MICROBIOLOGY AND IMMUNOLOGY

Courses offered by the Department of Microbiology and Immunology are listed under the subject code MI on the Stanford Bulletin's ExploreCourses web site.

Graduate Programs in Microbiology and Immunology

The Department of Microbiology and Immunology offers a program of training leading to the Ph.D. degree, as well as research training, courses, and seminars for medical students and postdoctoral fellows. Research interests focus on two broad areas: host/parasite interactions, and the function of the immune system. Laboratories investigate mechanisms of pathogenesis and the physiology of viruses, bacteria, and protozoan parasites, as well as the lymphocyte function in antigen recognition, immune response, and autoimmunity.

Master of Science

A regular M.S. program is not offered, although this degree is awarded under special circumstances. Candidates for master's degrees are expected to have completed the preliminary requirements for the B.S. degree, or the equivalent. In addition, the candidate is expected to complete 45 quarter units of work related to microbiology; at least 25 of these units should concern research devoted to a thesis. The thesis must be approved by the student's committee.

Doctor of Philosophy in Microbiology and Immunology

University requirements for the Ph.D. are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees)" section of this bulletin.

Application, Admission, and Financial Aid

Prospective Ph.D. candidates should have completed a bachelor's degree in a discipline of biology or chemistry, including course work in biochemistry, chemistry, genetics, immunology, microbiology, and molecular biology.

Applicants must file a report of scores on the general subject tests of the Graduate Record Examination (GRE). It is strongly recommended that the GRE be taken before October so that scores are available when applications are evaluated.

In the absence of independent fellowship support, entering predoctoral students are fully supported with a stipend and tuition award. Highly qualified applicants may be honored by a nomination for a Stanford Graduate Fellowship. Successful applicants have been competitive for predoctoral fellowships such as those from the National Science Foundation.

Program for Graduate Study

The Ph.D. degree requires course work and independent research demonstrating an individual's creative, scholastic, and intellectual abilities. On entering the department, students meet an advisory faculty member; together they design a timetable for completion of the degree requirements. Typically, this consists of first identifying gaps in the student's undergraduate education and determining courses that should be taken. Then, a tentative plan is made for two to four lab rotations (one rotation per quarter). During the first year of graduate study in the department, each student also takes seven upper-level (200-series) courses.

Course requirements:

		Units
BIOS 200	Foundations in Experimental Biology	5
BIO 214	Advanced Cell Biology	4
MED 255	The Responsible Conduct of Research	1
MI 210	Advanced Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites	4
MI 215	Principles of Biological Technologies	3
MI 250	Frontiers in Microbiology and Immunology (Taken once in the first year and once in the second year for a total of 2 units.)	1
MI 214	Immunology: Homeostasis and Disease	3

Recommended course:

		Units
BIO 230	Molecular and Cellular Immunology	4

One elective from the following:

		Units
DBIO 210	Developmental Biology	4
CSB 210	Cell Signaling	4
CSB 220	Chemistry of Biological Processes	3
GENE 205	Advanced Genetics	3
IMMUNOL 202	Advanced Immunology II	3
MCP 256	How Cells Work: Energetics, Compartments, and Coupling in Cell Biology	4
MI 221	Gut Microbiota in Health and Disease	2-3
MI 245	Computational Modeling of Microbial Communities	4
SBIO 241	Biological Macromolecules	3-5
STATS 141	Biostatistics	3-5

Prior approval from the student's adviser and department graduate program director is required for courses not from the elective list.

In Autumn Quarter of the second year, each student defends orally a formal research proposal on a topic outside the intended thesis project. This qualifying examination proposal is due to the graduate program steering committee by September 1. In Spring Quarter of the second year, a research proposal based on the student's own thesis topic is defended to the thesis committee. The written thesis proposal is due May 1 and the oral defense is presented and completed by the end of the Spring Quarter. Based on successful performance on these proposals, the student is admitted to candidacy. Teaching experience and training are also part of the graduate curriculum. Graduate students are required to act as teaching assistants for one course. In addition, first- and second-year graduate students are required to participate in a bi-weekly journal club. Additional information on program requirements can be found on the Microbiology and Immunology (http://med.stanford.edu/microimmuno.html) web site.

Emeriti: (Professors) Stanley Falkow, Hugh O. McDevitt, Edward S. Mocarski

Chair: David Schneider

Associate Chair: Peter Sarnow

Professors: Ann Arvin, Helen Blau, Matthew Bogyo, John C. Boothroyd, Yueh-Hsiu Chien, Wah Chiu, Mark M. Davis, Stephen J. Galli, Harry B. Greenberg, Peter Jackson, Karla Kirkegaard, A. C. Matin, Denise Monack, Garry Nolan, Peter Parham, Phillip Pizzo, Charles Prober, David Relman, Peter Sarnow, David Schneider, Gary K. Schoolnik, Julie Theriot, Lucy S. Tompkins

Professor (Teaching): Robert D. Siegel

Associate Professors: Manuel Amieva, Jeffrey Glenn, K.C. Huang, Upinder Singh, Justin Sonnenburg

Assistant Professors: Paul Bollyky, Jan Carette, Elizabeth Egan, Shirit Einav, Juliana Idoyaga, Ellen Yeh

Institute for Immunity, Transplantation and Infection

Director, Human Immune Monitoring Center and Professor (Research): Holden Maecker