



BIOL*1090 Introduction to Molecular and Cellular

Biology

Fall 2017

Sections(s): C01

College of Biological Science

Credit Weight: 0.50

Version 1.00 - September 06, 2017

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 is designed to explore 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 have gained experience at scientific writing for an audience of their peers, and applied their cellular and molecular perspective to an interdisciplinary problem.

1.3 Timetable

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

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

2.1 Instructor(s)

Andrew Bendall

Email: abendall@uoguelph.ca
Telephone: +1-519-824-4120 x53491
Office: SC1 3459

Office Hours: Tuesdays 1:30 pm-3:00 am and Wednesdays 1:30 pm- 3:00 pm
(Sept 8th - Oct 30)

Joseph Colasanti

Email: jcolasan@uoguelph.ca
Telephone: +1-519-824-4120 x58052
Office: SC1 4467

Office Hours: Tuesdays, 11:30am – 12:30 pm and Thursdays, 1:30 pm to 2:30 pm
(Oct 30 - Dec 5)

2.2 Instructional Support Team

Course Co-ordinator: Marissa Dahari
Email: mdahari@uoguelph.ca
Telephone: +1-519-824-4120 x53329
Office: SC1 3503

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 Resources(s)

Courselink (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.

Online Workshops (Other)

Workshops will be available to students on CourseLink. 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 Recommended Resources(s)

Principles of Genetics (Textbook)

Principles of Genetics by P. Snustad and M.J. Simmons, 7th Edition, 2016. John Wiley and Sons, Inc. New York, NY.

Note: You may purchase these two recommended textbooks as a package, including electronic texts and supplementary material from the University bookstore.

The textbooks are also available on a 2 hour reserve in the library.

Cell and Molecular Biology: Concepts and Experiments (Textbook)

Cell and Molecular Biology: Concepts and Experiments by Gerald Karp, 8th Edition, 2016. John Wiley & Sons, Inc. New York, NY.

Note: You may purchase these two recommended textbooks as a package, including electronic texts and supplementary material from the University bookstore.

The textbooks are also available on a 2 hour reserve in the library.

iClicker (Equipment)

iClicker technology will be implemented in the lectures. Participation will be optional, but is highly encouraged. iClickers can be purchased at the University Bookstore.

3.3 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

- 1 DNA, chromosomes, mitosis
 - 2 Meiosis, Mendelian principles of inheritance
 - 3 Mendel and human pedigrees
 - 4 Sex linkage, transcription
 - 5 Translation, mutations
 - 6 Alleles and gene function
 - 7 Genomes & regulation, 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 Seminars

The seminars will generally reinforce key lecture concepts through the investigation of a case study and problem solving through seminar assignments, which will also act as midterm study guides. Seminars (1-5) are scheduled for the weeks of **Sept 11-14, Sept 25-28, Oct 2-5, Oct 16-19 and Oct 23-26**. During seminar 2-5 you will work in groups to complete a seminar assignment or exercise. You will receive 1% for participating in this group work. Each seminar assignment (during seminars 2-4) will also be worth 1% and will be handed in at the end of each seminar. Seminar 5 is scheduled **Oct 23-26** and will consist of a Writing assignment self/peer evaluation exercise worth 1% of your grade. **Attendance is mandatory for all seminars.** Details regarding the seminar assignments and seminar material are available on Courselink under "Seminar instructions". Seminar times and locations are available on Webadvisor.

6.2 Quizzes & Workshops

There will be four online quizzes each worth 1% of your grade. Quizzes will be accessible during the same weeks as seminars.

There will also be 3 online workshops with 2 associated quizzes that students are required to go through prior to handing in the "Scientific Literature Writing Assignment". Quizzes are associated with the **Information management workshop** and the **Written Communication workshop** 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: Oct 9- 16

Written Communication workshop quiz: Oct 16- 23

All course quizzes will open each **Monday at 8:30 am and close the following Monday at 8:29 am.**

6.3 Course Assignments

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. Midterm and Scientific Literature writing assignment regrades must be requested within **one week** of the pickup dates. There will be absolutely no extensions for these deadlines.

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.

6.4 Interdisciplinary Project (IDP)

The interdisciplinary project will take place during seminars in the weeks of Nov 6-9 , Nov 13-16, and Nov 20-23. 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: mdp@uoguleph.ca

6.5 Midterm Exam

Saturday, October 28th at 10:00 am – 11:30 pm

The midterm exam will cover the lecture material from lectures 1 – 12 inclusive, and the material from case study seminars 1, 2, and 3. The midterm exam is compulsory and will count for 28% 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 Friday October 7th at 4:00 pm.** If a student does not write the midterm exam they will receive a grade of 0% unless proper documentation is provided to the instructor. In cases with proper documentation, **the weight of the missed midterm exam will be added to the final exam.**

6.6 Final Exam

Tuesday, December 5th at 11:30 am - 1:30 pm

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

6.7 Assessments

Assessment	Value (% of final grade)	Date	Learning Outcome
Orientation Module			
1. Code of conduct 2. Academic integrity	0.5%+0.5%=1%	Sept 11-15	5, 6, 7
Seminar Exercise	4%	In scheduled seminar weeks	1, 4, 6
Seminar Assignments	3%	In scheduled seminar weeks	1,4,6
Online Quizzes	4% (4 quizzes 1% each)	Quiz 1: Open Sept 25-Oct 2 Quiz 2: Open Oct 2- 9 Quiz 3: Open Oct 16-23 Quiz 4: Open Oct 23-30	1, 6
Midterm Exam	28%	October 28th	1,4,6
Online Workshops and Quizzes	2%	Info. Management Quiz: October 9-16	2, 4, 5, 6, 7

Written communication
Quiz: Oct 16-23

Scientific Literature Writing Assignment	10%	November 1st	1,2,4,5,6,7
Interdisciplinary Project	10%	In scheduled IdP seminar weeks	1,2,3,4,5,6,7
Final Exam	38%	December 5th	1,4,6

6.8 Orientation Module

During the first week of classes, students will complete an Orientation Module encompassing two components: (1) Code of Conduct (2) Skills Self-Assessment. The concepts introduced in these modules will help guide your behavioural practices and skills development throughout your academic career. The concepts will also be reinforced in course activities during the semester. The completion of each of the two modules during the first week of classes is worth 0.5% (total of 1% for both) of your final grade in this course. For the Fall 2017 semester, these modules will be open from Monday September 11th, 2017 to Friday September 15th, 2017 at 11:59pm.

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.

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 College of Biological Science 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](#).

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.
