Microbiology and Immunology Requirements 2018-19

Quarter Offered	Subject/Course Number	Course Title	Units
Autumn	BIOS 200	Foundations in Experimental Biology	5 units
	MI 210	Adv. Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites	4 units
	MI 399	Graduate Research	1 unit
Winter	BIO 214/ BIOC 224/ MCP 221	Advanced Cell Biology	4 units
	MED 255	The Responsible Conduct of Research	1 unit
	MI 214	Immunology: Homeostasis and Disease	3 units
	MI 250	Frontiers in Microbiology & Immunology	1 unit
	MI 399	Graduate Research	1 unit
Spring	MI 215	Principles of Biological Technologies	3 units
	MI 399	Graduate Research	4 units

Students will register for MI 250: Frontiers in Microbiology and Immunology once in their first year and once in the second year for a total of 2 units. MI 214: Immunology: Homeostasis and Disease is a required course and is offered every other year. Although no longer part of the required curriculum, BIO 230: Molecular and Cellular Immunology is a recommended course. In the fourth year, students will need to complete a second ethics course, please see the list of approved ethics courses.

Take one course from the list of approved electives. Prior approval from the student's adviser and department Graduate Program Director is required to use a course not from the elective list.

Students register for MI 399 Graduate Research as needed to maintain enrollment in 10 units each quarter, including summer, until they complete a minimum of 135 units and are eligible for TGR status.

<u>Other requirements</u>

1st year
- M&I Noon Seminar and speaker luncheon attendance
- M&I Journal Club (MI 250) participation Aut, Wtr and Spr quarters
- Two to four laboratory rotations (commitment to join a lab is made after Apr. 1st)
- Faculty research seminars (Thursday evening Autumn quarter)
- Short summaries of three possible qualifying exam topics due Aug. 1st
- 10-page double-spaced qualifying exam research proposal due Sept. 1st

2nd year
- Qualifying exam to be completed by Nov. 1st
- Doctoral Dissertation Reading Committee Form due by the end of Aut. quarter
- M&I Noon Seminar and speaker luncheon attendance
- M&I Journal Club (MI 250) participation Aut., Wtr., Spr. Quarters
- 10-page double-spaced thesis research proposal due May 1st
- Oral defense of research proposal to be completed by the end of Spr. Quarter
- Application for Candidacy for Advanced Degrees due by the end of Sum. quarter

3rd year
- University Teaching Assistant orientation and training
- One course Teaching Assistantship
- Seminar attendance
- Annual thesis committee meeting
- Poster presentation at Department Scientific Conference and chair sessions

4th, etc.
- Semi-annual thesis committee meeting
- Seminar attendance
- Oral presentation at Department Scientific Conference
- One additional oral presentation (Wednesday Noon Seminar Series, CMB Symposium, National or International Meeting or Department Scientific Conference)

List of Ethics Courses

Students need to be familiar with current issues in research ethics and of responsible conduct of research**.** The department requires students to enroll in MED 255: The Responsible Conduct of Research in the winter quarter of the first year. In the third or fourth year of the program, students will need to complete another ethics course from the list below.

Please check Explore Courses for yearly course offerings, https://explorecourses.stanford.edu.

Subject/Course Number	Course Title	Units
BIOE 122/ EMED122/EMED 222/ PUBLPOL 122/PUBLPOL 222	Biosecurity and Bioterrorism Response	4-5 units
BIOE 131/ ETHICSOC 131X	Ethics in Bioengineering	3 units
BIOS 224	Big Topics in Stem Cell Ethics	2 units
BIOS 258	Ethics, Science, and Society	1 unit
CSB 272	Research Ethics	1 unit
HUMBIO 174	Foundations of Bioethics	3 units
MED 255C/ CHPR 255	The Responsible Conduct of Research for Clinical and Community Researchers	1 unit
NBIO 101/ NBIO 201	Social and Ethical Issues in the Neurosciences	2-4 units
PEDS 251A	Medical Ethics I	2 units
PEDS 251B	Medical Ethics II	2 units

List of Approved Electives
Please check Explore Courses for yearly course offerings, https://explorecourses.stanford.edu.

Subject/Course Number	Course Title	Units
BIOC/BIOPHYS/SBIO 241	Biological Macromolecules	3-5 units
BIOE 115/MI 245	Computational Modeling of Microbial Communities	4 units
BIOE 221G/MI 221	Gut Microbiota in Health and Disease	2-3 units
CSB 210	Cell Signaling	4 units
CSB 220	Chemistry of Biological Processes	3 units
DBIO 210	Developmental Biology	4 units
GENE 205	Advanced Genetics	3 units
GENE 211	Genomics	3 units
GENE/PATH/MI 218	Computational Analysis of Biological Information: Introduction to Python for Biologists	2 units
IMMUNOL/MCP 202	Advanced Immunology II	3 units
MCP 256	How Cells Work: Energetics, Compartments and Coupling in Cell Biology	4 units
STATS 141/BIO 141	Biostatistics	3-5 units