

ORIGINAL COURSE IMPLEMENTATION DATE: REVISED COURSE IMPLEMENTATION DATE: September 2017 September 2022 January 2028

COURSE TO BE REVIEWED (six years after UEC approval): Course outline form version: 05/18/2018

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

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

Course Code and Number: BIO 448		Number of Credits: 3 Course credit policy (105)						
Course Full Title: Immunology	·							
Course Short Title:								
(Transcripts only display 30 characters. Departments may recommend a short title if one is needed. If left blank, one will be assigned.)								
Faculty: Faculty of Science		Department (o	or program if no department): Biology					
Calendar Description:								
Explores the cellular and molecular participants in the immune response. The relationship between immune mechanisms and medical problems will also be discussed, such as allergy, autoimmunity, immunodeficiency, infection, and organ transplantation.								
Prerequisites (or NONE):	BIO 201, BIO 202, and BIO 220.							
Corequisites (if applicable, or NONE):								
Pre/corequisites (if applicable, or NONE):								
Antirequisite Courses (Cannot be taken for additional credit.)			Special Topics (Double-click on boxes to select.)					
Former course code/number: BIO 420R			This course is offered with different topics:					
Cross-listed with:			\square No \square Yes (If yes, topic will be recorded when offered.)					
Dual-listed with:			Independent Study					
Equivalent course(s): BIO 420R			If offered as an Independent Study course, this course may be repeated for further credit: (<i>If yes, topic will be recorded.</i>) No Yes, repeat(s) Yes, no limit					
(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)								
			Transfe	er Credit				
Typical Structure of Instructional Hours			Transfe	r credit already exists: (See <u>bctransferguide.ca</u> .)			
Lecture/seminar hours		33	🖾 No	Yes				
Tutorials/workshops		12	Submit	Submit outline for (re)articulation:				
Supervised laboratory hours			∐ No	Yes (If yes, fill in trai	nsfer credit form.)			
Experiential (field experience, practicum, int	ternship, etc.))	Grading System					
Supervised online activities			🛛 Lette	Letter Grades 🔲 Credit/No Credit				
Other contact hours:		Maxim	Maximum enrolment (for information only): 24					
	Total hours	s 45	Expect	Expected Frequency of Course Offerings:				
Labs to be scheduled independent of lecture	hours: 🔲 N	lo 🗌 Yes	Every other year. (Every semester, Fall only, annually, etc.)					
Department / Program Head or Director: Gregory Schmaltz			•	Date of meeting:	October 1, 2021			
Faculty Council approval				Date of meeting:	November 5, 2021			
Undergraduate Education Committee (UEC) approval				Date of meeting:	January 28, 2022			

Learning Outcomes:

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

- 1. Describe the main components of the immune system and their functions.
- 2. Outline the principles of innate and adaptive immunity.
- 3. Associate the structure of antibody molecules to their function.
- 4. Discuss how antigens evoke an immune response and their roles in vaccine development.
- 5. Compare the development, maturation, and activation of lymphocytes.
- 6. Evaluate the consequences of inappropriate immune responses.

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.*) A combination of lectures, seminars, presentations/tutorials, and collaborative learning.

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

Тур	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.	Owen, J.A., Punt, J., Stranford, S.A.	Kuby Immunology 8 th ed.	\boxtimes	W.H. Freeman & Co.	2019		
2.							
3.							
4.							
5.							
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Required Additional Supplies and Materials (Software, hardware, tools, specialized clothing, etc.)

Typical Evaluation Methods and Weighting

Final exam:	45%	Assignments:	5%	Field experience:	%	Portfolio:	%
Midterm exam:	30%	Project:	%	Practicum:	%	Presentation:	15%
Quizzes/tests:	5%	Lab work:	%	Shop work:	%	Total:	100%

Details (if necessary):

Typical Course Content and Topics

- 1. Overview of the immune system
- 2. Cells and organs of the immune system
- 3. Innate immunity
- 4. Antigens and antibodies and T-cell receptor
- 5. Organization and expression of immunoglobulin genes
- 6. The complement system
- 7. Cytokines
- 8. Major histocompatibility complex
- 9. T-cell development
- 10. B-cell development
- 11. T-cell activation
- 12. B-cell activation
- 13. Type I Hypersensitivity reactions, Types II, III, IV hypersensitivities
- 14. Tolerance, autoimmunity, and transplantations
- 15. Immune response to infectious disease and vaccines
- 16. Primary and secondary immunodeficiency disorders
- 17. Cancer of the immune system
- 18. COVID-19