

# IMMU 420: Advanced Immunology and Host Microbe Interactions

"Immunology taught me that germs are bad, so why do I feel sick when I take antibiotics? What's a monoclonal antibody? Why is transplantation so complicated?" If you've found yourself wondering these questions, which are typically beyond the scope of an introductory immunology course, this is the perfect course for you. IMMU 420 builds upon the foundations laid in introductory immunology courses such as IMMU 403. We explore concepts such as auto-immunity, transplantation, and mucosal immunity while also introducing the concept of host pathogen interactions: pathogenic and beneficial. We also discuss therapeutic modulators of the immune system, common laboratory techniques as practical applications of the immune concepts covered.

## Learning Objectives

- Identify and discuss the mechanisms used by natural killer cells to guard against infection throughout the body. Discuss the role of NK cells in innate immune defenses at various tissue sites.
- Compare and contrast the players of mucosal immunity versus systemic immunity to distinguish the difference between infections and vaccines at mucosal surfaces.
- Distinguish between and classify various types of autoimmune diseases.
- Predict the outcome of transplantation after examination of various histocompatibility markers. Predict how various histocompatibility markers can adversely affect transplantation.
- Devise a treatment plan for hypothetical patients with autoimmune diseases based on student knowledge of immune modulating drugs.
- Discuss some of the ways the microbiome influences the immune system of the host.
- Set up theoretical experiments using common immune system experimental protocols to test provided hypotheses.

**Credits:** 2

**Class Type:** Graduate Course

**Prerequisites:**

IMMU 403

The above course(s) or a solid foundation in immunology.

**Program:** Immunology and Microbiology

**Availability** Summer 2022