ChemMedSci
Chemistry for the Medical Sciences

University of Victoria Department of Chemistry

B.Sc. Program in Chemistry for the Medical Sciences (ChemMedSci)

Purpose. To serve the needs of students who have a strong interest in chemistry, but who ultimately plan on entering professional programs in the health sciences such as medicine, pharmacy, pharmaceutical sciences, dentistry, veterinary medicine, physiotherapy, etc.

Features of the Program. Traditional chemistry ***Majors*** and ***Honours*** students take a chemistry-intensive program (starting in their 2nd year). Students in the ***ChemMedSci*** program take a selection of chemistry courses balanced with additional courses from other departments that are useful preparation for health-oriented professional programs. ***ChemMedSci*** *students may also do the* ***co-op option*** *that alternates between academic study and work-related jobs in industry.*

As well as providing a solid grounding in Chemistry, the program allows students to take all the recommended courses for entry to health-related professional programs of their choice.

Program Requirements

1st Year

CHEM 101, 102
MATH 100 and 101 ***or*** 109 and 101
or 102 and 151
PHYS 102A/B ***or*** 110 and 111
or 120 and 130
BIOL 184, 186
ENGL 135 ***or*** 146 ***or*** 147
1 elective

2nd Year

CHEM 231, 234, 260
One of 212, 225 ***or*** 245
BIOL 225
STAT 255 ***or*** 260
Plus 2 courses drawn from Pool A
2 electives

3rd and 4th Years

CHEM 337, 363, 437
BIOC 300A, 300B
One more of CHEM 212, 225 ***or*** 245
3 CHEM 300/400 level **LECTURE** courses
(CHEM 399, 498/499 are not eligible)
2 additional courses drawn from Pool A
2 courses drawn from Pool B
7 electives
(note that a total of 21 units of 300/400 level courses, i.e. 14 courses, are required for graduation, sourced from required and elective courses)

Pool A (alternatives may be acceptable. Check with the ChemMedSci advisor, Dr. D. Berg)
ANTH 250, BIOL 230, 248, 309, ENGL 303, EPHE 141, 155, 241, 242, HS 200, MICR 200A, 200B, PHIL 331, PSYC 251, 332.

Pool B (alternatives may be acceptable. Check with ChemMedSci advisor, Dr. D. Berg)
ANTH 352, BCMB 301A, 301B, BIOC 401, 403, 404, BIOL 359, 360, 361, 432, 436, 439, 447, MEDS 410, MICR 303, 402, PYSC 345A, STAT 355.

Recommended high school math and science courses:
PRE-CALCULUS 11 & 12, CALCULUS 12, BIOLOGY 11 & 12, CHEMISTRY 11 & 12, PHYSICS 11 & 12

Questions? Contact the program advisor, Dr. Dave Berg (djberg@uvic.ca)

Frequently Asked Questions *(contact Dr. D. Berg (djberg@uvic.ca) for more information)*

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1. Is this a pre-med program?

No. A "pre-med" program is a non-specializing educational track offered by many American schools that allows students to take all the medical school requirements (biology, organic chemistry, physics, etc.) in their first two years, then write the MCAT. The ChemMedSci program is a chemistry B.Sc. that is distinct from our traditional Majors/Honours offering, in that the course offerings are structured to allow students to take pre-reqs (and other desired/recommended courses) for professional programs in the health sciences, while still building a strong competency in the various sub-disciplines of chemistry. ***Students will still need to chose their electives in the program to meet all the requirements for entry to their chosen professional program.***

2. How is this program different from the regular Chemistry Majors/Honours stream?

Chemistry is a very diverse field. Some aspects of chemistry are very close to physics or math, while other areas are closer to biology. Our traditional Majors and Honours programs are intended to build expertise in all the sub-disciplines of chemistry. This is great for students looking to go on in chemistry (i.e. those heading to grad school, or to a career working in chemistry) but the sheer number of required courses (especially at the 2nd and 3rd year levels) can make it difficult for students who see a BSc in chemistry as a stepping-stone to other fields (particularly those heading to medical-type professional programs) to get the other courses they want and still graduate in a timely fashion. This new program provides a better option for students who ***like chemistry***, but who want to have more learning and training options available.

3. What happens if I don't get into the professional school of my choice?

You'll still have a very strong **chemistry degree** – albeit one with a somewhat different focus than our traditional Majors program – and will be very employable in a number of industries that hire chemists. These include the pharmaceutical and food science industries, brewing industry, environmental monitoring and consulting, clinical trials monitoring, printing and polymer industries, and a range of analytical jobs. Graduates of this program will be particularly suited to the growing health monitoring industry, while the breadth of the program will leave graduates well-suited to create their own careers in any number of emerging fields.

4. Is this program a route to graduate school in chemistry?

Yes, but not as good as our traditional **Majors** or **Honours** Chemistry programs. Depending on the optional courses that you choose during the program, you'd be likely to receive entry to most chemistry graduate programs in Canada (particularly if you're interested in chemical biology) but the expanded chemistry requirements that come with an honours degree will ultimately serve you better if you really decide to focus on a career in chemistry. Fortunately, we've engineered the ChemMedSci program to make transfer (i.e. change of declared program) into the Chemistry Honours program relatively easy, or transfer into the Biochemisty Honours program possible if you have taken all of the required prerequisite courses.

5. Can I do co-op in this program?

Absolutely. UVic Chemistry and Physics were the originators of co-op in Western Canada, and we've continued to be very strong proponents of the value of co-op in an undergraduate degree. Students in the ChemMedSci program can apply to enter the Chem co-op program in their second year. Normally, 4 co-op work terms are required but a proposed new "internship" option currently being planned by UVic's central co-op office will change things (more info later).

6. What other experiential learning opportunities are available?

In addition to the co-op option, UVic Chemistry has been a pioneer in introducing research experience at an earlier level in the undergraduate curriculum. Our Chem 298 and Chem 398 courses ("Research Experience") provide opportunities for 2nd and 3rd year students to work in a research lab a few hours per week. Students have a chance to learn what research is all about, and to interact closely with both graduate students and faculty members. These courses have been very successful, and frequently lead to students taking Chem 399 (for-credit Research Experience) and Chem 498 (4th year research). Our department has many active research projects on the medicinal end of the chemistry spectrum, and many of these will be of interest to ChemMedSci students.

7. What are the requirements for entry into the program?

The requirements are the same as for entry into any B.Sc. program in the Faculty of Science. ***There is no direct entry from high school.*** **Students apply for entry to UVic Faculty of Science and declare the ChemMedSci major normally in their second year.**

8. Do I need to maintain a minimum GPA to stay in the program?

There is no minimum GPA for students in the ChemMedSci program. Students are advised that many professional programs (Medicine, Veterinary Medicine, Pharmacy, Optometry, etc) are very competitive, and require high GPA for entry.

9. I'll be taking chemistry courses alongside Chemistry Majors/Honours students, and non-chemistry courses (Biochem, EPHE, etc.) alongside Majors from those disciplines. Will I be at a disadvantage?

No! Our data indicate that ***most*** students now take non-traditional paths to a degree – it's not uncommon for students to take >1 year between "paired" courses, nor is it rare for students to hop between different majors. In contrast to the academic environment of 20 years ago, ***every student*** now approaches ***every course*** from a unique perspective, with a unique set of background skills. We've tried to engineer this program in such a way that pre-requisites for each required or suggested course are met, while arranging the schedule in such a way as to encourage students to take courses in a sensible sequence.