

MAJOR

BACHELOR OF SCIENCE IN TOXICOLOGY

DEPARTMENT OF SCIENCES

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ADVISOR

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See all major requirements at: www.jjay.cuny.edu/toxicology-major-resources

WHAT WILL YOU LEARN IN THIS MAJOR?

Toxicology addresses the adverse effects of all types of chemical substances on living organisms. With heightened social awareness and concern about the many different toxins in the environment and in the food supply, it is most important to understand the effect of both short and long-term exposure to potentially harmful substances found in food, the environment, and in medications and drugs, both legal and illegal. Thus the fields of toxicology and pharmacology are both vital for an understanding of how people interact with the total chemical environment to which they are exposed, actively or passively.

The Toxicology major provides students with a solid grounding in the general sciences, a robust foundation in general toxicology, and a diverse selection of specifically focused toxicology courses, such as Cellular and Molecular Toxicology, Public Health, Environmental Toxicology, Forensic Toxicology, and Clinical Toxicology. The goal of this major is to provide students with a career-oriented educational program that is firmly grounded in both theory and hands-on experience, and which will strengthen their ability to make meaningful contributions to society both as informed citizens and as practicing scientists.

IN THIS MAJOR YOU WILL ■■■

Acquire basic knowledge of chemistry, biology, physics and mathematics (including statistics).

Comprehend how chemical (and to a relevant degree physical or biological) agents affect living organisms and the environment.

Investigate and utilize various instrumental, biochemical and molecular biological techniques for the analysis and identification of chemicals, for the study of toxic effects, and to delineate the toxic mechanisms.

Participate in a capstone research project.

FIRST COURSES IN THE MAJOR ■■■

Entering students admitted to Toxicology take two semesters of biology and chemistry courses and one semester of calculus. The science courses they start with are determined by their math placement or by biology/chemistry courses transferred in from other colleges.

All students not admitted to the major upon admission to John Jay should see the Admission Requirements section of the Toxicology major resource webpage.

Please contact Professor Shu-Yuan Cheng (shcheng@jjay.cuny.edu) in the Department of Sciences for more information.

“All substances are poisonous, there is none that is not a poison; the right dose differentiates a poison from a remedy.”

— Paracelsus

WHAT CRITICAL THINKING SKILLS WILL YOU DEVELOP IN THIS MAJOR?

- The ability to think creatively, plan, and evaluate results within the scientific framework.
- The ability to clearly formulate crucial scientific questions, and identify vital scientific problems.
- The ability to precisely and accurately collect relevant scientific data and information.
- The ability to effectively, accurately and objectively interpret scientific data and information.
- The ability to propose and discuss solutions to complex scientific problems in both oral and written forms.

WHAT MINOR MIGHT BE A GOOD COMPLEMENT TO THIS MAJOR?

- Biology
- Chemistry
- Sustainability and Environmental Justice
- Psychology
- Mathematics
- Computer Science
- Anthropology
- Law

For more information about minors, go to:

www.jjay.cuny.edu/minors

WHAT OPPORTUNITIES WILL THIS MAJOR OFFER YOU?

- The opportunity to work with and learn from experts in the various fields of toxicology.
- Access to the PRISM program and participation in research with faculty mentors.
- The ability to successfully compete for scientific positions in research, academia, industry, and government.
- The basis, from the acquired knowledge and skills, to apply for a wide range of professional and graduate programs in the applied sciences and the life sciences including health-related professions.

THIS MAJOR CAN BE A GREAT FOUNDATION FOR A WIDE RANGE OF JOBS, BUT SOME POSSIBILITIES TO CONSIDER ARE:

- Biology Research scientist or technologist in chemical, consumer products, pharmaceutical and other industries; university/academia; government agencies and clinical/environmental/forensic laboratories.
- Health-related careers, such as physician, dentist, medical examiner, nurse, pharmacist, physical therapist, and occupational therapist (professional degree required).
- Patent or healthcare lawyer (law degree required).
- Science teacher/writer/journalist/consultant.