

GENERAL INFORMATION

CHEM 448 is a three-credit course (which may be taken twice) in which students complete an original research project under the direction of a faculty member. Projects normally will be laboratory-based but may include library or field work. The nature and scope of the project is to be negotiated between the student and the prospective supervisor. Students wishing to register in CHEM 448 must make prior arrangements with a faculty member and then complete an application form.

Students' academic standing and credit in CHEM 448 can be assigned through either a CREDIT/D/FAIL option or through GRADE standing. Students achieving >85% in CHEM 448 would be expected to operate at a level of a prospective student for the doctoral program in the Department of Chemistry. Students achieving >75% in CHEM 448 would be expected to operate at a level of a prospective student for the Masters program in the Department of Chemistry. Students taking CHEM 448 for grade credit should expect to undergo a rigorous assessment process from their prospective supervisor and a co-evaluator.

The CHEM 448 application form summarizes the agreed expectations between a prospective supervisor and the student. Supervisors are also required to attach a short abstract and graphic (if appropriate) that summarizes the proposed research.

CHEM 448 may be taken for either three or six credits, and may NOT be taken in place of any specified chemistry courses or chemistry electives in a majors or honours degree programme.

The completed application form should be returned to the Undergraduate Secretary in the Chemistry Office for signature of the Undergraduate Chemistry Advisor.

WHY WOULD I TAKE CHEM 448?

CHEM 448 is intended to allow students to experience research, particularly in the summer after their third year of studies. Many students do not receive NSERC or other summer scholarships, but would still like the research experience. This course will allow students an opportunity to work in a research-active laboratory and to learn essential research skills under the direction of a faculty member. At the end of the course, they will be in a better position to be hired in a research laboratory. They may also decide to pursue graduate studies based on this experience.

WHEN WOULD I TAKE CHEM 448?

CHEM 448 is listed in the Academic Calendar as a scheduled course, and as such will take place within the academic terms at UBC. CHEM 448 is generally only available during the six week summer sessions at UBC. Students taking CHEM 448 during a Fall/Winter session in an exceptional situation has the same time commitment and thus requires a course load and timetable to facilitate this.

HOW MUCH WORK IS REQUIRED?

Supervisors have the responsibility to train undergraduate students in general and specific safety plans and procedures appropriate to their research discipline. This must be complete prior to laboratory work.

A contact time of 144 hours of *in situ* laboratory work per 3 credits is expected. Students and supervisors are expected to construct a proposed research schedule prior to the beginning of the project.

HOW ARE THE PROJECTS TO BE EVALUATED?

CREDIT/D/FAIL: Students and supervisors should discuss what course-end requirements are needed at the end of their term of CHEM 448. This may be a final report, a presentation (for example, within a group meeting), a summary of experiments within a lab notebook or a piece of equipment to be constructed. A copy of this deliverable will be due one week after the end of the term in order to receive CREDIT standing.

GRADE STANDING: Projects are to be evaluated by the supervisor and another faculty member. A proposal for student assessment:

supervisor assessment (initiative and success)	20 marks
detailed final project report (external faculty)	20 marks
oral presentation (external faculty)	20 marks
oral examination (external faculty)	20 marks
laboratory notebook (supervisor)	20 marks

CHEM 448 projects are intrinsically diverse and detailed evaluation can vary—in those instances, an adjusted assessment scheme will be decided upon between the supervisor and student prior to the Undergraduate Advisor's approval.

Students achieving >85% in CHEM 448 would be expected to operate at a level of a prospective student for the doctoral program in the Department of Chemistry. Students achieving >75% in CHEM 448 would be expected to operate at a level of a prospective student for the Masters program in the Department of Chemistry. Students taking CHEM 448 for grade credit should expect to undergo a rigorous assessment process from their prospective supervisor and a co-evaluator.

The external faculty member examiner (not the supervisor) will be required to complete a report to the Department Head that summarizes the assessment process to explain the awarded grade.

WHO CAN SUPERVISE CHEM 448 STUDENTS?

Any faculty member at UBC can supervise a CHEM 448 student as long as the subject material is Chemistry. If the faculty member is not a member of the Department of Chemistry, the student must find a co-supervisor within the Department.

SUPERVISOR RESPONSIBILITIES

Before students will be accepted into CHEM 448, supervisors should:

- provide a short summary (and graphical abstract) of the proposed research project to the student
- provide clear guidelines for expectations and assessment of student initiative and success
- agree to provide appropriate safety training per UBC regulations and be able to provide documentation of such training prior to student work in CHEM 448
- organize an external faculty member to assist with the assessment of the CHEM 448 student before the research term begins.