

# IMMUNOLOGY (IMM)

## Graduate Studies

### IMM 201 – Introductory Immunology (4 units)

*Course Description:* Comprehensive introduction to the principles of immunology.

*Prerequisite(s):* Graduate standing.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Enrollment limited to 30 students.

*Grade Mode:* Letter.

### IMM 201L – Advanced Immunology Laboratory Rotations (4 units)

*Course Description:* Laboratory assignment in two research laboratories. Individual research problems with emphasis on methodological/procedural experience and experimental design. Student writes a project outline and gives oral presentation.

*Learning Activities:* Discussion/Laboratory 12 hour(s).

*Repeat Credit:* May be repeated 2 time(s).

*Grade Mode:* Letter.

### IMM 202L – Advanced Immunology Laboratory Rotations (5 units)

*Course Description:* One four-week and one six week assignment in immunology research laboratories. Individual research problems with an emphasis on methodological/procedural experience and experimental design.

*Learning Activities:* Discussion/Laboratory 15 hour(s).

*Repeat Credit:* May be repeated 2 time(s).

*Grade Mode:* Letter.

### IMM 203 – Cancer Immunology (2 units)

*Course Description:* Covers concepts in cancer biology, progression and immune evasion. It will also cover topics such as: immune surveillance, immune effector mechanisms and current concepts in immune therapy.

*Learning Activities:* Lecture 1 hour(s), Term Paper 1 hour(s).

*Grade Mode:* Letter.

### IMM 204 – Topics in Innate Immunity (2 units)

*Course Description:* Covers current topics in the field of innate immunity through student seminar presentations and critical evaluation of the literature. Concepts include: pathogen recognition, intercellular communication, specialized cellular function and effector/signaling molecules.

*Prerequisite(s):* IMM 201; or equivalent; IMM 293 preferred.

*Learning Activities:* Extensive Writing/Discussion 1 hour(s), Performance Instruction 1 hour(s).

*Enrollment Restriction(s):* Restricted to first- or second-year GGI and MGG students; others with permission of instructor; enrollment limited to 18 students.

*Grade Mode:* Letter.

### IMM 210 – Topics on Neuroimmunology & Neuroinflammation (2 units)

*Course Description:* Topics will include a broad range of frontiers in neuroimmunology and neuroinflammation. Research articles in current literature will serve to guide in-depth discussions of experimental approaches, technical aspects of experimental techniques, data interpretation, and other relevant aspects of each topic.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Seminar 2 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Satisfactory/Unsatisfactory only.

### IMM 291 – Introduction to Critical Analysis of Immunology Research Literature (2 units)

*Course Description:* Introduction to critical reading of primary research papers in Immunology. Guided discussions on recent primary research papers provided to students before each class.

*Prerequisite(s):* IMM 201 (can be concurrent); or consent of instructor.

*Learning Activities:* Seminar 2 hour(s).

*Repeat Credit:* May be repeated 2 time(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

### IMM 292 – Immunotoxicology Seminar (2 units)

*Course Description:* Seminar presentations dealing with principles of xenobiotic effects on immune system functions and specific examples of drugs and environmental chemicals exerting toxic effects on the immune system.

*Prerequisite(s):* Graduate standing in Pharmacology/Toxicology, Immunology, Physiology, or Biochemistry.

*Learning Activities:* Seminar 2 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

### IMM 293 – Current Concepts in Immunology (4 units)

*Course Description:* Innate and acquired immunity as defense mechanisms against disease. Mechanisms regulating the distinct cell types driving these responses and current concepts in the literature.

*Prerequisite(s):* PMI 126; or consent of instructor.

*Learning Activities:* Lecture/Discussion 4 hour(s).

*Grade Mode:* Letter.

### IMM 294 – Comparative Clinical Immunology (2 units)

*Course Description:* Innate and adaptive immunity as related to clinical medicine and therapeutics. Topics may include chronic inflammation, leukocyte adhesion deficiency, cytokine-mediated toxic shock syndrome and septic shock, allergy and hypersensitivity, tolerance and autoimmune disease, primary biliary cirrhosis, rheumatoid arthritis, multiple sclerosis, systemic lupus erythematosus, biologics and immune-engineered therapeutics.

*Prerequisite(s):* IMM 201 or PMI 270; or consent of instructor.

*Learning Activities:* Lecture/Discussion 2 hour(s).

*Credit Limitation(s):* Not open for credit to students who have completed IMM 294A.

*Grade Mode:* Letter.

### **IMM 295 – Cytokines (3 units)**

*Course Description:* Cytokines and their involvement in human and animal physiology/disease, molecular mechanisms and receptor signaling. Immune and non-immune actions. Overlapping/redundant functions (referred to as the "cytokine network").

*Prerequisite(s):* IMM 293; or consent of instructor.

*Learning Activities:* Lecture 2 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### **IMM 296 – Advanced Topics in Immunology (1 unit)**

*Course Description:* Presentation and discussion of faculty research topics in Immunology

*Prerequisite(s):* Graduate standing or consent of instructor.

*Learning Activities:* Seminar 2 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **IMM 297 – Mucosal Immunology (2 units)**

*Course Description:* Basic concepts and current research topics in the field of mucosal immunology, with an emphasis on human immunology. Major emphases include innate and adaptive mucosal immunity, the gastrointestinal tract, the lung, lymphocyte trafficking, and mucosal vaccination.

*Prerequisite(s):* IMM 201; or equivalent.

*Learning Activities:* Lecture 1 hour(s), Discussion 1 hour(s), Term Paper.

*Grade Mode:* Letter.