Graduation and Program Requirements

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Area I: Foundation Courses (6-9 Hours)

- 3 ENGL 1101  English Composition I
- 3 ENGL 1102  English Composition II
- 3 MATH 1113 or Higher  Pre-Calculus

Area II: Sciences (8 Hours)

- 4 CHEM 1211-1211L  Freshman Chemistry I (Preferred; Requires MATH 1113)
- 4 BIOL 1107-1107L  Principles of Biology I (Preferred; Requires CHEM 1211-1211L)

Area III: Quantitative Reasoning (4 Hours)

- 4 MATH 2250  Calculus I for Science and Engineering (Preferred; Requires MATH 1113)

Area IV: World Languages and Culture; Humanities and the Arts (12-14 Hours)

- 3 World Language and Culture
- 3 World Language and Culture
- 3 World Language and Culture
- 3 Humanities and the Arts

Area V: Social Sciences (9 Hours)

- 3 POLS 1101  American Government (Satisfies U.S. & Georgia Constitution requirement)
- 3 HIST 2111/2112  American History to/since 1865 (Satisfies U.S. & Georgia History requirement)
- 3 Social Science

Area VI: Courses Related to the Major (20 Hours)

- 4 MATH 2250  Calculus I
- 4 BIOL 1108-1108L  Principles of Biology II (Requires BIOL 1107-1107L)
- 4 CHEM 1211-1211L  Freshman Chemistry II (Requires MATH 1113)
- 4 CHEM 1212-1212L  Freshman Chemistry II (Requires CHEM 1211-1211L)
- 4 CHEM 2211-2211L  Modern Organic Chemistry I (Requires CHEM 1212)

**NOTE:** If any courses in Area VI have been used to satisfy Areas II-V of Core Curriculum, General Electives may be taken here. Microbiology requires individual review of non-equivalent transfer courses before they can be used to satisfy Area VI and Major Requirements

Major Requirements: A baccalaureate degree program must require at least 21 semester hours of upper division courses in the major field and at least 39 hours of upper division work overall. Students in the Franklin College must earn a grade of “C” (2.0) or above in major required courses

Required Courses (31-35 hours)

- 4 BCMB 3100 or BCMB 4020  Introductory Biochemistry and Molecular Biology (Requires CHEM 2211-2211L and BIOL 1107)
- 4 MIBO 3500-3500L  Introductory Microbiology and Lab I (Requires CHEM 2211-CHEM 2111L and BIOL 1107-1107L E Summer)
- 3 MIBO 3510L  Introductory Microbiology Lab (Requires MIBO 3500)
- 4 MIBO 4090/6090  Prokaryotic Biology (Requires MIBO 3500 or MIBO 3500E)
- 4 GENE 3200-3200D  Genetics (Requires BIOL 1107)
Major I  Choose one option from the following (4 hours):
   ___ 4 MIBO 4600L/6600L  Experimental Microbiology Laboratory (Requires MIBO 3500 and MIBO 3510, Fall only)
   ___ 1-6 MIBO 4970R*  Faculty-Mentored Undergraduate Research II (Requires POD and MIBO 4960R)

Major II  Choose two courses from the following (6-8 hours):
   ___ 4 CBIO/MIBO/IDIS 4100/6100-4100D Immunology (Requires BCMB 3100 and GENE 3200)
   ___ 4 EHSC/FDST/MIBO 4310/6310-4310L Environmental Microbiology (Requires MIBO 3500, Spring only)
   ___ 4 FDST/MIBO 4120/6120-4120L/6120L Food Fermentations (Requires MIBO 3500, Fall only)
   ___ 3 GENE 3210L  Experimental Genetics (Requires GENE 3200, Fall only)
   ___ 3 GENE 4520/6520  Genetics of Industrial Micro-Organisms (Requires GENE 3200, Spring Odd Year only)
   ___ 4 GENE 4240L**  Experimental Microbiome Genetics Laboratory (Requires GENE 3200, Spring only)
   ___ 4 MARS(MIBO) 4620/6620  Microbial Ecology (Requires MIBO 3500 or POD, Fall Odd Year only)
   ___ 3 MIBO(POPH) 4220/6220 or 4220S  Pathogenic Bacteriology (Requires MIBO 3500, Spring only)
   ___ 3 MIBO 4300/6300  Genome Editing in Mammals, Plants, Insects, and Microbes (Requires MIBO 3500, Fall only)
   ___ 4 MIBO 4600L/6600L**  Experimental Microbiology Laboratory ( Requires MIBO 3500 and MIBO 3510, Fall only)
   ___ 3 POPH(MIBO)(IDIS) 4650/6650 Introduction to Virology (Requires BCMB 3100 and GENE 3200, Fall only)

Major III  Choose one course from the following (3-4 hours):
   ___ 3 BCMB 3600  Genomics and Bioinformatics (Requires BCMB 3100, Spring only)
   ___ 4 BCMB 4030L/6030L  Bioprocess Technology (Requires BIOL 1107 and CHEM 1212)
   ___ 4 BCMB (ENTO)(BTEC) 4200  Biotechnology (Requires BCMB 3100 and GENE 3200, Spring only)
   ___ 4 CRSS(MIBO) 4610/6610-4610L/6610L Soil Microbiology
   ___ 3 CBIO 4500/6500  Medical Parasitology (Requires BIOL 1108, Fall Even Year only)
   ___ 4 CBIO(PBIO) 4600/6600  Biology of Protists (Requires BIOL 1108, Spring only)
   ___ 4 ECOL(BIOL)4150/6150-4150L/6150L  Population Biology of Infectious Diseases (BIOL1108 and MATH 2250/STAT 2000, Spring only)
   ___ 4 EHSC/FDST/MIBO 4310/6310-4310L Environmental Microbiology (Requires MIBO 3500, Spring only)
   ___ 3 GENE 4240L**  Experimental Microbiome Genetics Laboratory (Requires GENE 3200, Spring only)
   ___ 4 MARS(MIBO) 4620/6620  Microbial Ecology (Requires MIBO 3500 or POD, Fall Odd Year only)
   ___ 4 MIBO 4600L/6600L**  Experimental Microbiology Laboratory (Requires MIBO 3500 and MIBO 3510, Fall only)

*Four hours of research courses (MIBO 4960R, MIBO 4970R, MIBO 4980R, and MIBO 4990R) may be used toward the required courses unless the student uses a MIBO research class for the laboratory skills requirement. Students are encouraged to use additional research hours as electives.
**GENE 4240L and MIBO 4600L/6600L may be used for a single requirement listing but cannot be used to fulfill an additional requirement simultaneously.

Major Electives (11-12 hours) Note: Microbiology requires individual review of non-equivalent transfer courses to satisfy Major Electives. Hours: ___
   ___ 4 PHYS 1111-1111L or PHYS 1211-1211L  Physics I (Requires MATH 1113 (PHYS 1111) or MATH 2250 (PHYS 1211))
   ___ 4 PHYS 1112-1112L or PHYS 1212-1212L  Physics II (Requires MATH 2250 (PHYS 1212))

Computer Sciences, Mathematics, Statistics: Choose one course from the following (3-4 hours)
   ___ 2 BINF(BCBM) 4005/6005  Essential Computing Skills for Biologists (Requires POD, Fall only)
   ___ 3 BINF(PBIO) 4550/6550  Concepts in Bioinformatics and Omics (Fall only)
   ___ 4 BIOS 2010  Elementary Biostatistics
   ___ 3 CSCI 1210  Computer Modeling and Science
   ___ 4 CSCI 1301-1301L  Introduction to Computing and Programming (Requires MATH 1113)
   ___ 3 GENE 4220L  Laboratory in Genetic Modeling (Requires GENE 3200, Fall only)
   ___ 4 MATH 2260  Calculus II (Requires MATH 2250)
   ___ 3 MATH(BINF) 4780/6780  Mathematical Biology (Requires MATH 2270 and MATH 2700 and POD, Spring Odd Year only)
   ___ 4 STAT 2000  Introduction to Statistics
   ___ 4 STAT 2100H  Introduction to Statistics and Computing (Honors)
   ___ 3 STAT 3110  Introduction to Statistics for Life Sciences (Fall only)
   ___ 4 STAT 3120  Introduction to Probability for Life Sciences (Requires MATH 2250, Spring only)

General Electives (13-18 Hours) / Upper Division Elective (0-10 Hours) Hours: ___
Minimum Semester Hours: 120 (This total does not include the 1-hour PEDB course) Total: ___/120