

B.S. in Chemistry

Highlights of the Chemistry Program

Students studying chemistry at St. Bonaventure learn in a hands-on environment that emphasizes personal interaction with faculty members who are devoted to excellent teaching in state-of-the-art teaching and research laboratory facilities.

Upper-division lecture classes are small, with fewer than 12 students per class; general and organic chemistry courses have fewer than 30 students per section. Laboratory sections are taught by faculty, rather than student assistants.

Chemistry majors are strongly encouraged to begin collaborating with faculty on original research projects as early as the start of their sophomore year, and all departmental instruments are available for majors to use in their coursework and research projects. We believe this personal approach best develops a student's understanding of chemistry.

New Facilities and Equipment

The Department of Chemistry showcases the rich history of St. Bonaventure and its vision for the future. The department is located primarily in De La Roche Hall. Dedicated in 1900, it is the oldest building in use on campus and the cornerstone of the university's historic core. In summer 2018, funded by generous contributions from donors, chemistry began a \$500,000 major upgrade of our teaching and research instrumentation to include:

- Shimadzu QP2010SE Gas Chromatograph - Mass Spectrometer (GC-MS)
- Multimode dual deca-core/quad-core Beowulf computing cluster — 18 Nodes
- Shimadzu UV-2600 UV-vis spectrophotometer with integrating sphere & thermal control
- 2 Shimadzu IRSpirit Fourier Transform-Infrared (FT-IR) spectrophotometers
- Shimadzu RF-6000 spectrofluorophotometer



- Thermo Dionex Aquion dual-channel ion chromatograph
- Shimadzu Quadrupole LCMS-2020
- Shimadzu AA-7000 Atomic Absorption Spectrometer

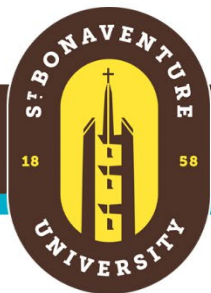
Those instruments enhance current equipment holdings, including, but not limited to:

- JEOL 400-MHz nuclear magnetic resonance (NMR) spectrometer
- MBraun Unilab Glove Box
- DeltaNu Advantage 532 Raman Spectrometer
- Pine WaveNow Potentiostat/Galvanostat
- Nicolet 670 high-resolution fourier-Transform infrared (FT-IR) spectrophotometer

The combination of traditional, old-school personal interaction with faculty and new, state-of-the-art instrumentation and facilities gives students the opportunity to transform themselves from seekers of knowledge to creators of knowledge.

Career Opportunities & Success Stories

Our chemistry graduates have been over 95% successful in obtaining science-related jobs, entry into health professional schools, and chemistry graduate programs over the past five years. Chemistry is the foundation of many scientific fields, so our graduates are prepared for a wide variety of careers, including the health professions (medicine,



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dentistry, pharmacy, optometry), the chemical industry, university academics, high school teaching, and service in the military. In recent years, our majors have gone on to:

- Johns Hopkins Ph.D. chemistry program
- SUNY Buffalo Ph.D. chemistry program
- University of Notre Dame Ph.D. chemistry program
- Virginia Tech Ph.D. chemistry program
- Medical School (LECOM)
- Dental School (UB, LECOM)
- Massachusetts CPHS optometry program
- OSU School of Pharmacy
- Rochester Institute of Technology MS in chemistry
- Johnson & Johnson
- ELANTAS (formerly Solvay & Cytec)
- Mallinckrodt Pharmaceuticals
- U.S. Drug Enforcement Agency

Research Support

The Department of Chemistry faculty are presently supported by the following external and internal grants totaling more than \$175,000:

- National Science Foundation
- American Chemical Society's Petroleum Research Fund
- St. Bonaventure Keenan Grant

These grants allow for students to get paid for research if working with a funded professor. Additionally, many of our students participate in Research Experience for Undergraduate (REU) programs or similar programs. These experiences enable our students to conduct paid research at a major research institution. Recently, students have researched at Virginia Tech, University of Puerto Rico, University at Buffalo, and ELANTAS.

Meet our Chemistry Faculty

Donna Brestensky (Organic Chemistry)

- Ph.D., Indiana University
- B.S., chemistry, Allegheny College

Research Interests

- Pedagogical approaches for stereochemistry
- Synthesis of air-sensitive late transition metal organometallic complexes



Kellie Gast (Organic/General Chemistry)

- M.S., Ph.D., medicinal chemistry, SUNY at Buffalo
- B.A., chemistry, Elmira College

Research Interests

- Xanthene-based dyes for solar energy
- Chalcogenorhodamine dyes as photosensitizers for biological applications
- Chalcogenorhodamine dyes as probes for reactive oxygen species



Scott Simpson (Physical/Inorganic/General)

- Ph.D., SUNY at Buffalo
- B.S., SUNY at Fredonia

Research Interests

- Understanding surface-adsorbate interactions
- Exploring catalysts via computations
- Identification of toxic pollutants



Additional Chemistry Faculty

Patrick Schneider (General Chemistry)

Konstantinos Plakas (General Chemistry)