

MAJOR IN CHEMISTRY, SUSTAINABLE CHEMISTRY CONCENTRATION

Chemistry, the central science, engages biochemistry, biology, engineering, and environmental and materials sciences. Chemists synthesize compounds from life-enhancing medicines to the materials of modern society with the understanding that there can be unintended consequences. Chemists collect and analyze data used in policy decisions including those involving the air, food, soil, and water. Chemists develop materials and processes that are safer, and are more energy and material efficient. Chemists develop processes for the recovery and conversion of waste to raw material. Chemistry majors develop a solid foundation in general chemistry and mathematics followed by coursework in organic chemistry, analytical chemistry, physical chemistry, inorganic chemistry, chemical biology, and physics. The curriculum is rounded out by courses in the liberal and communications arts.

Chemistry majors in the sustainability track are encouraged to participate in undergraduate research. Ample opportunities exist for undergraduate students to become involved in ground-breaking research in the laboratories of individual faculty members. Students have access to state-of-the-art equipment in faculty laboratories and the Central Instrument Facility including NMR, FTIR, UV/Vis, fluorescence, and mass spectrometers, vacuum lines, x-ray diffractometers and many more. Undergraduate research is strongly encouraged for any student considering a career in chemistry and many students complete supervised research for academic credit. Development of skills in all of the aforementioned analytical techniques will allow graduates to pursue a consultant, educator, or researcher career.

Learning Outcomes

- Describe the unintended consequences associated with the synthesis of compounds ranging from life-enhancing medicines to the materials of modern society.
- Articulate the thought process used to develop safer, more energy and material efficient processes, including the recovery and conversion of waste to raw material—the principles of Green chemistry.
- Effectively communicate the results of the collection and analysis of data used in policy decisions for questions involving the air, food, soil, and water.