



MICR*3230 Immunology

Fall 2019

Section(s): C01

Department of Molecular and Cellular Biology

Credit Weight: 0.50

Version 4.00 - September 26, 2019

1 Course Details

1.1 Calendar Description

This course provides an introduction to the immune response of the vertebrate host, the cells and tissues of the lymphoid system, humoral and cell-mediated immunity, the concept of immunity to diseases and current techniques in immunology.

Pre-Requisites: BIOL*1090, BIOC*2580

1.2 Timetable

Mon, Wed, Fri, 11:30AM-12:20PM, Rozanski Hall, Room 101

Start Date: Friday September 6, 2019

1.3 Final Exam

Sat. Dec. 7th, 8:30 - 10:30 AM

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

2 Instructional Support

2.1 Instructional Support Team

Instructor: Jennifer Geddes-McAlister
Email: mcb3230@uoguelph.ca

Instructor: Bonnie Mallard
Email: mcb3230@uoguelph.ca

3 Learning Resources

3.1 Required Resources

Immunology (Textbook)

Immunology, 8th Edition, 2013, by Judith A. Owen, Jenny Punt, Sharon A. Stanford. W.H. Freeman & Co. (Available at the Book Store and on reserve in the library).

3.2 Recommended Resources

iClicker (Equipment)

4 Learning Outcomes

The goal of this course is to learn structure and function of the vertebrate immune system in an integrated manner with an emphasis on host defense mechanisms against harmful agents and maintenance of homeostasis. An understanding of the application of the knowledge of immunology in health and disease is desired. At the end of the course, students should be able to explain, analyze and apply:

1. Immunology terms
 2. Structure and function of the cells/organs of the immune system
 3. Structure and function of immunological molecules
 4. Results of basic immunological techniques
 5. Development of humoral and cell mediated immune responses to infectious disease
 6. Advanced experimental applications in immunology
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5 Teaching and Learning Activities

Learning Strategy: A structured interactive lecture and discussion strategy, using illustrations and multi media, will be used to emphasize the basic concepts. Students are encouraged to read the topics before lecture discussions to enhance understanding. Brief guided notes, will be available via D2L website. Students are encouraged to ask questions relating to the learning materials during and outside the class. A 'general online discussion' via Courselink (D2L) is encouraged to promote student interactions and co-operative learning but the discussions must be in the

context of structured learning (blogging to be avoided) as per brief guided notes. It would be helpful to work in a small learning group, using social media, to achieve the learning goals. Students are encouraged to take advantage of coaching offered via two weekly structured 'Tutorials' on the topics covered during the lectures and, also, two weekly 'Question-Answer' sessions. In general, the average grade for the course is usually 70-72% in class size exceeding >350 students.

5.1 Course Content & Lecture Schedule

Instructors: Geddes-McAlister (weeks 1-8), Mallard (week 9-15)

Week	Topics Covered in Lecture	Chapter Readings	No. Of Lectures
1-3	A. Introduction		
	Introduction to the course (Kuby 8th Immunology Resources)		1
	An overview of the Immune System	1	2
	Cells, Organs and Microenvironments	2	2
3-5	B. Innate Immunity:		
	Innate Immunity	4	4
	Complement System	5 (165-198)	2
6	C. Recognition and Response:		

Week	Topics Covered in Lecture	Chapter Readings	No. Of Lectures
	Antigens, B cell Antigen Receptor (BCR) and Signaling, Antigen- Antibody Interactions	3(69-103)	1
	Online Quiz – Monday, Sept. 30, 2019 (at home)		
6-7	D. The Organization and Expression of Lymphocyte Receptor Genes:		
	Antibody structure	3(69-103);	2
	Immunoglobulin (BCR) genes	6(205-236)	1
7-8	B cell Development and differentiation and Effector Response: Development of Antibody mediated immunity	11	2
	Mid Term Examination - Wednesday, Oct. 16, 2019 (in-class)		

Week	Topics Covered in Lecture	Chapter Readings	No. Of Lectures
9-14	E. Cell Mediated Immunity:		
	MHC & antigen presentation	8	4
	T cell receptors and signaling	3(95-101); 7(247-255); 9 and 11	3
	Online Quiz – TBA		
	Cytokines and Chemokines	4	3
	Effector Response: Development of Cell mediated immunity	13(427-446) 15 (506-508)	4
14-15	F. Infection and Immunity:		
	Immunity to infection with focus on HIV-AIDS	17(553-574) 18 (593-623)	4
	Final Examination		

6 Assessments

6.1 Methods of Assessment

Form of Assessment	Weight of Assessment	Date of Assessment (Location)	Course Content /Activity	Learning Outcome Addressed
Quiz 1*	2.5%	TBA via D2L (At Home)	Chapters 1,2,3, and 5, as in section A, B and C	1, 2 and 6
Midterm**	40%	TBD	Section A, B, C and D (Part) as shown in lecture schedule	1 to 6
Quiz 2*	2.5%	TBA via D2L (At Home)	Chapters 3, 7, 8 and 11 as in Section E	1 and 2
Final***	55%	TBD	Entire course content delivered during the lectures	1 to 6

6.2 Note

***Quiz:** Two online quizzes 2.5% grade each will be held during pre- and post-midterm sessions.

- The online quiz will be open for three days, i.e., 72 hours where students will be expected to answer ten randomly generated multiple-choice questions (MCQ).
- Once the session is begun, it must be completed within 30 min.
- Prior to beginning the quiz, computer functionality, proper battery charge/power connection etc. must be ensured for successful completion of quiz.
- No alternate quiz session will be available resulting in the loss of marks towards the grade, should it be missed.

**** Midterm:** A 50 min midterm examination will comprise 45 multiple-choice and/or other objective type of questions where best answer must be chosen.

- Some questions may emphasize interpretation or explanation of experimental observations or diagrams.
- Unless there is a valid and genuine medical reason, any student missing the midterm examination will need to write a 100% (95% Final plus 5% Quizzes) final examination. Additional information is available at: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

*****Final:** A two-hour comprehensive and cumulative examination will cover the entire course learning materials. The examination will involve 90 objective type questions (e.g., True and False, multiple choice & some multiple part questions).

- Some questions may require interpretation and explanation of experimental observations or diagrams.
- The students will be graded 100% on the final examination (95% Final plus 5% Quiz), if the performance is better than the mid-term examination.
- A failing student with a final grade of 49% will be permitted to pass the course by rounding up to 50%.
- Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services as soon as possible at 519-824-4120 ext. 56208 (website: <https://www.uoguelph.ca/csd/>)

7 Course Statements

7.1 Course Specific Notes

- Students are required to regularly check course announcements via D2L.
- No e-mail sent to professors will be considered as confidential unless clearly stated. If pertinent, these could be discussed during the lectures.
- Students are encouraged to take advantage of 'tutorials' and 'Question - Answer Sessions' by the Teaching Assistant.
- Use of cell phones during the lecture is prohibited.
- Electronic recording of classes is expressly forbidden without prior written consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.
- Students are encouraged to participate in fair faculty and course evaluation which will be announced in advance via the course website.
- Any unusual incidence during the conduct of examination must be immediately brought to the attention of Professors in the examination hall.
- Students are not allowed to wear baseball hats (or hats that hide wandering eyes) during the examination. You may bring to examination - calculator, pen, or pencil but NOT backpack, earphones, or cell phone.
- Please contact the Course Coordinator for any matter concerning the course.

7.2 Grading

Indicate all course policies regarding in-semester tests and assignment submissions, including time and place for submission of assignments and explicit penalties for late submissions.

7.3 Religious Matters

As for religious matters, please refer to the university policies at:

<http://www.uoguelph.ca/hre/hr/hrholydays.shtml>

7.4 Academic Integrity

Academic integrity is integral to education and students are encouraged to review various policies at: <http://www.academicintegrity.uoguelph.ca/integrity.cfm>.

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. <http://www.learningcommons.uoguelph.ca/>
- 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: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/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. <https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- 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/>

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 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>

9.3 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>

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 can be found on the SAS website
<https://www.uoguelph.ca/sas>

9.6 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>

9.7 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.

9.8 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>