



# Biology (BIOL) 480

## Immunology (Revision 3)

**Status:**

Replaced with new revision, see the [course listing](#) for the current revision.

**Delivery mode:**

Individualized study online with a Virtual Lab. This course is charged a lab fee.

**Credits:**

3

**Area of study:**

Science

**Prerequisites:**

First-year university level courses in biology and chemistry, such as Athabasca University's—BIOL 204, BIOL 205, CHEM 217 or CHEM 218.

**Precluded:**

None

**Challenge:**

BIOL 480 is not available for challenge.

**Faculty:**

Faculty of Science and Technology

## Overview

Biology 480 is a three-credit, university-level course that covers the principal concepts of immunology. The course discusses the components of the immune system and presents the immune mechanisms critical to immune function. It also covers the immune response to infection and the diseases that result when immunity is compromised or non-functional. It introduces current methods of studying immunity and its clinical applications in the field.

Students enrolling in Biology 480 must have completed first-year courses in biology and chemistry at the university level. According to the Athabasca University Calendar, students who wish to be exempted from these prerequisites must have the approval of the course professor.

## Outline

Biology 480 is divided into 15 units as follows:

- Unit 1 Overview of the Immune System
- Unit 2 Recognition and Response
- Unit 3 Innate Immunity
- Unit 4 The Complement System
- Unit 5 Organization and Expression of Antibody and Lymphocyte Receptor Genes
- Unit 6 The Major Histocompatibility Complex (MHC) and Antigen Presentation
- Unit 7 T-Cell and B-Cell Development and Activation
- Unit 8 Effector Responses: Antibody- and Cell-Mediated Immunity
- Unit 9 Barrier Immunity: The Immunology of Mucosa and Skin
- Unit 10 The Adaptive Immune Response in Space and Time
- Unit 11 Allergy, Hypersensitivities, and Chronic Inflammation
- Unit 12 Tolerance, Autoimmunity and Transplantation



- Unit 13 Infectious Diseases and Vaccines
- Unit 14 Immunodeficiency Diseases and Cancer
- Unit 15 Experimental Systems and Methods

## Learning outcomes

Upon successful completion of this course, you will be able to

- explain the components and functions of innate and adaptive immunity.
- identify the role of signal transduction in the immune response.
- compare and contrast the components of the humoral and cell-mediated immune responses.
- explain the function and components of the complement system.
- describe antigen presentation and the role of the major histocompatibility complex.
- explain the principles of hypersensitivity reactions, inflammation, and autoimmunity.
- review the immune response to infectious diseases and the role of vaccines in immunity to disease.
- discuss the role of the immune system in AIDS, cancer, and transplantation.


## Evaluation


To **receive credit**  for BIOL 480, you must achieve a course composite grade of at least **D (50 percent)** , and grade of at least 50 percent on each assignment, laboratory quiz, and invigilated examination.

The laboratory component provides you with the opportunity to learn basic immunological applications and reinforce important concepts in this course. There are five online laboratories in BIOL 480, meaning you are not required to perform work in an actual laboratory. Rather, you are required to understand the laboratory procedures; study the photos, figures, and tables; and watch the videos in each online laboratory. You will be tested on your understanding of each laboratory with an associated laboratory quiz


The weighting of the composite grade is as follows:

<b>Activity</b>	<b>Weight</b>
Assignment 1	10%
Assignment 2	10%
Assignment 3	10%
Assignment 4	10%
Midterm Exam	20%
Final Exam	20%
Laboratory Quiz 1	4%
Laboratory Quiz 2	4%
Laboratory Quiz 3	4%
Laboratory Quiz 4	4%
Laboratory Quiz 5	4%
<b>Total</b>	<b>100%</b>





The **midterm and final examinations** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the [Exams and grades](#)  section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's [online Calendar](#) .

## Materials

Punt, J., Stranford, S.A., Jones, P & Owen, J.A. (2019). *Kuby Immunology* (8th ed.). New York: W.H. Freeman and Company.  (Print)

## Important links

- › [Academic advising](#) 
- › [Program planning](#) 
- › [Request assistance](#) 
- › [Support services](#) 

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

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*Updated August 9, 2024*

View [previous revision](#) 

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