Immunology Lab
MB 417/517

Credits: 2
The course meets 4 hours per week in laboratory. Nash Hall 3rd floor teaching lab, Rm 304.

Pre-requisites: MB 416 (may be taken as co-req), MB 303

Learning resources (required): MB 417/517 lab manual (available in the OSU bookstore)

Instructor: Malcolm Lowry, Ph.D.
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This laboratory will provide exposure to up to date techniques in immunology using several newer technologies as well as more basic experimental approaches.

Student Learning Outcomes for MB417
Upon completion of this class students should know how to:
1. Collect experimental data aimed at understanding the function of the immune system.
2. Analyze experimental data and construct valid conclusions regarding the meaning of the experiment.
3. Formulate and present a well-organized and concise report of the experimental findings.
4. Communicate recent research progress in the field from scientific journal articles and critically evaluate the methods and conclusions.

Evaluation of student performance for MB417
Lab reports and lab participation = 50%
Midterm exam = 20%
Presentation = 10%
Final exam = 20%

Student Learning Outcomes for MB517
Upon completion of this class students should know how to:
1. Collect experimental data aimed at understanding the function of the immune system.
2. Analyze experimental data and construct valid conclusions regarding the meaning of the experiment.
3. Formulate and present a well-organized and concise report of the experimental findings.
4. Communicate recent research progress in the field from scientific journal articles and critically evaluate the methods and conclusions.
5. Write a critical review of a current research paper from a major journal in the field and extend the topic into what could be done next in further research.

Evaluation of student performance for MB517
Lab reports and lab participation = 50%
Midterm exam = 20%
Presentation = 5%
Written paper critique = 5%
Final exam = 20%
**Student conduct** (http://studentlife.oregonstate.edu/studentconduct/offenses-0)

The following information is summarized from the OSU Student Conduct Regulations.

Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- cheating - use/at tempted use of unauthorized materials, information or study aids
- fabrication - falsification or invention of any information
- assisting - helping another commit an act of academic dishonesty
- tampering - altering or interfering with evaluation instruments and documents
- plagiarism - representing the words or ideas of another person as one's own

When evidence of academic dishonesty comes to the instructor's attention, the instructor will document the incident, permit the accused student to provide an explanation, advise the student of possible penalties, and take action. The instructor may impose any academic penalty up to and including an "F" grade in the course after consulting with his/her department chair and informing the student of the action taken.

The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office.

**For students with documented disabilities**

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.
Schedule of MB 417/517 lab

1. September 26: Lab 1: Histology of the immune system. Differential blood count

2. October 3: Lab 2: Phagocytosis of pathogens by macrophages

   October 12: Friday-1pm Part 2 of Lab 3 Nitric oxide lab.

4. October 17: Lab 4: Macrophage intracellular killing of bacteria
   Lab report from lab#1 and #2 due

5. October 24: Lab 4 part 2: CFU counting from Lab 4
   Lab 5 part 1: SDS PAGE and western blotting 1
   Midterm exam

6. October 31: Lab 5 part 2: SDS PAGE and Western blotting part 2
   Lab report #3 due
   Immuno-olympics topics and teams will be assigned

7. November 7: Lab 6: Analysis of B and T lymphocyte activation by Flow cytometry

   November 16: Friday 1pm Lab 7 part 2: ELISA analysis, Immuno-olympics discussion
   Lab report #4 due

   Lab report #5 due

10. November 28: Immuno-Olympics challenge
    Lab reports #6 and #7 due

Exam week: Lab final is December 6th, at 12:00 noon

Note: Please read the lab procedure before coming to class. Some of these labs are very challenging, and you will make mistakes if you don’t have a good idea of what you are going to do that day.