

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: BIOC 409		Number of Credits: 6 Course credit policy (105)																	
Course Full Title: Directed Studies in Biochemistry II																			
Course Short Title (if title exceeds 30 characters):																			
Faculty: Faculty of Science		Department (or program if no department): Chemistry																	
Calendar Description: An opportunity for Biochemistry major students to apply scientific principles in a creative, hands-on research experience outside the usual course format. Students will develop their own research projects in biochemistry under the supervision of a faculty member.																			
Prerequisites (or NONE):		BIOC 350/CHEM 350 and department head's permission.																	
Corequisites (if applicable, or NONE):																			
Pre/corequisites (if applicable, or NONE):																			
Equivalent Courses (cannot be taken for additional credit) Former course code/number: Cross-listed with: Equivalent course(s): <i>Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.</i>		Transfer Credit Transfer credit already exists: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Transfer credit requested (OREg to submit to BCCAT): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if yes, fill in transfer credit form) Resubmit revised outline for articulation: <input type="checkbox"/> Yes <input type="checkbox"/> No To find out how this course transfers, see bctransferguide.ca .																	
Total Hours: 90 Typical structure of instructional hours:		Special Topics Will the course be offered with different topics? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, different lettered courses may be taken for credit: <input type="checkbox"/> No <input type="checkbox"/> Yes, repeat(s) <input type="checkbox"/> Yes, no limit <i>Note: The specific topic will be recorded when offered.</i>																	
<table border="1"> <tr><td>Lecture hours</td><td></td></tr> <tr><td>Seminars/tutorials/workshops</td><td></td></tr> <tr><td>Laboratory hours</td><td></td></tr> <tr><td>Field experience hours</td><td></td></tr> <tr><td>Experiential (practicum, internship, etc.)</td><td></td></tr> <tr><td>Online learning activities</td><td></td></tr> <tr><td>Other contact hours: Student Directed</td><td>90</td></tr> <tr><td>Total</td><td>90</td></tr> </table>		Lecture hours		Seminars/tutorials/workshops		Laboratory hours		Field experience hours		Experiential (practicum, internship, etc.)		Online learning activities		Other contact hours: Student Directed	90	Total	90	Maximum enrolment (for information only): 6 Expected frequency of course offerings (every semester, annually, every other year, etc.): every semester	
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Department / Program Head or Director: Dr. David Fenske		Date approved: Sept 16, 2015																	
Faculty Council approval		Date approved: November 6, 2015																	
Campus-Wide Consultation (CWC)		Date of posting: December 11, 2015																	
Dean/Associate VP: Dr. Lucy Lee		Date approved: November 6, 2015																	
Undergraduate Education Committee (UEC) approval		Date of meeting: December 18, 2015																	

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Propose a creative scientific research project.
2. Search and summarize scholarly research literature.
3. Formulate a hypothesis.
4. Design experiments to test the hypothesis.
5. Perform laboratory experiments independently, safely, and skillfully.
6. Present results and conclusions in written and oral formats in a clear and scholarly way.

Prior Learning Assessment and Recognition (PLAR)

Yes No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

Faculty-supervised, self-directed research

Grading system: Letter Grades: Credit/No Credit: Labs to be scheduled independent of lecture hours: Yes No

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	The student will have the opportunity to access original literature. Literature surveys will be conducted using database searches at UFV libraries.	<input type="checkbox"/>		
2.		<input type="checkbox"/>		

Typical Evaluation Methods and Weighting

Final exam:	%	Assignments:	%	Midterm exam:	%	Practicum:	%
Quizzes/tests:	%	Lab work:	%	Field experience:	%	Shop work:	%
Other: Final Report	70%	Other: Interim Report	10%	Other: Proposal	20%	Total:	100%

Details (if necessary): All students will be required to deliver an interim report or presentation to the supervising instructor. The final report will be delivered to a committee consisting of the supervisor and a minimum of one other instructor. This committee will be responsible for assigning the final grade.

Typical Course Content and Topics

Selection of a Suitable Area

The student may already have a specific area of research in mind or a specific instructor with whom he or she would like to interact. In this case, the student and instructor will strike an agreement depending on:

- (i) available equipment and space
- (ii) budget for consumables
- (iii) availability of appropriate faculty and staff

Otherwise, an instructor may suggest a project to a suitable student. In all cases, it will be the instructor's responsibility to ensure that the proposed project is appropriate for an upper level student to accomplish in the proposed time. It is also the responsibility of the instructor to ensure that equipment, funding, and space are available for the project.

Design of Research Project

The student will survey the literature in a particular field under the guidance of the appropriate instructor. The student will be assisted to build on the literature to formulate a testable hypothesis and design an appropriate experimental approach. The student will address questions such as: novelty of the approach, statistical analysis to be carried out, use of controls, use of replicates. Because of the nature of biochemical science, not all projects will fit neatly into one semester. Student and instructor will have the option of extending the course into a second semester, although the credit value of the course will remain 3 credits.

Perform Research

The instructor will aid the student in mastery of the techniques necessary to carry out the research. The student will be responsible for scheduling time for the various stages of the project, making sure equipment is available, reporting to the instructor. Regular meetings of student and instructor are required for all projects.

Production of Research Paper

The student will be expected to produce a research paper that is clear and scholarly and written in the style of a major journal. The instructor will aid the student in producing a quality piece of science communication.

Laboratory Experiments

Appropriate experiments will be determined by the supervising instructor and student. Cost and space considerations will be considered on an ad hoc basis.