

MICROBIOLOGY MAJOR INFORMATION

Department of Microbiology

105 Biosciences Building

484 West 12th Avenue; Columbus, OH 43210

Tel: (614) 292-2301; Fax: (614) 292-8120

<http://microbiology.osu.edu/>

Department Chair: Dr. Tina Henkin 376 BioSci Bldg. 614-292-2301 Henkin.3@osu.edu	Honors Advisor: Dr. Olli Tuovinen 452 BioSci. Bldg. 614-292-3379 Tuovinen.1@osu.edu
Coordinating Advisor: Dr. Mette Ibba 240E Jennings Hall 614-292-0509 lbba.2@osu.edu	Coordinator Undergraduate Research: Dr. Kurt Fredrick 286 Aronoff 614-292-6679 Fredrick.5@osu.edu

Required Prerequisites or Supplements to the Microbiology Major

The courses do not count toward the Microbiology Major, but some are prerequisites for the required microbiology major courses. All of them must be completed prior to graduation.

• Biology 1113, 1114	8 hr.
• Mathematics 1156 or 1151 and one of the following: Mathematics 1157, Statistics 1450 or Statistics 2480	8-10 hr.
• Chemistry 1210, 1220	10 hr.
• Chemistry 2510, 2520, 2540	10 hr.
• Physics 1200, 1201	10 hr.

***Honors equivalents can substitute and note: additional chemistry and/or organic chemistry courses may be required/suggested for pre-professional students.**

Please, contact your Arts and Sciences Academic Advisor (614-292-6961) for a list of general education requirements (GE requirements).

Microbiology Major Courses

The Microbiology Major consists of a minimum of 30 semester credit hours, whereof the required core courses make up 21 semester credit hours. All students must complete 6 required core courses and 9 semester hours of elective courses (outlined below).

The elective microbiology courses are divided into Group 1 and Group 2. Students must take at least 3 of the 9 semester hours from Group 1, but may also take all 9 semester hours from this group.

Students are not required to take any Group 2 courses, but are allowed to take up to 6 hours of the 9 elective semester hours from Group 2. Students are encouraged to discuss with their microbiology major advisor about any courses that are not listed in Group 2 that would be suitable to include in the Microbiology Major.

A total of 3 semester hours graded S/U may count toward the Microbiology Major. Usually these are earned through Individual Study, Undergraduate Research or Honors Research (Microbiology 4193, 4998, 4998H, 4999, or 4999H). These courses can be scheduled by contacting faculty in the Microbiology Department. Students are also encouraged to discuss research options with the Undergraduate Research Office (uro@osu.edu). Other major elective courses graded S/U are Microbiology 4591S and 7899.

Students must receive a C- or better in the microbiology courses to be able to use them as prerequisites for other courses.

Microbiology 4000 may be taken as an introduction to microbiology. However, credits gained for this course will not count toward the 30 semester hours required for the Microbiology Major.

Microbiology Major Required Core Courses 21 semester credit hours

Department #	Credit Hours	Course Title (Semester taught)	Prerequisites*
Biochemistry 4511	4	Introduction to Biological Chemistry (Su, Au and Sp)	Biology 1114, Chemistry 1220, Chemistry 2510 (252)
Microbiology 4100	5	General Microbiology (Au and Sp) Microbiology 4102 - equivalent to Microbiology 521 (Au12 only)	Biology 1114, Chemistry 2510 or concurrent
Microbiology 4110	3	Microbial Pathogens and Immunobiology (Sp)	Microbiology 4100 (520) (C- or better)
Microbiology 4120	3	Microbial Physiology and Diversity (Au)	Microbiology 4100 (C- or better), Biochem 4511 or concurrently. Not open to students who completed Microbiology 661
Microbiology 4130	3	Microbial Genetics (Sp)	Microbiology 4100 (C- or better)
Microbiology 4140	3	Molecular Microbiology Laboratory (Au and Sp)	Microbiology 4100 (C- or better) Microbiology 4130 (581.01) or Microbiology 4130 concurrently. Not open to students who completed microbiology 581.02

*or honors equivalent

Microbiology Major Elective Courses

Complete a minimum of 9 semester credit hours of elective courses from
Group 1/Group 2

Group 1

Complete between 3 and 9 semester credit hours from group 1

Micro. Course No.	Credit Hours	Course Title (Semester taught)	Prerequisites
Microbiology 5122	2	Immunobiology (Au, Sp)	C- or better in either Microbiology 4000 or 4100
Microbiology 4591S	1 <i>Graded S/U</i>	DNA Fingerprinting; Service learning course (Sp)	Students present workshops at Columbus Public High Schools
Microbiology 5161H	3	Bioinformatics and Molecular Microbiology (<i>offered infrequently</i>)	Microbiology 4130 or Molecular Genetics 4500, and Biochemistry 4511; or permission of instructor
Microbiology 5129	3	Cellular and Molecular Biology of Pathogenic Eukaryotes (Sp)	Microbiology 4100 or permission of instructor
Microbiology 5536	3	Food Microbiology Lecture (Au)	C- or better in either Microbiology 4000 or 4100 (520)
Microbiology 5546	3	Food Microbiology Laboratory (Au12, Sp)	Microbiology 5536
Microbiology 5147	3	Eukaryotic Pathogens (Au)	Microbiology 4100 (C- or better); or Molecular Genetics 500# or 605#; or Biochemistry 5110
Microbiology 5149	3	Introductory Virology (Sp)	Microbiology 4100 (C- or better)
Microbiology 5150	3	Microbial Ecology (Au12)	C- or better in Microbiology 4000 or equivalent
Microbiology 5155	3	Environmental Microbiology (Au13)	C- or better in Microbiology 4000 or equivalent
Microbiology 5169	3	Microbial Evolution (TBA)	6 semester hours of biological sciences course work
Microbiology 4193 4998 4998H 4999 4999H	1-3 <i>Graded S-U</i>	Individual Studies Undergrad. Research Honors Undergrad. Research Undergrad. Research Thesis Honors Undergrad. Research Thesis (Au,Sp,Su)	Permission of instructor. Maximum of 3 credit hours for any combination of these courses can be counted toward the Major.
Micro. Course No.	Credit Hours	Course Title (Semester taught)	Prerequisites
Microbiology 6020	3	Microbial Physiology and Biochemistry (Au)	Permission of Instructor

Microbiology 6080	3	Advanced Microbial Genetics (Sp)	Microbiology 5030 or Molecular Genetics 4500 or 4606
Microbiology 7010	3	Cellular and Molecular Immunology (Au)	Biochemistry 5613, Molecular Genetics 4500 or 4606
Microbiology 7020	3	Microbial Physiology Meets Pathogenesis (Sp)	Permission of instructor
Microbiology 7023	3	Molecular Immunology (Au)	TBD
Microbiology 7724	3	Advanced Molecular Pathogenesis (Au)	Permission of instructor
Microbiology 7536	3	Advanced Food Microbiology (Au)	Microbiology 5536 and Chemistry 1220
Microbiology 7060	3	Advanced Topics in Molecular Microbiology (Sp)	Microbiology 5020 or permission of instructor
Microbiology 7899	1 <i>Graded S/U</i>	Microbiology Colloquium (Au,Sp)	Repeatable for maximum of 2 credit hours.

Group 2

Complete between 0 and 6 semester credit hours from group 2

Department #	Credit Hours	Course Description (Quarters taught)	Prerequisites
Microbiology 3300	2	The Biology of Pollution (Au)	3 credit hours of biology
Biochemistry 5621	4	Introduction to Biological Chemistry Laboratory (Au)	Biochemistry 4510 or 5613 or equivalent
Molecular Genetics 4500	3	General Genetics (Au,Sp,Su)	Biology 1113 and 3 additional hours in biological sciences
Molecular Genetics 4606	4	Molecular Genetics I (Au,Sp)	Biology 1113, Biology 1114, or Chem 1210 or equiv.
MVIMG 6000	1	Evolution of Emerging Viruses (TBD)	2 years of course work in the biological sciences suggested
Plant Pathology 5010	2	Phytobacteriology (Sp)	Plant Pathology 3001 and 3002 or 6001, Microbiology 4100, or permission of instructor
Plant Pathology 5020	2	Introduction to Plant Virology (Sp)	Plant Pathology 3001, Biochemistry 4511, or Microbiology 4000 or permission of instructor
Plant Pathology 5040	3	Mycology (Au)	Biology 1114 or Plant Pathology 3001
Animal Science 6090	3	Anaerobic Microbiology (TBD)	Microbiology 4100 and Biochemistry 4511
Envir. & Natural Resources 5263	3	Biology of Soil Ecosystems (Sp)	ENR (300) or (301), or permission of instructor with Micro 4100
Envir. & Natural Resources 5266	3	Field Soil Investigations	(TBD)

TBD = to be determine

Faculty Contact Information for Group 1 Courses

Name	Office/ Phone #	Email
Dr. Brian Ahmer	BioSci 653/ 292-1919	Ahmer.1@osu.edu
Dr. Birgit Alber	BioSci 417A/ 247-4443	Alber.8@osu.edu
Dr. Juan Alfonzo	Aronoff 218/ 292-0004	Alfonzo.1@osu.edu
Dr. Irina Artsimovitch	Aronoff 270/ 292-6777	Artsimovitch@osu.edu
Dr. Charles Daniels	BioSci 428A/ 292-4599	Daniels.7@osu.edu
Dr. Kurt Fredrick	Aronoff 286/ 292-6679	Fredrick.5@osu.edu
Dr. John Gunn	BRT 1006/ 292-6036	Gunn.43@osu.edu
Dr. Tina Henkin	Riffe 904/ 688-3831	Henkin.3@osu.edu
Dr. Michael Ibba	Aronoff 276/ 292-2120	lbba.1@osu.edu
Dr. Pravin Kaumaya	Tzagournis 316/ 292-7028	Kaumaya.1@osu.edu
Dr. Joseph Krzycki	Riffe 914/ 292-1578	Krzycki.1@osu.edu
Dr. Jesse Kwiek	BRT 1008/ 292-3256	Kwiek.2@osu.edu
Dr. Robert Munson	Children's Hospital/ 722-2778	Munson.10@osu.edu
Dr. Natacha Ruiz	Aronoff 264/ 292-3426	Ruiz.82@osu.edu
Dr. Madhura Pradhan	Riffe 140/ 292-1196	Pradhan.2@osu.edu
Dr. Chad Rappleye	BioSci 540A/ 247-2718	Rappleye.1@osu.edu
Dr. John Reeve	BioSci 468A/ 292-2301	Reeve.2@osu.edu
Dr. Kaethe Sandman	BioSci 476/ 292-5867	Sandman.1@osu.edu
Dr. Thomas Santangelo	Aronoff 290/ 292-6890	Santangelo.11@osu.edu
Dr. Abhay Satoskar	Starling-Lov M418/ 292-3243	Satoskar.2@osu.edu
Dr. Larry Schlesinger	BRT 1004/ 293-5671	Schlesinger.17@osu.edu
Dr. Stephanie Seveau	BioSci 643/ 247-7671	Seveau.1@osu.edu
Dr. Amanda Simcox*	BioSci 272/ 292-8857	Simcox.1@osu.edu
Dr. Robert Tabita	Riffe 700/ 292-4297	Tabita.1@osu.edu
Dr. Olli Tuovinen	BioSci 452A/ 292-3379	Tuovinen.1@osu.edu
Dr. Hua Wang	Parker 110/ 292-6281	Wang.707@osu.edu
Dr. Marshall Williams	Graves 2074/ 293-6175	Williams.70@osu.edu
Dr. Dan Wozniak	BRT 1018/ 247-7629	Wozniak.1@osu.edu
Dr. Ahmed Yousef	Parker 217/ 292-7814	Yousef.1@osu.edu

*Department of Molecular Genetics faculty member