



BIOL*4020 Integrative Problems in Biological Science - DRAFT

Winter 2020

Section(s): C01

College of Biological Science

Credit Weight: 1.00

Version 1.00 - November 01, 2019

1 Course Details

1.1 Calendar Description

In this course, students work in teams to explore and address an authentic, biologically-based problem using an integrative and interdisciplinary approach. Topics are proposed by an external 'client' and will focus on a problem relating to societal needs (e.g., food, health, and environment), use of advanced technologies (e.g., genetic modification), or aspirations (e.g. sustainability). Students will explore the underlying basis for the problem, the current state of understanding, social implications, and develop a product or position to address the client's needs.

Pre-Requisites:

14.00 credits

Restrictions:

Restricted to students in BSCH.BIOS

1.2 Timetable

Timetable is subject to change. Please see WebAdvisor for the latest information.

1.3 Final Exam

There is no final exam for this course.

2 Instructional Support

2.1 Instructional Support Team

Course Co-ordinator:

Charlene Winchcombe-Forhan M.Sc.

Email:

cwinchco@uoguelph.ca

Telephone:

+1-519-824-4120 x52739

Office:

SC1 1480

3 Learning Resources

3.1 Required Resources

CourseLink (Website)

<https://courselink.uoguelph.ca/shared/login/login.html>

The CourseLink website will house information related to all components of the course, including course announcements, learning outcomes, resources, lecture notes, gradebook, assignment instructions and grading rubrics.

3.2 Additional Resources

Campus Resources (Other)

If you are concerned about any aspect of your academic program:

Make an appointment with a Program Counsellor <https://bsc.uoguelph.ca/>

If you are struggling to succeed academically:

There is a variety of services that the Learning Commons offers, including time management, working in teams, and writing services. A complete list of their services can be found at: <https://www.lib.uoguelph.ca/get-assistance>

If you are struggling with personal or health issues:

Counselling Services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.

Health Services is located on campus and is available to provide medical attention.

For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations.

If you have a documented disability or think you may have a disability:

Student Accessibility Services (SAS), formerly Centre for Students with Disabilities, can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability.

4 Learning Outcomes

Students will have the opportunity to integrate knowledge and skills developed throughout their program and apply them to a real-world problem. By the end of this course, students will develop skills in problem solving, teamwork and communication/knowledge transfer.

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Gather, integrate and critically evaluate current biological knowledge to better understand the key elements, opportunities and challenges associated with a societal issue.
 2. Gather and evaluate stakeholder needs and perspectives to identify and formulate an authentic, and tractable problem
 3. Apply ideation techniques and constraints to identify potential solutions to a specific problem
 4. Communicate effectively using written, oral and/or other forms of media to an identified audience(s)
 5. Work independently, and with internal team members and external partners, to achieve a common goal
 6. Reflect on and communicate the personal and professional attributes achieved within the course or throughout the program of study
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5 Teaching and Learning Activities

Students will be assembled into teams. Over the semester, teams will identify a specific problem related to the course theme, identify plausible solutions, develop a prototype of the identified solution and present their project to a stakeholder audience. Lectures will be used to introduce course topics, key concepts and tools for developing problem solving, teamwork and knowledge transfer skills. Seminars will be used for applying tools presented in lecture and completing group projects.

Solutions will vary widely among teams, but may include a research proposal, a policy brief, a tool or widget, an educational tool, a decision-making tool, or a risk analysis. The solution will be presented as an application/proposal or a prototype, with a project management plan.

5.1 Lecture

Week 1

Topics: Introduction to course structure, topic and overall premise

Course logistics

Week 2

Topics: Explore the course topic, problem identification and teamwork

Introductory lecture by subject expert

Week 3

Topics: Problem Identification and analysis including stakeholder analysis

Week 4

Topics: Problem identification and analysis, developing problem statements

Week 5

Topics: Pitching the problem - introduction to pitches and presentation of pitches

Week 6

Topics: Solution generation

Week 7

Topics: Solution refinement

Week 8

Topics: Solution implementation and project planning

Week 9

Topics: Communication and persuasion

Week 10

Topics: Finalization of project plan

Scoping the problem

Week 11

Topics: Final presentations

Layering the insights gained from the literature and stakeholders

Week 12

Topics: Final projects due, reflection and peer evaluations

5.2 Detailed Weekly Schedule

Week	Topic	Lec 1	Lec 2	Lec 3	Seminar
1 - January 6th	Introduction to course	course logistics	Intro lecture by topic expert	Intro to teams	Mock problem Oxygen poker Informal communication
2 - January 13th	Course theme and Problem Identification	Expansion on course topic by expert	Becoming an expert - literature search engines, concept mapping, human impact	Stakeholder introduction	Team charter Annotated bibliography and concept mapping
3 - January 20th	Problem Identification and Analysis	Skills and etiquette for conducting interviews - emotional intelligence, empathy	Developing interview questions	Insight mining and stakeholder review	Stakeholder interviews
4 -	Problem	Scoping the	Scoping the	Reflection	Concept map,

Week	Topic	Lec 1	Lec 2	Lec 3	Seminar
January 27th	Identification and Analysis	problem and developing problem statements	problem and developing problem statements		annotated bibliography
5 - February 3rd	Pitching the Problem	Pitch a problem: pitch basics	Group work on pitches		Pitch Presentations
6 - February 10th	Solution generation	Thanksgiving	Team dynamics	Identifying solutions: tools, creativity and prototyping	Brainstorming activities
7 - February 24th	Solution refinement	Validating and defining solutions	Narrowing down solutions; constraints, risks, impact, implementation check		Stakeholder follow-up Solution selection and decision making
8 - March 2nd	Solution Implementation/ project plan	Developing the solution - introduction to project management and prototyping	Budgeting		Share solutions with class to gain feedback Work through project planning
9 - March 9th	Communication	Communicating your ideas	Persuasion, revisiting the pitch framework		Communication practice

Week	Topic	Lec 1	Lec 2	Lec 3	Seminar	
6						
	10 - March 16th	Finalize project plan	Developing the final pitch - practice	Unstructured working time		Unstructured working time
	11 - March 23rd	Final Pitch Presentations	Working time with instructor	Working time with instructor		Final Pitches
	12 - March 30th	Final Projects, reflection and peer evaluation	Reflection and teamwork	Course debrief		Final project due

Assessments

This is a tentative schedule of assessments

6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Team Charter and Profile	10
Individual Assignment: Annotated Bibliography and Concept Map	15
Team Assignment: Annotated Bibliography and Concept Map	5
Team Assignment: Pitch	10
Individual Assignment: Reflection	5
Individual Assignment: 2 - 5 Solutions	10
Final Presentation	10
Team Assignment: Final Project	25
Individual Assignment: Final Reflection	5
Individual Assignment: Peer Evaluation	5
Total	100

6.2 Assessment Details

Team Charter and Profile (10%)

Learning Outcome: 5

5% is based on a team submission and 5% is individual

Individual Assignment: Annotated Bibliography and Concept Map (15%)

Learning Outcome: 1, 5

Team Assignment: Annotated Bibliography and Concept Map (5%)

Learning Outcome: 1, 5

Team Assignment: Pitch (10%)

Learning Outcome: 1, 2, 4

Individual Assignment: Reflection (5%)

Learning Outcome: 6

Individual Assignment: 2 - 5 Solutions (10%)

Learning Outcome: 1, 2, 3

Final Presentation (10%)

Learning Outcome: 1, 2, 3, 4

Team Assignment: Final Project (25%)

Learning Outcome: 1, 2, 3, 4, 5

Individual Assignment: Final Reflection (5%)

Learning Outcome: 6

Individual Assignment: Peer Evaluation (5%)

Learning Outcome: 5, 6

7 College of Biological Science Statements

7.1 Wellness

If you are struggling with personal or health issues:

- Counselling Services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.
- Student Health Services is located on campus and is available to provide medical attention.
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations.
<http://www.selfregulationskills.ca/>

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website
<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct
<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct
<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

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