



BIOL*1090 Introduction to Molecular and Cellular Biology

Fall 2018

Section(s): C01,C02

Department of Molecular and Cellular Biology

Credit Weight: 0.50

Version 1.00 - August 29, 2018

1 Course Details

1.1 Calendar Description

This course will foster an understanding of key concepts in molecular and cell biology and genetics including evolution, relationship between structure and function, energy and regulation, interrelatedness of life, and the nature of science. By relating these concepts to their daily lives, through analysis of problems and tutorial discussions, students will develop an understanding of five central themes: 1) all living things share common properties, 2) the cell is the fundamental functional unit of life, 3) managing energy is central to success, 4) genes are the fundamental information unit of life, and 5) heredity. Students lacking Grade 12 or 4U Biology should consult with their program counsellor prior to taking BIOL*1090 in first semester.

1.2 Course Description

This course explores the foundational concepts of cell biology and genetics. These areas are the focus of a great deal of fascinating research with far-reaching biomedical, ethical, and social implications. The structure and function of cellular components will be discussed in the context of their contribution to the functioning of organisms, highlighting the importance of organelles in the function of eukaryotic cells and ultimately higher tissue assemblies. Topics will also include the study of genes and chromosomes, the mechanisms underlying the transmission of traits from one generation to the next, and the role of mutations that lead to the generation of genetic diversity and disease.

By the end of this course, students will understand the connections between the biology of cells and the inheritance of genetic information, and will appreciate the foundational importance of genetics and cell biology in all aspects of biological science. Students will also gain experience at scientific writing for an audience of their peers, and apply their cellular and molecular perspective to an interdisciplinary problem.

1.3 Timetable

Lectures:

Section 01: Mondays and Wednesdays at 3:30 -4:20 pm in ROZH 101

Section 02: Mondays and Wednesdays at 12:30-1:20 pm in ROZH 104

All material given in lectures is the responsibility of the student, including announcements regarding reading and seminar assignments.

1.4 Final Exam

Final Exam: December 13, 2018, from 8:30 AM to 10:30 AM. Room locations to be announced. Please see WebAdvisor for the latest information.

2 Instructional Support

2.1 Instructor(s)

Terry Van Raay

Email: tvanraay@uoguelph.ca
Telephone: +1-519-824-4120 x52864
Office: SC1 3247
Office Hours: Mondays: 10:30-12:00
Tuesdays: 10:00-11:30

Joseph Colasanti

Email: jcolasan@uoguelph.ca
Telephone: +1-519-824-4120 x58052
Office: SC1 4467
Office Hours: Tuesdays: 11:30 am to 1:00 pm
Thursdays: 1:30 pm to 3:00 pm

2.2 Instructional Support Team

Course Co-ordinator: Elspeth Smith
Email: elspeths@uoguelph.ca
Telephone: +1-519-824-4120 x56583
Office: SC1 3505

2.3 Teaching Assistants

The seminar instructors are graduate students in the Department of Molecular and Cellular Biology. Please do not contact them outside of your seminar unless they have given you permission to do so.

3 Learning Resources

3.1 Required Resource(s)

Textbook and Online Resources (Textbook)

Biology 1090 - University of Guelph by Morris, Lodish and Pierce, 1st Edition, 2018. Macmillan

Learning. New York, NY.

This text and the online resource access code are available for purchase at the University of Guelph Bookstore.

The purchase of the BIOL 1090 textbook comes with an code which provides access to the online resources for 4 years. This text and the associated online resources are an absolute requirement for this course. **15% of the final grade distribution for this course is linked to the course textbook and can not be completed without the online access code.**

CourseLink - BIOL*1090 F18 (Website)

<https://courselink.uoguelph.ca>

There is a CourseLink site set up for this course. This will allow you to access the course material, post questions on the discussion board (see below), access useful websites, and check your grades. You can access this CourseLink from <http://courselink.uoguelph.ca>. Your username is your Central Login ID and your password is your uoguelph email password.

CourseLink - Online Workshops (Website)

The Online Skills Workshops are available to students in the CourseLink site [Online Workshops - Skills and Attributes of a Biologist F18](#). These workshops are designed to develop skills essential to the successful completion of assignments in BIOL*1070, BIOL*1080 and BIOL*1090. Students will access the workshops as needed in each of the courses. Further details will be posted on CourseLink.

There are quizzes associated with the Information Management and Written Communication workshop worth 1% each.

3.2 5 Steps to Getting Help in BIOL*1090

Step 1: Read all posted instructions relevant to your question.

Step 2: Consult the discussion board on CourseLink. The discussion board is an open forum to promote exchange of information between students. You are encouraged to post clear, concise questions and to try to answer other students' posts. When posting a question please use a subject line that clearly indicates the topic of your question, making it easy for other students to find topics they wish to discuss. The teaching team will monitor the discussion board and provide input when deemed appropriate. Please keep all questions and comments relevant to the course. Offensive postings will not be tolerated.

Step 3: Post your question to the relevant discussion board on CourseLink.

Step 4: Go to your SLG leader

Step 5: If you are not satisfied by the responses to your questions, send your question to the course instructor/coordinator. Alternatively, see an instructor during office hours posted above.

Questions regarding individual circumstances should be directed to the course coordinator.

4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. Demonstrate an understanding of the fundamental elements of cell structure and molecular and Mendelian genetics.
 2. Identify and evaluate the different types of scientific literature and execute an effective search of the scientific literature for completion of course assignments.
 3. Integrate concepts from a broad range of disciplines in biological science to produce a poster as a member of an interdisciplinary team.
 4. Synthesize ideas and communicate concepts in cellular and molecular biology using written communication skills in written assignments and examinations.
 5. Practice working independently using online workshops to complete course assignments.
 6. Manage time effectively and follow instructions to meet deadlines for course requirements.
 7. Demonstrate proper attribution of others' ideas to avoid plagiarism in scientific communication.
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5 Teaching and Learning Activities

5.1 Tentative Lecture Schedule

Week Topic

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| 1 | DNA, chromosomes, mitosis |
| 2 | Meiosis, Mendelian principles of inheritance |
| 3 | Mendel and human pedigrees |
| 4 | Sex linkage, transcription |
| 5 | Translation, mutations |
| 6 | Alleles, gene function & regulation, genomes |
| 7 | The cell as the fundamental unit of life |
| 8 | Cell membranes and Compartments |
| 9-11 | Organelles and Cellular Architecture |
| 12 | The Nucleus |
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6 Assessments

6.1 Assessments

Assessment	Value (% of final grade)	Date	Learning Outcome
Orientation Module		Opens Sept. 6th	
1. Code of conduct 2. Academic integrity	0.5%+0.5%=1%	Due for completion before Seminar 1 - Week 1 Sept 10th -13th	5, 6, 7
Seminars	5%	Scheduled throughout semester - See I nteractive Course Schedule on the BIOL*1090 CourseLink site for seminar schedule	1, 4, 6
Graded Online Assignments	10%	Scheduled throughout semester - See I nteractive Course Schedule on the BIOL*1090 CourseLink site for assignment schedule	1 - 6
Midterm Exam	25%	October 27th: 12:30 pm - 2:00 pm Info. Management Quiz: Open from Sept 24th - Oct. 1st	1,4,6
Online Skills Workshops and Quizzes	2%	Written communication Quiz: Open from Oct. 1st - 10th	2, 4, 5, 6, 7
Scientific Literature Writing Assignment	10%	Rough Draft due in Seminar 5: Week 6 - Oct. 15th - 18th Final Draft due Oct. 29th	1,2,4,5,6,7
Interdisciplinary Project	10%	In scheduled IdP seminar weeks 9 -12	1,2,3,4,5,6,7
Final Exam	37%	December 13th - 8:30am to 10:30 am	1,4,6

6.2 Orientation Module

Before your first scheduled seminar in week 1, students will complete an Orientation Module, housed in the [Online Workshops - Skills and Attributes of a Biologist F18](#) CourseLink site. This module encompasses two components: (1) Code of Conduct and (2) Skills Self-Assessment. The concepts introduced in this module will help guide your behavioral practices and skills development throughout your academic career and beyond. The concepts will also be reinforced in course activities during the semester. The completion of each of the two components before your first seminar is worth 0.5% each (total of 1% for both) of your final grade in this course. These modules will be open from Sept. 6th - Sept 17th.

6.3 Seminars

There are 9 course seminars scheduled weekly throughout the semester, see the **Interactive Course Schedule** on the BIOL*1090 CourseLink site for the complete seminar schedule. Seminars 1-4 will reinforce key lecture concepts and problem-solving skills through seminar assignments, which will also act as midterm study guides. During each of these seminars, you will work in groups to complete a seminar assignment or exercise. Seminar 5 will consist of the Scientific Literature Writing Assignment self/peer evaluation exercise. Note, the rough draft of this assignment is due at this time. You will receive 1% for participating in each of these seminars (5% total). Web based tools are used during seminars. **A textbook access code AND a personal electronic devise (cell phone, tablet, laptop, etc) are required for participation.**

In seminars 6-9 students will be working on the IdP assignment; details about this assignment and these seminars will be posted on the BIOL*1090 CourseLink site.

Attendance is mandatory for all seminars. Details regarding the seminar assignments and seminar material are available on CourseLink in the **Interactive Course Schedule - Seminar Instructions**. Seminar times and locations are available on Webadvisor.

6.4 Graded Online Assignments

Weekly graded online assignments will be posted after each week of lecture, 10 in total. Content will be based on the lecture and seminar material when applicable. The assignments may consist of activities, short answer and multiple choice questions. Grades will be based on completion. Each assessment is worth 1% of the final grade for 10% total of the final mark. **You must purchase the textbook and use the online access code to complete these assignments.** See the **Interactive Course Outline** on CourseLink for a detailed schedule of due dates.

6.5 Midterm Exam

Saturday, October 27th - 12:30pm - 2:00pm

The midterm exam will cover the lecture material from lectures 1 – 12 inclusive, and the material from case study seminars 2, 3, and 4. The midterm exam is compulsory and will count for 25% of your final grade. Alternate times will be set for midterm exams only if there is a direct conflict with another course or varsity event. No other reasons will be accepted (voluntary, medical, compassionate, or other reasons). **Conflicts must be reported to the course coordinator by Sept. 28th at 4:30 pm.** If a student does not write the midterm exam they will receive a grade of 0% unless proper documentation is provided to the course coordinator. In

cases with proper documentation, the weight of the missed midterm exam will be added to the final exam. **Documentation must be provided to the course coordinator by Nov. 1st at 4:30 to be considered.**

6.6 Online Skills Workshops and Quizzes

There are 2 online skills workshops with 2 associated quizzes that students are required to complete prior to handing in the "Scientific Literature Writing Assignment". The **Information Management** and **Written Communication workshops** and quizzes are housed in the [Online Workshops - Skills and Attributes of a Biologist F18 CourseLink](#) site. Each associated quiz is worth 1% each. You can access the quizzes once you have gone through the **entire workshop**. These quizzes will be accessible:

Information Management workshop quiz: Sept 24th - Oct. 1st

Written Communication workshop quiz: Oct. 1st - Oct. 10th

Quizzes **open at 8:30 am and close on the date given at 8:29 am.**

6.7 Scientific Literature Writing Assignment

The Scientific Literature Writing Assignment will assess writing, information and project management skills and is worth 10% of the final mark. Students will use skills developed in the Written Communication and Information Management online workshops to write a 1 1/2 - 2 page paper on a scientific question relevant to the IdP topic. Seminar 5; week 6, Oct. 15th - 18th, is dedicated to a peer review exercise for this assignment and a **rough draft is due at this time**. The final copy is due approximately 1.5 weeks later on **Oct. 29th, 4:30pm**; see the **Interactive Course Schedule** on CourseLink for details. A full rubric and assignment details will be posted on CourseLink.

6.8 Interdisciplinary Project (IDP)

The interdisciplinary project will take place during seminars in Weeks 9-11. Students from BIOL*1070, BIOL*1080 and BIOL*1090 will be brought together to explore a complex topic from multiple perspectives. **Attendance is mandatory**. Details regarding the interdisciplinary project will be posted on CourseLink.

Any questions or concerns regarding the IdP can be addressed by contacting: idp@uoguleph.ca

6.9 Final Exam

December 13, 2018: 8:30 AM - 10:30 AM

The final exam is a compulsory examination and will be comprehensive.

7 Course Statements

7.1 Policy for Re-grading of Midterm Exams and Assignments

Students who wish to have their midterm exam or assignments re-graded must submit their

exam or assignment **within 1 week** of the return of the midterm exam or assignment. The entire midterm exam or assignment will be re-graded so the mark may go up, down or remain unchanged.

There will be no extensions granted for course assignments unless accompanied by medical or compassionate documentation to the course coordinator. Pick-up times and dates will be posted on courselink for obtaining your marked midterm and Scientific Literature writing assignments.

For Scientific Literature writing assignment regrades, your original marked copy must be accompanied by a new rubric and written document explaining why you feel your grades does not reflect the graded component on the assignment rubric, please see “Scientific Literature writing assignment instructions” for details on how to submit a regrade. Regrade submissions without this will not be accepted.

7.2 Use of Personal Information

Personal information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes. The University of Guelph’s policy on the Collection, Use and Disclosure of Personal Information can be found in the Undergraduate Calendar. (<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

8 Department of Molecular and Cellular Biology

Statements

8.1 Academic Advisors

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

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

8.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: There are numerous academic resources offered by the [Learning Commons](#) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist.
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: [Chemistry & Physics Help](#) and [Math & Stats Help](#)

8.3 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](#).
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9 University Statements

9.1 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.

9.2 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 regulations and procedures for [Academic Consideration](#) are detailed in the Undergraduate Calendar.

9.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for [Dropping Courses](#) are available in the Undergraduate Calendar.

9.4 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.

9.5 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.

More information: www.uoguelph.ca/sas

9.6 Academic Misconduct

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 discourages misconduct. 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.

The [Academic Misconduct Policy](#) is detailed in the Undergraduate Calendar.

9.7 Recording of Materials

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

9.8 Resources

The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.
