BIOCHEMISTRY

Experience Map

PROMISE
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University of Windsor

- BIOCHEMISTRY
- BIOCHEMISTRY WITH THESIS
- BIOCHEMISTRY – HEALTH SCIENCES STREAM
- INTERDISCIPLINARY ARTS AND SCIENCE

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BIOCHEMISTRY

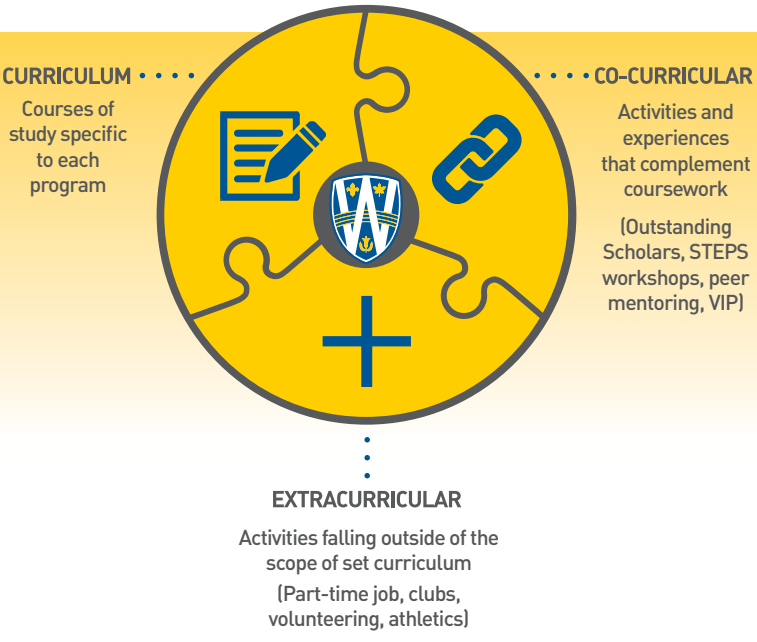
SKILLS AND KNOWLEDGE OF BIOCHEMISTRY GRADUATES

PROGRAM HIGHLIGHTS

- **Biochemistry** – If you're interested in the chemistry of DNA, proteins, enzymes, as well as fundamental relationships between chemistry and living organisms, you will find this program fascinating. It introduces you to chemistry but focuses upon the chemistry of biological systems in the senior-level years.
- **Biochemistry – Health and Biomedical Stream:** Our Health and Biomedical Sciences stream provides a clear pathway to medicine, pharmacy or graduate research in a health-related science. This program builds on the strengths of both biology and biochemistry and integrates lab components with course selection flexibility.
- **Interdisciplinary Arts and Science** – If you're a highly motivated student who wants knowledge and skills that will familiarize you with the humanities, social sciences and natural sciences, this elite program is for you. Design your program to match your interests and career aspirations. From here, consider a master's program, professional school (medicine, optometry, dentistry, occupational therapy, naturopathic medicine, law, MBA, pharmacy), or teaching (with additional studies).

FUNCTIONAL KNOWLEDGE

- Understanding and analyzing cellular and other biological/chemical structures, organ systems, and various processes involved in their interrelation
- Testing and assessing materials to identify potential chemical reactions and determine concerns
- Operating advanced scientific laboratory equipment and instruments; implementing appropriate techniques for studying chemical processes and reactions
- Planning, conducting, recording, and presenting scientific research to a high degree of competency
- Designing experimental studies to accomplish targeted goals or test specific hypotheses
- Locating, explaining, avoiding, and presenting reactions and interactions between chemical products



BUILD YOUR SKILLS AND EXPERIENCE

Your UWindsor experience is more than attending classes. It is a combination of academics, co-curricular activities, and extracurricular involvement. By making the most of all three elements of your university experience, you will maximize your opportunities to build your skills, broaden your personal network, and clarify your long term academic and career goals.

CAREER PLANNING GUIDE

Intentional career planning will help you prepare for your next step after graduation. It is a fluid, dynamic, and continuous process, meaning you can move on or return to an earlier stage at any time. You can even work through simultaneous cycles, like one for your long-term dream job and another for a summer job.

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HOW TO USE THIS GUIDE

This guide is meant to help you explore various opportunities throughout the course of your UWindsor experience. It is intended to help you link academics, co-curricular, extra-curricular and career planning activities by suggesting some of the options available to you. This is to help you see what you can do, rather than what you are required to do!

First Year

Academics

- Take required courses including General Chemistry I and II, Cell Biology, Differential Calculus, Introductory Physics I and II, Arts/ Social Science elective, Biological Diversity or elective
- Review degree course requirements for all years of study
- Participate in our PASS program during Welcome Week to learn the skills necessary to be successful as a Faculty of Science student
- Visit the Chemistry Resource Centre regarding any questions about your program
- Meet with an academic advisor such as the department head or program co-ordinator
- Receive peer mentorship from any of your professors in Chemistry & Biochemistry or an upper-year MySci advisor

Experience

- Begin the process of becoming a LEAD Medallion Scholar and participate in credit and volunteer activities that provide you skills in **Leadership, Engagement, Application and Discovery**★
- Apply for a co-curricular experience such as the Volunteer Internship Program (VIP)★
- **Discover** through research opportunities as part of the Outstanding Scholars program★
- Be **Engaged** by volunteering in a lab to participate in research with professors and graduate students★
- Research student exchange and study abroad opportunities for middle years to gain a Global Perspective of Science★
- Join a club like the Chemistry Club, Students Offering Support or Science Society

Career

- Create a list of things that you enjoy, areas in which you excel, and your skills
- Meet with Career & Employment Services (CES) to develop a plan for your future years
- Consider taking an interest assessment to help you identify possible career paths
- Attend a CES workshop to learn how to find a summer or part-time job
- Become familiar with the mySuccess online job search tool
- Attend a CES resumé and cover letter workshop to get your resumé critiqued

Middle Years

- Take required courses and check in with academic advisor to make sure you are on the right path
- Consider completing an undergraduate research project in final year ★
- Begin taking courses related to pharmacology, kinetics and photochemistry, drug design, and DNA science and diagnostics
- Seek out internships and courses that offer field experience★
- Start taking courses required as pre-requisites for graduate/ professional school
- Consider declaring a minor and/or specialization

Final Year

- Meet with faculty and an academic advisor to review degree requirements
- Complete all required courses to fulfill degree audit
- Apply to graduate through MyUWindsor Portal
- Undertake an undergraduate research project with a faculty member★
- Consider completing a minor in a second science discipline
- **Apply** your knowledge through a field work, internship, or practicum course to optimize your senior experience★

- Participate in Work-Integrated Learning (WIL) through paid, 8-to-12 month internships with industry partners★
- Join a professional association in your field such as the Canadian Society for Molecular Biosciences or the American Society for Biochemistry and Molecular Biology
- Participate in the UWill Discover undergraduate research conference ★
- **Apply** your knowledge in a summer research assistant or teaching assistant position in Chemistry and Biochemistry★
- Gain a Global Perspective of Science (GPS) through an international exchange or by studying abroad★
- Expand your skills by taking on a summer, part-time or volunteer position
- Gain valuable **Leadership** skills through roles within a club or society

- Apply for an NSERC – Undergraduate Student Research Award★
- Conduct field research with faculty member★
- Be **Engaged** through Service Learning opportunities with Let's Talk Science and Science Rendezvous★
- Become a tutor for Students Offering Support (SOS)
- Become a MySci Advisor to provide academic support and mentorship for first-year students
- Complete LEAD Medallion Scholars in two areas for Bronze, three areas for Silver, four areas for Gold, in accordance with **Leadership, Engagement, Application, Discover**★

- Research career fields and occupations
- Explore opportunities and meet employers through a job fair or employer information session
- Attend the Graduate and Professional Schools Fair to explore further educational opportunities
- Analyze the requirements for graduate or professional schools
- Make an appointment with Career & Employment Services to explore career options
- Create a LinkedIn profile and have it critiqued
- Take part in informational interviews through such sources as Ten Thousand Coffees

- Consider applying to graduate or professional school and be aware of early application deadlines
- Meet with Career & Employment Services to prepare application documents such as resumé, cover letter, CV or personal statement
- Attend an Interview Skills Workshop and Job Search Tips Workshop
- Set up a mock interview for professional school or job applications
- Meet employers at the annual job fair in January
- Compose a portfolio of relevant academic and work experience

★ High-Impact Practice: educational practices that include experiential learning as a basis for student engagement and successful scholarship

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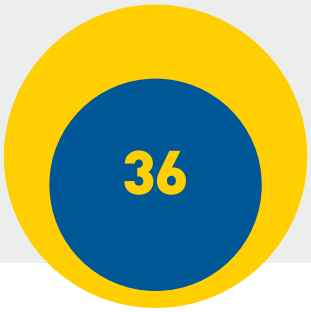
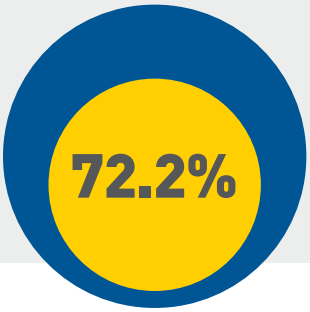
LIFE AFTER GRADUATION

2016



Number of graduates from Biochemistry in 2016 .

2013



Percentage of Canadian university physical and life sciences technologies graduates who continued their studies post-bachelor degree.
(National Graduates Study 2013)

COMMON INDUSTRIES FOR BIOCHEMISTRY GRADUATES

- Academia: Advanced chemical research
- Biomedical and biotechnical research
- Chemicals, petrochemicals and pharmaceuticals
- Education: Curriculum design, teaching
- Food sciences, production, and regulation
- Government: research and policy development
- Health-care professions
- Industry: Consulting, product development/testing
- Patent law
- Physical science industries

CAREER TRACKS*

Agricultural scientist
Dentist
Doctor
Ecological assessor
Environmental consultant
Food inspector
Food technician
Health educator
Industrial hygienist
Lab technician
Laboratory supervisor
Land surveyor
Lawyer
Medical director
Nutritionist
Optometrist
Pharmaceutical salesperson
Pharmacist
Professor
Project manager
Quality assurance supervisor
Radiation therapist
Research co-ordinator
Soil tester
Teacher
Toxicologist
Veterinarian
Water treatment technician

* Additional education and/or training required for some of the above careers.

CAREER-READINESS COMPETENCIES

Critical Thinking and Problem Solving: Using strategic and creative thinking to make decisions and evaluate solutions

- Learning, understanding, and interpreting information to apply knowledge to new situations
- Interpreting information to efficiently and constructively support or challenge proposals, theories, ideas, and reports with a project's intended end goal in mind
- Thinking critically to solve complex and universal problems

Professionalism and Work Ethic: Demonstrating personal management practices and a high level of integrity and ethical behaviour

- Managing time, data, and resources to meet deadlines
- Identifying priorities and preferable courses of action to execute necessary tasks
- Appreciating events and information in greater environmental, national, and global contexts

Teamwork and Collaboration: Working as a productive member of a group and collaborating with others to achieve set goals

- Leading and interacting with colleagues who reflect different backgrounds, learning styles, and approaches
- Identifying one's ideal role and contributing to the collective through leading, teaching, and motivating others
- Organizing and leading groups, facilitating change and understanding among group members

Communication: Appropriate and effective articulation of ideas and information to a range of audiences

- Communicating effectively and efficiently in technical writing to convey the message of a broader piece of work
- Preparing and delivering data-driven oral and written presentations and reports using technological aids
- Developing effective, precisely organized reports

CAMPUS RESOURCES

- Visit **Leddy Library** and the **Writing Support Desk** on the main floor for help with academic assignments
- Improve study skills through the **Skills To Enhance Personal Success (STEPS)** program
- Discover ways to get involved on campus through the **Student Success and Leadership Centre**
- Explore mentorship opportunities through the **Connecting4Success (C4S)** and **Bounce Back** programs
- Apply to the **Volunteer Internship Program (VIP)** to get involved in the community
- Look into the **Work Study** program for on-campus employment opportunities
- Broaden your cultural awareness through the **International Student Centre** and **Student Exchange Office**
- Get assistance developing your career plan and job search skills from **Career & Employment Services**
- Consult with the **EPICentre** if you are interested in starting your own business
- Seek out assistance with academic accommodation from **Student Accessibility Services**
- Tend to your health and wellness with support from **Student Health Services, Lancer Recreation** and the **Student Counselling Centre**

Recruitment Office
Phone: 519-973-7014
Toll-Free: 1-800-864-2860
Email: info@uwindsor.ca

Department of Chemistry and Biochemistry
Phone: 519-253-3000, Ext. 3521
Email: chembio@uwindsor.ca

Career and Employment Services
Phone: 519-253-3000, Ext. 3895
Email: careerservices@uwindsor.ca
experience.uwindsor.ca

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