Chemical Physics

Your Technical Hiring Solution

Chemical Physics examines the atomic and molecular nature of chemical and physical processes. It combines the theoretical approach with the molecular focus of chemistry. Chemical Physics emphasizes laboratory work and recognizes the links between many areas of Chemistry and Physics, such as the use of X-ray diffraction to determine molecular structure. Students cover issues such as the study of organic, inorganic and biological chemistry and fundamental interactions at the atomic level.

Students also study the use of physical techniques such as spectroscopy, X-ray, nuclear scattering and microscopy to examine the identity and structure of chemical compounds. Overall, the Chemical Physics major provides a broader background than a major in either Physics or Chemistry and opens the door to a wide variety of possible careers.

University of Guelph Advantage

- An international reputation for excellence in research grants awarded to faculty that have been consistently higher than the national average for over a decade
- Five Physics/Biological & Medical Physics faculty members have been named as Fellows of the Royal Society of Canada

Our co-op process responds to your needs. Employers can post, interview and hire throughout the semester and our students are available for 4 or 8 month work terms. The **Experience Guelph** hiring tool makes hiring Guelph co-op students easy!

Student Strengths

- Excellent communication and problem-solving abilities
- Fundamental knowledge of basic physics, chemistry, math and scientific programming
- A solid foundation in circuit theory, wave theory and optics as well as analytical, physical and/or organic chemistry
- Strong lab technique, report writing and spectroscopy skills

recruit@uoguelph.ca
519-824-4120 ext. 52323
uoguelph.ca/coop

Chemical Physics Course Sequencing

YEAR	FALL (SEPT-DEC)	WINTER (JAN-APRIL)	SUMMER (MAY-AUG)
ONE	• INTEGRATED MATHEMATICS & PHYSICS I • GENERAL CHEMISTRY I • PROGRAMMING • ONE OF: DISCOVERING BIODIVERSITY **OR** BIOLOGICAL CONCEPTS OF HEALTH **OR** INTRODUCTION TO MOLECULAR AND CELLULAR BIOLOGY	• INTEGRATED MATHEMATICS & PHYSICS II • GENERAL CHEMISTRY II • LINEAR ALGEBRA I • ONE OF: DISCOVERING BIODIVERSITY **OR** BIOLOGICAL CONCEPTS OF HEALTH **OR** INTRODUCTION TO MOLECULAR AND CELLULAR BIOLOGY	**OFF**
TWO	• STRUCTURE AND BONDING • ADVANCED CALCULUS I • ELECTRICITY AND MAGNETISM I • INTRODUCTION TO CO-OPERATIVE EDUCATION • 1 LIBERAL EDUCATION ELECTIVE • APPLIED DIFFERENTIAL EQUATIONS	• STRUCTURE AND SPECTROSCOPY • ANALYTICAL CHEMISTRY I • EXPERIMENTAL TECHNIQUES IN PHYSICS • MECHANICS • ELECTRICITY AND MAGNETISM II	**WORK TERM ONE**
THREE	**WORK TERM TWO**	• 2 ELECTIVES • ANALYTICAL CHEMISTRY II: INSTRUMENTAL ANALYSIS • ONE OF: INTERMEDIATE PROGRAMMING **OR** 1 ELECTIVE • ONE OF: MOLECULAR SPECTROSCOPY **OR** 1 ELECTIVE	**WORK TERM THREE**
FOUR	• QUANTUM CHEMISTRY • QUANTUM MECHANICS I • SCIENCE COMMUNICATION • MATHEMATICAL PHYSICS • ONE OF: THERMODYNAMICS AND KINETICS **OR** THERMAL PHYSICS	**WORK TERM FOUR**	**WORK TERM FIVE**
FIVE	• ANALYTICAL CHEMISTRY III: ANALYTICAL INSTRUMENTATION • ONE OF: CHEMISTRY OF THE ELEMENTS I **OR** ORGANIC CHEMISTRY II **OR** 1 ELECTIVE • STATISTICAL PHYSICS II • 2 ELECTIVES	• QUANTUM MECHANICS II • ONE OF: MOLECULAR SPECTROSCOPY **OR** TOPICS IN ADVANCED PHYSICAL CHEMISTRY **OR** 1 ELECTIVE • OPTICS: FUNDAMENTALS AND APPLICATIONS • 1 ELECTIVE • COMPUTATIONAL METHODS IN MATERIALS SCIENCE	

BASED ON THE 2022/23 UNDERGRADUATE CALENDAR

PLEASE SEE THE CURRENT UNDERGRADUATE CALENDAR FOR MORE INFORMATION