.

## THESIS AND DEFENSE

An oral defense of the master's thesis before their committee is required for successful completion of the master's degree for both BA/MA and terminal MA students. A final, open seminar to the department and broader community is not required for the master of arts degree.

## CONCENTRATIONS

### CHEMICAL PHYSICS

Guiding Committee: Lutz Hüwel, *Physics*; Joseph Knee, *Chemistry*; Stewart E. Novick, *Chemistry*; Brian Stewart, *Physics*

Beginning students in the chemistry or physics graduate programs may petition their department for admission to the interdisciplinary program in chemical physics. The philosophy underlying the program is that the solution to contemporary problems must increasingly be sought not within a single traditional specialty but from the application of different disciplines to particular problems. Students in the program will pursue a course of study and research that will familiarize them with both the Physics and Chemistry departments and, in particular, with those areas of overlapping interest that we broadly categorize as chemical physics.

Students entering the chemical physics program will choose an interdepartmental committee to oversee their progress toward the PhD degree. Students will still receive a Ph.D. in either chemistry or physics. Chemical physics students will be expected to take courses from both departments. The core of the program of courses consists of quantum chemistry (offered by the Chemistry Department), quantum mechanics (offered by either department), electrodynamics (offered by the Physics Department), statistical mechanics (either department), and mathematical physics (Physics Department). For details of the course offerings, see the course listings under chemistry and physics.

**Seminars.** Students will participate in the weekly chemical physics seminar series and will be expected to present at least one talk per year.

**Examinations.** Students will follow the examination policy of their sponsoring department. Those chemical physics students pursuing a Ph.D. in chemistry will take periodic progress exams based on the current literature, and in their second year they will take an oral qualifying exam that includes a short written proposal of their future Ph.D. research. A second proposal, external to their research, is submitted in the fourth year. In addition, there is a final oral Ph.D. thesis defense. For details, see the requirements for the PhD in chemistry. For those chemical physics students pursuing a Ph.D. in physics, there are three formal examinations: a written examination at an advanced undergraduate level (taken in the third semester), an oral Ph.D. candidacy examination (taken no later than the fifth semester), and a final oral Ph.D. thesis defense. For details, see the requirements for the Ph.D. in physics.

**Research.** Students in chemical physics may do research under the direction of any member of either department. To aid the student in this selection and to sample the flavor of research activities in both departments, students will participate briefly in the research of each department. During the first year, students will rotate among as many as two research groups from each department, spending between four and six weeks in each group. It is anticipated that a student will be able to make a formal choice of a research advisor by the end of the first academic year at Wesleyan.

## **MOLECULAR BIOPHYSICS**

The Chemistry Department participates in an interdisciplinary program of graduate study in molecular biophysics with the departments of Molecular Biology and Biochemistry (MB&B), Biology, and Physics. The program provides a course of study and research that overlaps the disciplinary boundaries of chemistry, physics, biology, and molecular biology and is designed for students with an undergraduate background in any one of these areas. Students in the program are enrolled in one of the participating departments and fulfill canonical requirements of the department. In addition, they take advanced courses in molecular biophysics and pursue dissertation research with one of the faculty in the program. Centerpieces of the program are the weekly interdepartmental journal club in molecular biophysics and an annual off-campus research retreat. Both activities bring together students, research associates, and faculty from all participating departments and foster interdisciplinary collaborative projects.

The program is affiliated with interest groups such as the New York Structural Biology (NYSB) and the New York Bioinformatics and Computational Biology (NYBCB) groups. All students are encouraged to join and attend national meetings of the Biophysical Society.

Students interested in this program may indicate their interest on the application for admission to the Chemistry, MB&B, Physics, or Biology departments. Application forms for these departments are available at: <https://admission.wesleyan.edu/apply/>.

## **ADDITIONAL INFORMATION**

For additional information, please visit <https://www.wesleyan.edu/chem/graduates/index.html>