

# IMMUNOLOGY AND MICROBIOLOGY (PH.D.)

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The Ph.D. program in Immunology & Microbiology educates and trains students for research careers in immunology, microbiology or virology. During the first year of the program, students take courses in cellular and molecular biology as part of the interdisciplinary biomedical sciences curriculum, as well as courses in immunology, microbiology, and virology. Participation in journal clubs, seminars and research rotations in faculty laboratories provide opportunities to become familiar with the faculty and other students. An oral preliminary examination is administered during the summer of the first year. Selection of a dissertation advisor typically occurs after the preliminary examination. Dissertation research begins at this time and continues through the remainder of the program. A dissertation advisory committee is formed by the end of the second year and thereafter meets regularly (at least once every 6 months) with the student to review research progress and course work related to the student's doctoral program. Students typically defend their dissertation near the end of their fifth year. The program also requires submission of a first author publication to a peer-reviewed journal.

Students in the Immunology and Microbiology Department enroll in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum during their first year. The curriculum includes:

<b>Code</b>	<b>Title</b>	<b>Credits</b>
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
It also includes selection by the student in conjunction with the Departmental Graduate Officer of courses within the IBS Systems curriculum, including IBS 7090, Fundamentals of Immunology (two credits) and selections from other IBS Systems courses		
IM 7040	Fundamentals of Research	2
IM 7030	Molecular Biology of Viruses	2
IM 7520	Molecular Mechanisms of Bacterial Pathogenesis	2
IM 7996	Research	1-8

Candidates for the doctoral degree must complete ninety credits beyond the bachelor's degree, including thirty credits in doctoral dissertation direction. The thirty-credit dissertation requirement is fulfilled by registering for IM 9991, IM 9992, IM 9993 and IM 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. For information regarding distribution of credits among major and minor requirements, consult the department.