### Undergraduate Microbiology Program of Study Degree: BS, Microbiology (Catalog: 2013-2014)

#### I) Communications (13 credits):
- Engl 150 (3) and Engl 250 (3)
- Sp Com 212 (3)
- Engl 302 (3) or Engl 309 (3) or Engl 314 (3) or Engl 312 (3)
- Lib 160 (1)

#### II) Mathematical Sciences (10-12 credits):
- Stat 101 (4) or Stat 104 (3)

**Basic Mathematics:**
2 semesters with at least one semester of calculus. Suggested options:
- Math 142 (3) Trig/Geom & Math 160 (4) Survey Calculus
- Math 181 (4) & Math 182 (4) Calculus & Differential Equations for life Sciences
- Math 165 (4) & Math 166 (4) Calculus I & II

**Computer proficiency:** usually met within the microbiology major

#### III) Physical Sciences (28-31) credits),
- Chem 177 (4), 177L (1) and Chem 178 (3)
- Phys 111 (5) and Phys 112 (5)

**Organic Chemistry (7 credits):**
- Chem 331 (3), 331L (1) and Chem 332 (3)

**Biochemistry (3-6 credits), Choose 1 of the following:**
- BBMB 404 (3) and BBMB 405 (3)
- BBMB 301 (3)

#### IV) Personal Dev., Human Relations, & Global Awareness (Total of 15 credits):
- Three credits in humanities ([See List](#))
- Three credits in social sciences ([See List](#))
- Three credits in ethics ([See list](#))
- Three credits in International Perspectives ([See list](#))
- Three credits in US diversity ([See list](#))

#### V Biological Sciences (15 credits):
- Biol 211 (3) and Biol 211L (1)
- Biol 212 (3) and Biol 212L (1)
- Biol 313 (3) and Biol 313L (1)
- Biol 314 (3)

(V=fall, S=spring, SS=summer, alt.F or alt.S alternate years.)

#### VI) Microbiology (total of 30.5 credits),

**Core Microbiology Courses (15.5 credits):**
- F Micro 110 (0.5) Orientation
- F/S Micro 302 (3) Biology of Micro
- F Micro 310 (3) Medical Microbiology
- S Micro 320 (4) Microbial Phys. & Gen.
- alt.S Micro 430 (3) Micro Diversity & Ecology, or,
- alt.S Micro 477 (3) Bact-Plant Interactions, or,
- F Micro 456 (3) Mycology
- S Micro 450 (2) Senior Seminar
- F Micro 451 (R) Senior Survey

**Core Laboratory Courses (6 credits):**
- F/S Micro 302L (1) General Micro Lab
- F Micro 310L (1) Medical Micro Lab
- F Micro 440 (4) Microbial Genetics, Physiology, Diversity & Ecology Lab

**Microbiology Electives (9 credits req. with no more than 3 credits from lab courses):**

#### Common Clinical Electives
- S Micro 374 (3) Insects & Our Health
- F Micro 408 (3) Virology
- S Micro 475 (3) Immunology
- S Micro 475L (1) Immunology Lab
- F Ent 478 (3) Global Protozoology
- F Micro 586 (3) Medical Bacteriology

**Common Environmental Electives**
- alt.F Micro 410 (3) Insects-Virus Interactions
- alt.S Micro 430 (3) Micro Diversity & Ecology
- F Micro 456 (3) Mycology
- S Micro 477 (3) Bact-Plant Interactions
- S Micro 485 (3) Soil Micro Ecology
- S Micro 487 (3) Microbial Ecology

**Common Physiology/Genetics Electives**
- alt.F Micro 402 (3) Microbial Genetics
- alt.S BBMB 403 (3) Microbial Physiology
- alt.F Micro 410 (3) Insects-Virus Interactions
- alt.S Micro 430 (3) Micro Diversity & Ecology

**Common Food Microbiology Electives**
- S Micro 407 (3) Micro Food Safety
- alt.S Micro 419 (3) Foodborne Hazards
- F Micro 420 (3) Food Microbiology
- F Micro 421 (3) Food Microbiology Lab
- F/S/SS Micro 490 (1-3) Independent Study

(Other courses upon written request and review.)

#### Vi1 Electives (17 - 22 credits):
Courses to obtain 128 total credit hours.
- **Minor in Food Safety**
- **Minor in Emerging Global Diseases**
- **Courses of Student Interest**

Contact Microbiology Programs: nan1@iastate.edu