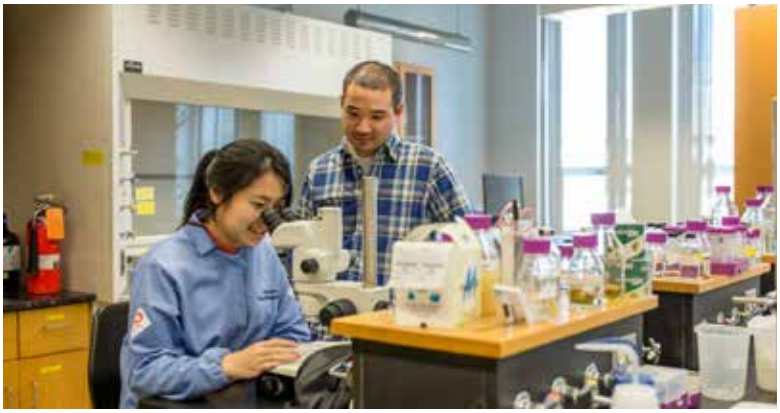
Graduate Program in Chemistry

BRYN MAWR COLLEGE

Chemistry

WHY CHEMISTRY AT 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 researching at the forefront of the discipline. 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

- DNA binding and cleavage by metal compounds
- Computational studies of macromolecules
- Synthesis and electrochemistry of novel materials for nanotechnology
- Cancer drug development
- Natural products syntheses
- Model studies of metalllo enzymes
- RNA-protein binding investigations

GRADUATE GROUP IN SCIENCE AND MATHEMATICS

- Interdisciplinary group including graduate programs in Chemistry, Mathematics and Physics
- Promotes scholarly and social interactions among graduate students
- Promotes interdisciplinary research projects
- Provides a mentoring program by graduate students for graduate students

Learn More:

www.brynmawr.edu/chemistry/graduate

OUTSTANDING LABORATORY FACILITIES

- 400 MHz NMR spectrometer
- Atomic-Force Microscope
- GC-MS and LC-MS
- Liquid scintillation counter
- Cold rooms
- Gaussian 09
- FT-IR's
- Electrodeposition and electroanalytical chemistry
- Biopotentiostat
- UV-Vis spectrometers
- Fluorescence spectrophotometer
- Machine shop
- Library with Scifinder, e-journals

WHAT OUR STUDENTS DO NEXT

Postdoctoral Appointments

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

Academic Positions

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

Industry Positions

Bristol-Myers Squibb, GlaxoSmith-Kline, Merck, Roche BioScience, iCeutica

FINANCIAL SUPPORT

- Teaching and Research Assistantships (12 month)
- Tuition Coverage
- Full Health Insurance Grant

VISIT

Experience Bryn Mawr Chemistry firsthand! To arrange a visit, contact Professor Jason Schmink by phone at 610-526-5361 or by email at jschmink@brynmawr.edu

Graduate Faculty

Sharon J. Nieter Burgmayer, Professor
Ph.D., University of North Carolina, Chapel Hill, 1984
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, 1983
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 (Mallory, Malachowski), physics (Beckmann) and math (Melvin) 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, 2002
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. Current projects include: 1) An examination of photoinduced electron transfer in light harvesting systems. 2) The synthesis and characterization of electron transfer in multimetal-center macromolecules. 3) An exploration of graphene surface functionalization with polyaromatic-terminated transition metal complexes. In addition to a joint project with Sharon Burgmayer, Jonas is collaborating with Professor Alan T. Johnson in the Department of Physics at the University of Pennsylvania

.

Yan Kung, Assistant Professor
Ph.D., Massachusetts Institute of Technology, 2011
Research: biological chemistry

The Kung lab employs a variety of biochemical techniques in combination with X-ray crystallography to understand the link between enzyme structure and function. A primary research theme is to study enzymes involved in the biosynthesis of molecules with medical or industrial importance, focusing on enzymes from biological pathways which build molecules that can be used as advanced biofuel or drug targets. After first gaining a deep molecular understanding of how these enzymes work, we will then use this insight toward the rational design and engineering of proteins with more desirable functions not found in nature.

Bill Malachowski, Professor
Ph.D., University of Michigan, 1993
Research: medicinal and synthetic organic chemistry

Bill is an organic chemist whose lab is currently engaged in two research projects: enzyme inhibitor development and the creation of new synthetic tools. The enzyme inhibitor project is a collaboration with researchers at the Lankenau Institute of Medical Research with the goal of developing better inhibitors of indoleamine 2,3-dioxygenase as a new anticancer therapy. Bill's lab is also developing new synthetic tools to more efficiently generate complex molecular structures with biological activity. One potential application of the synthetic tools is towards the generation of a new antibiotic drug to address the growing medical crisis in antibiotic resistance.

Susan White, Professor
Ph.D., Johns Hopkins University, 1988
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. Susan collaborates with Eric Wickstrom, Professor of Biochemistry and Molecular Biology at Thomas Jefferson University, on a project aimed at detecting RNA in cancer diagnostics and with Koffi Tozo in the Department of Plant Physiology, University of Lomé, Togo.