

GRADUATE PROGRAM IN CHEMISTRY

GRADUATE SCHOOL
OF ARTS AND SCIENCES
OF
BRYN MAWR
COLLEGE

WHY BRYN MAWR?

Graduate education at Bryn Mawr College is truly unique. Our students pursue high-level graduate studies in a liberal arts environment that fosters collaboration and interdisciplinary research. Because our program is small, students build exceptionally close working relationships with faculty who are conducting leading research in chemistry. The department emphasizes a synergy between teaching and research, which means our students are well prepared for a variety of future careers.



CURRENT RESEARCH ACTIVITIES

Chemistry faculty at Bryn Mawr research problems at the forefront of the discipline, including:

- Protein crystallography in enzyme engineering
- Computational studies of macromolecules
- Synthesis and electrochemistry of novel materials for nanotechnology
- Drug development
- Enantioselective synthesis
- Model studies of metalloenzymes
- RNA-protein binding investigations

THE GRADUATE GROUP IN SCIENCE AND MATHEMATICS

The Graduate Group in Science and Mathematics (GGSM) is an interdepartmental group that includes programs in Chemistry, Mathematics, and Physics. The GGSM promotes scholarly and social interactions among graduate students through interdisciplinary research projects and a graduate student mentoring program. GGSM members also share a common space where they plan and engage in community-building events and activities.



OUTSTANDING LABORATORY FACILITIES

The Park Science Center, which recently underwent a \$21 million renovation, provides modern lab spaces that encourage interdisciplinary work. Instrumentation includes:

- 400 MHz NMR spectrometer
- Atomic force microscope
- GC-MS and LC-MS
- Liquid scintillation counter
- Cold rooms
- Gaussian 16 and 09
- FT-IRs
- Electrodeposition and electroanalytical chemistry
- Biopotentiostat
- UV-Vis spectrometers
- Fluorescence spectrophotometer
- Machine shop
- Library with Scifinder, e-journals

WHAT OUR STUDENTS DO NEXT

Postdoctoral Appointments:

Princeton University, Fox Chase Cancer Center, Thomas Jefferson University, University of New Mexico, University of Pennsylvania

Academic Positions:

Chestnut Hill College, Delaware Valley College, Drexel University, Eastern College, Haverford College, James Madison University, Gwynedd Mercy University, Neumann University

Industry Positions:

Bristol-Myers Squibb, GlaxoSmithKline, Merck, Roche BioScience, iCeutica

FINANCIAL SUPPORT

Bryn Mawr offers fellowships, teaching assistantships, grants, and tuition awards to eligible incoming students. Fellowship stipends start at \$26,250 (12 month). All financial aid awards include a full health insurance grant, full tuition award, and can be guaranteed for multiple years.



WWW.BRYNMAWR.EDU/GGSM/CHEMISTRY



GRADUATE FACULTY



SHARON J. NIETER BURGMAYER, Professor / Dean of Graduate Studies (Ph.D., University of North Carolina, Chapel Hill)

RESEARCH: Inorganic and bioinorganic chemistry

Sharon is an inorganic and bioinorganic chemist interested in the various roles of metals in biology. Current projects include the synthesis of molybdenum compounds that model the catalytic center of molybdenum enzymes and developing ruthenium compounds that photocleave DNA. Sharon collaborates with Martin L. Kirk at the University of New Mexico and Günter Schwarz at Universität Köln, Germany and is supervising a joint graduate research project with Professor Jonas Goldsmith.



MICHELLE M. FRANCL, Professor (Ph.D., University of California, Irvine)

RESEARCH: Computational chemistry

Michelle is a quantum chemist whose research interests range from the development of methods for computational chemistry to the structures of topologically intriguing molecules—including molecules with Moebius topology. She and her students have collaborated with Bryn Mawr colleagues from chemistry, physics, and math on projects ranging from the structures of Moebius strips to the quantum mechanics of internal rotation in the solid state to the mechanisms of action of anticancer drugs. Michelle is also a writer whose essays on science, culture, and policy have appeared in the journal *Nature Chemistry* and in several collections.



JONAS GOLDSMITH, Associate Professor, (Ph.D., Cornell University)

RESEARCH: Physical and inorganic chemistry

Jonas is an inorganic and physical chemist whose interest lies at the intersection of photochemistry, electrochemistry, surface science, and the synthesis of new molecular nanomaterials. His current work involves an examination of photoinduced electron transfer in light harvesting systems.



YAN KUNG, Assistant Professor (Ph.D., Massachusetts Institute of Technology)

RESEARCH: Biological chemistry

Yan is a biochemist who studies and manipulates the link between enzyme structure and function. His lab focuses on enzymes involved in the biosynthesis of natural compounds with medical or industrial importance, such as drug or biofuel biosynthetic enzymes. After gaining a molecular understanding of how these enzymes work, his lab then uses this insight to engineer enzymes with more desirable functions not found in nature.



BILL MALACHOWSKI, Professor (Ph.D., University of Michigan)

RESEARCH: Medicinal and synthetic organic chemistry

Bill is an organic chemist whose lab engages in two primary areas of research: the creation of new synthetic chemistry tools and enzyme inhibitor development. In the first area, the lab develops new synthetic reactions, which will facilitate the enantioselective synthesis of better drugs. In the second project, the lab designs and constructs new inhibitors of indoleamine 2,3-dioxygenase, a target of cancer therapy.



PATRICK MELVIN, Assistant Professor / Director of Graduate Program (Ph.D. Yale University)

RESEARCH: Organometallic chemistry

Patrick is an organic and organometallic chemist whose lab aims to produce new and improved synthetic strategies. With pharmaceutical molecules growing ever more complicated, novel methods to tackle challenging transformations and stitch together important bonds are needed. His lab projects include development of ligands for metal-catalyzed reactions and investigations into a new class of molecules to install fluorine into organic compounds. Both projects will develop innovative methodologies and ultimately target relevant pharmaceutical and agrochemical compounds.



SUSAN WHITE, Professor (Ph.D., Johns Hopkins University)

RESEARCH: Nucleic acid biochemistry

Susan is a biochemist studying RNA structure and stability, and RNA-protein interactions. She uses techniques from molecular biological cloning and mutagenesis to biophysical fluorescence and UV spectroscopy.



CONTACT US

For admissions information, visit www.brynmawr.edu/gsas/admissions

For program information, contact Patrick Melvin at prmelvin@brynmawr.edu or 610-526-7392