Microbiology: Pre-medicine Track

18 s.h. of microbiology courses
Both of these:
• MICR:2157 General Microbiology – 3 s.h. (with grade of C or higher)
• MICR:2158 General Microbiology – 2 s.h. (with grade of C or higher)

Additional microbiology and immunology courses (prefix MICR), with at least 13 s.h. in courses numbered MICR:3147 or above, excluding MICR:3164.

Students must earn a grade of C or higher in BIOL:1411 Foundations of Biology or MICR:2157 General Microbiology in order to take more advanced microbiology courses.

Chemistry
• CHEM:1110 Principles of Chemistry I – 4 s.h.
• CHEM:1120 Principles of Chemistry II – 4 s.h.; prereq CHEM:1110 with min. grade of C-
• CHEM:2210 Organic Chemistry I – 3 s.h.; prereq CHEM:1120
• CHEM:2220 Organic Chemistry II – 3 s.h.; prereq CHEM:2210 with min. grade of C-
• CHEM:2410 Organic Chemistry Lab – 3 s.h.; prereq CHEM:2210

Biology
• BIOL:1411 Foundations of Biology – 4 s.h.; prereq: CHEM:1110 with min. grade of C-
• BIOL:1412 Diversity of Form and Function – 4 s.h.; BIOL:1411 with min. grade of C-

Biochemistry
• BIOC:3120-3130 Biochemistry and Molecular Biology I-II – 6 s.h.

Mathematics or Statistics – One of these:
• BIOS:4120 Introduction to Biostatistics – 3 s.h. (preferred)
• MATH:1460 Calculus for the Biological Sciences – 4 s.h.
• MATH:1550 Engineering Mathematics I: Single Variable Calculus – 4 s.h.
• MATH:1850 Calculus I – 4 s.h.
•STAT:3510 Biostatistics – 3 s.h. (preferred)
Statistics is preferred to Calculus for the major

Physics – One of these sequences
• PHYS:1511-1512 College Physics I-II – 8 s.h.
• PHYS:1511-1612 Introductory Physics I-II – 8 s.h.

Additional Coursework – 3 s.h. from these:
• BIOC:3310/CBIO:3310/MMED:3310 Practical Data Science – 3 s.h.
• BIOL:2723 Cell Biology – 3 s.h.
• BIOL:3314/IGPI:3314 Genomics – 3 s.h.
• BIOL:3626 Cell Biology Laboratory – 4 s.h.
• BIOL:4213 Bioinformatics – 2 or 4 s.h.
• CPH:2230 Finding Patient Zero – 3 s.h.
• GHS:2000/ANTH:2103 Introduction to Global Health Studies – 3 s.h.
• GHS:2320/ANTH:2320 Origins of Human Infectious Disease – 3 s.h.
• Add. microbiology courses (prefix MICR) numbered MICR:3147 or above, excluding MICR:3164 – 3 s.h.
Microbiology: Scholar Track

18 s.h. in microbiology courses.
Both of these:
- MICR:2157 General Microbiology – 3 s.h. (with grade of C or higher)
- MICR:2158 General Microbiology – 2 s.h. (with grade of C or higher)

Additional microbiology and immunology courses (prefix MICR), with at least 13 s.h. in courses numbered MICR:3147 or above, excluding MICR:3164.

Students must earn a grade of C or higher in BIOL:1411 Foundations of Biology or MICR:2157 General Microbiology in order to take more advanced microbiology courses.

Chemistry
- CHEM:1110 Principles of Chemistry I – 4 s.h.
- CHEM:1120 Principles of Chemistry II – 4 s.h.; prereq CHEM:1110 with min. grade of C-
- CHEM:2210 Organic Chemistry I – 3 s.h.; prereq CHEM:1120

Biology
- BIOL:1411 Foundations of Biology – 4 s.h.; prereq: CHEM:1110 with min. grade of C-
- BIOL:1412 Diversity of Form and Function – 4 s.h.; BIOL:1411 with min. grade of C-

Biochemistry
- BIOC:3120-3130 Biochemistry and Molecular Biology I-II – 6 s.h.

Mathematics or Statistics – One of these:
- BIOS:4120 Introduction to Biostatistics – 3 s.h. (preferred)
- MATH:1460 Calculus for the Biological Sciences – 4 s.h.
- MATH:1550 Engineering Mathematics I: Single Variable Calculus – 4 s.h.
- MATH:1850 Calculus I – 4 s.h.
- STAT:3510 Biostatistics – 3 s.h. (preferred)

Statistics is preferred to Calculus for the major

Additional Coursework:
- PHYS:1400 Basic Physics w/lab – 4 s.h.

One of these:
- GHS:2000 Introduction to Global Health Studies – 3 s.h.
- GHS:2320 Anthropological Perspectives on Human Infectious Disease: Origins and Evolution – 3 s.h.

Scholar track students must earn an additional 7 s.h. of advanced course work chosen from:
- BIOC:3310/CBIO:3310/MMED:3310 Practical Data Science and Bioinformatics – 3 s.h.
- BIOL:3314/IGPI:3314 Genomics – 3 s.h.
- BIOL:3626 Cell Biology Laboratory – 3 s.h.
- BIOL:4213/GENE:4213/IGPI:4213 Bioinformatics – 2 or 4 s.h.

Additional microbiology and immunology courses (prefix MICR) number MICR:3147 or above, excluding MICR:3164.

May include one of these:
- BIOL:2723 Cell Biology – 3 s.h.
- CPH:2230 Finding Patient Zero – 3 s.h.
• GHS:2000 Introduction to Global Health Studies – 3 s.h. (if not taken as a course option above)
• GHS:2320/ANTH:2320 Anthropological Perspectives on Human Infectious Disease: Origins and Evolution – 3 s.h. (if not taken a course option above)

Scholar track students must take at least one microbiology advanced lab or research course from:
• MICR:3165 Bacteria and Human Disease Laboratory and Discussion – 3 s.h.
• MICR:3178 Virology Laboratory and Discussion – 3 s.h.
• MICR:4161 Undergraduate Research in Microbiology – arr.
• MICR:4171 Honors Undergraduate Research in Microbiology – arr.

Honors in Microbiology
A maximum of 4 s.h. earned in MICR:4164 Undergraduate Research in Microbiology may be counted toward the major. However, honors students must complete 23 s.h. of microbiology and immunology courses (prefix MICR) for the major and may count 6 s.h. earned in MICR:4171 Honors Undergraduate Research in Microbiology.

Notes on Microbiology Tracks
The Pre-medicine and Scholar tracks of Microbiology share a common path for the supporting science sequences of CHEM:1110, CHEM:1120, CHEM:2210, BIOL:1411, and BIOL:1412. It is after completing CHEM:2210 Organic Chemistry I that majors split into distinct tracks. Students unsure on their track can begin in either track and for two-three semesters (beginning on Chemistry starting course) explore which path may be better for their interests and career aspirations.

Advising
The Microbiology department will advise declared majors in either track once students have earned 30 s.h. Students will initially be advised by the Director of Undergraduate Studies. The Director of Undergraduate Studies will meet with new majors and then assign them to faculty advisors.

Fast Track PhD
Students with strong academic performance who are interested in a career in research are eligible for a fast-track PhD admission program in Microbiology. In this program, the last year of undergraduate study and the first year of graduate study for a PhD are merged, allowing the students to complete a PhD earlier than they would by following the usual path.

To be eligible to apply, students at the end of their fifth semester must:

- have a GPA ≥ 3.5
- have ≥ 88 total s.h. completed toward their degree
- have at least three semesters of research experience completed
- be a Microbiology major
- have completed MICR:2157 General Microbiology and MICR:2158 General Microbiology Laboratory

Anyone with an interest in this program should contact Dr. Richard Roller (richard-roller@uiowa.edu) for more information.