DESCRIPTION
Chemistry majors use theory, mathematics, and experimentation to study matter and how it behaves. Chemists work with matter at a fundamental, molecular level to observe its composition, properties, and transformation into new substances. Chemistry significantly impacts many other fields including medicine, materials science, genetics, biology, pharmacy, food science, and environmental science. Chemistry majors have many potential career industries such as pharmaceuticals, chemical engineering, research, and healthcare.

SKILLS
- Research skills and independent thinking
- Strong report-writing skills
- Safe handling of chemical materials and equipment
- Strong time management and organization

POSSIBLE FUTURE POSITIONS
- **Formulation chemist**: Work mainly in a laboratory setting, adjusting chemical compounds and recording information to test and develop pharmaceuticals, health products, foods, cosmetics and cleaning products.
- **Lab technician/analyst**: Conduct analytical or lab-based tests for quality assurance, safety inspection, regulatory adherence, environmental impact or sample testing.
- **Research & Development chemist**: Create new products and technologies by conducting tests with chemicals, chemical compounds, and chemical processes.

CAREER INDUSTRY EXAMPLES
- Pharmaceuticals: Research and development
- Government: Education
- Non-profit agency

SAMPLE EMPLOYERS
- Biogen
- Sage Therapeutics
- Novartis
- NexPro Tech
- Kronos Bio
- Blueprint Medicines
- APEX Systems
- Lockheed Martin
- Silicon Therapeutics
INSIDE COURSE 5

5 Chemistry Undergraduates: 30
5-7 Chemistry and Biology Undergraduates: 18

DEPARTMENT FAVORITES

5.60  Thermodynamics and Kinetics
Equilibrium properties of macroscopic systems. Basic thermodynamics: state of a system, state variables. Work, heat, first law of thermodynamics, thermochemistry. Second and third law of thermodynamics: entropy and free energy, including the molecular basis for these thermodynamic functions. Phase equilibrium and properties of solutions. Chemical equilibrium of reactions in gas and solution phases. Rates of chemical reactions. Special attention to thermodynamics related to global energy issues.

5.39  Research and Communication in Chemistry
Independent research under the direction of a member of the Chemistry Department faculty. Allows students with a strong interest in independent research to fulfill part of the laboratory requirement for the Chemistry Department Program in the context of a research laboratory at MIT.

5.61  Physical Chemistry
Introductory quantum chemistry; particles and waves; wave mechanics; atomic structure and the Periodic Table; valence and molecular orbital theory; molecular structure; and photochemistry.

COURSE 5-FRIENDLY LABS

Raines Laboratory
Ceyer Research Group
Griffin Group

GET INVOLVED WITH COURSE 5

ClubChem
National Association for the Professional Advancement of Black Chemists and Chemical Engineers at MIT
Undergraduate Biochemistry Association

Sources: MIT Global Education & Career Development, Graduating Student Survey 2015 - 2017. Collegeboard.org. University of Minnesota Center for Academic Planning. UPOP is here to help you! Come talk to us in 1-123 or email us at upopstudentprogram@mit.edu