

Biology BS Degree Checksheet:

(check Degreeworks and the Bulletin for Franklin College, University, and other core requirements)

(Fall 2025)

Core pre-requisites and Area VI:

- ☐ BIOL 1107 Principles of Biology I 3 AND BIOL 1107L Principles of Biology I Laboratory 1
- ☐ CHEM 1211-1211D General Chemistry I 3 AND CHEM 1211L General Chemistry Laboratory I 1
- ☐ CHEM 1212-1212D General Chemistry II 3 AND CHEM 1212L General Chemistry Laboratory II 1
- ☐ CHEM 2211-2211D Modern Organic Chemistry I 3 AND CHEM 2211L Modern Organic Chemistry Laboratory I 1
- ☐ MATH 1113 Precalculus 3
- ☐ MATH 2250 Calculus I for Science and Engineering 4
- ☐ PHYS 1111-1111L Introductory Physics-Mechanics, Waves, Thermodynamics 4 OR PHYS 1211-1211L 4
- ☐ PHYS 1112-1112L Introductory Physics-Electricity and Magnetism, Optics, Modern Physics 4 OR PHYS 1212-1212L 4
- ☐ CHEM 2212-2212D Modern Organic Chemistry II 3 AND CHEM 2212L Modern Organic Chemistry Laboratory II 1 OR MATH 2260 Calculus II for Science and Engineering 4 OR STAT 2000 Introductory Statistics 4

Major Required Courses (34 hours) 10 TOTAL courses (C or better required)

- ☐ BIOL 1108 AND BIOL 1108L Principles of Biology II (3) and Laboratory (1)
- ☐ GENE 3200-3200D Genetics (4)
- ☐ BCMB 3100 Introductory Biochemistry & Molecular Biology (4) OR BCMB 4020/6020 Biochemistry & Molecular Biology II (3)
- ☐ CBIO 3400 Cell Biology (4) OR CBIO 3600 Developmental Biology (4) OR PBIO 3600 Plant Cell & Developmental Biology (4)
- ☐ ECOL 3500 AND ECOL 3500L Ecology (3) lab (1) OR GENE 3000-3000D Evolutionary Biology (4) OR PBIO 3650-3650L Plant Ecology (4)

☐ Organismal Biology

Choose one from the following:

BIOL(FANR) 3460 Biology of the South Pacific 3
BIOL(WILD) 3700W Animal Behavior 3
CBIO 3000-3000L Comparative Vertebrate Anatomy 4
CBIO 3010-3010L Functional Human Anatomy 4
CBIO(PBIO) 4600/6600 Biology of Protists 3
ECOL 3220 Biology and Conservation of Marine Mammals 3
ECOL 4050/6050-4050L/6050L Ichthyology 4
ECOL 4070/6070-4070L/6070L Invertebrate Biology & Ecology 4
ECOL 4240-4240L Physiological Ecology 4
ECOL(BIOL)(MARS) 4330/6330-4330L/6330L Tropical Marine Invertebrates 4
ECOL 4540/6540 Behavioral Ecology 3
ECOL 4640/6640 Animal Cognition 3
ENTO 3140-3140L Insect Natural History 4
ENTO 3645 Medical Entomology Lecture 3
ENTO 3650 Medical Entomology 3 AND ENTO 3650L Lab 1
ENTO 4000/6000-4000L/6000L General Entomology 4

ENTO 4450/6450 Insect Behavior 3
MARS 3450 Marine Biology 3
MIBO 3500 Introductory Microbiology 3
MIBO 3510L Introductory Microbiology Laboratory II 3-4
MIBO 4110 Plant-Microbe Interactions 3
MIBO(POPH)(IDIS) 4450/6450-4450L/6450L Microbial Genetics and Genomics 4
PATH(PBIO) 4200/6200-4200L/6200L Mycology 4
PBIO 3270 Flowers 3
PBIO 4650/6650-4650L/6650L Plant Biodiversity 4
WILD(ECOL) 3580 Vertebrate Natural History 3 AND WILD(ECOL) 3580L Laboratory 1
WILD(ECOL) 4040/6040-4040L/6040L Herpetology 4
WILD(BIOL) 4050/6050 Mammalogy 3
WILD(ECOL) 4060/6060-4060L/6060L Ornithology 4
WILD(ECOL)(POPH) 4575/6575 Conservation Medicine 6

☐ Laboratory

Choose one from the following:

BCMB 4030L Bioprocess Technology 4
BIOL 3110L Basic Skills in the Laboratory 4
BIOL 3710L Animal Behavior Laboratory 3
BIOL 3720L Field Animal Behavior 3
BIOL 4960R Faculty-Mentored Undergraduate Research I 4
BIOL(CBIO) 5050L/7050L Electron Microscopy Lab 3
BTEC(BCMB)(PBIO) 4000L Methods in Biotechnology 4
CBIO 3410L Lab in Cellular and Developmental Biology 4
ECOL 4070/6070-4070L/6070L Invertebrate Biology & Ecology 4
ECOL 4130L Ecological Methodology 3
ECOL(MARS) 4225-4225L Methods in Marine Ecology 4
ECOL(BIOL)(MARS) 4330/6330-4330L/6330L Tropical Marine Invertebrates 4

GENE 3210L Experimental Genetics 3
GENE 4210L Experimental Molecular Genetics Laboratory 3
GENE 4220L Laboratory in Genetic Modeling 3
GENE 4230L Evolutionary Biology Laboratory 3
GENE 4240L Experimental Microbiome Genetics Lab 3
MARS 4500/6500 Field Study in Oceanography & Marine Methods 3-5
MARS(PBIO) 4160-4160L Life and Death in the Salt Marsh 4
MIBO 3510L Introductory Microbiology Laboratory II 3-4
MIBO 4600L/6600L Experimental Microbiology Lab 4
MIBO 4710L/6710L Medical Mycology Laboratory 3
PBIO 3660L Plant Biology Intensive Laboratory 4

☐ Major Electives (9 hours)

For a total of nine hours, choose three or more courses from the list below. At least two of the courses must be 3 or more credit hours and from two different departments.

ANTH(ECOL) 4210L/6210L Zooarchaeology 4
ANTH(BIOL)(ECOL)(ENTO)(PBIO) 4260/6260-4260L/6260L Natural History Collections Management 4
ANTH(BIOL)(ECOL)(EETH)(ENTO)(FANR)(GEOG)(GEOL)(PATH)(PBIO) 4261 Museum Natural History Internship 3
ANTH(ECOL) 4290/6290 Environmental Archaeology 3
ANTH 4790/6790 Human Adaptation 3
BCMB 3100 Intro Biochemistry & Molecular Biology 4
BCMB 3433 Biology for Medicine 4

BCMB 3600 Genomics and Bioinformatics 3
BCMB 4010/6010 Biochemistry and Molecular Biology I 4
BCMB 4020/6020 Biochemistry & Molecular Biology II 3
BCMB 4030L Bioprocess Technology 4
BCMB(CHEM) 4110/6110 Physical Biochemistry 3
BCMB 4120/6120 Human Biochemistry and Disease 4
BCMB 4130 Human Biochemistry II 3
BCMB(ENTO)(BTEC) 4200/6200 Biotechnology 3
BINF(PBIO) 4550/6550 Concepts Bioinformatics & Omics 3

BIOL 3110L Basic Skills in the Laboratory 4
 BIOL(FANR) 3460 Biology of the South Pacific 3
 BIOL(WILD) 3700W Animal Behavior 3
 BIOL 3710L Animal Behavior Laboratory 3
 BIOL 3720L Field Animal Behavior 3
 BIOL 4200W Science and Health Writing 3 OR BIOL 4300W/6300W
 Scientific Research Writing 3
 BIOL 4910 Advanced Topics in Biology 1-4
 BIOL 4960R Undergraduate Research in Biology 4
 BIOL(CBIO)(VPAT) 5040/7040 Electron Microscopy 3
 BIOL(CBIO) 5050L/7050L Electron Microscopy Lab 3
 BTEC(BCMB)(PBIO) 4000L Methods in Biotechnology 4
 CBIO 3000-3000L Comparative Vertebrate Anatomy 4
 CBIO 3010-3010L Functional Human Anatomy 4
 CBIO 3050 Medical Histology 3
 CBIO 3200L Medical Anatomy 1-3
 CBIO 3400 Cell Biology 4
 CBIO 3410L Laboratory Cellular & Developmental Biology 4
 CBIO 3600 Developmental Biology 4
 CBIO 3710 Principles of Physiology 3
 CBIO 3800 Neurobiology 4
 CBIO 3800L Neurobiology Laboratory 2
 CBIO(MIBO)IDIS 4100/6100-4100D/6100D Immunology 4
 CBIO 4200 Biomedical Research in Health and Disease 3
 CBIO 4320/6320 Stem Cell Biology 3
 CBIO 4340/6340 Biology of Aging 3
 CBIO(IDIS) 4500/6500 Medical Parasitology 3
 CBIO(PBIO) 4600/6600 Biology of Protists 3
 CBIO 4730/6730 Endocrinology 3
 CHEM(BCMB) 4190/6190 Intro to NMR Spectroscopy 3
 CRSS(HORT)(ECOL) 4590/6590 Soil Fertility & Plant Nutrition 3
 CRSS(MIBO) 4610/6610-4610L/6610L Soil Microbiology 4
 ECOL 3000-3000L Field Methods in Animal Ecology 3
 ECOL 3100-3100L Tropical Field Ecology 4
 ECOL 3220 Biology and Conservation of Marine Mammals 3
 ECOL 3220L Marine Mammals Laboratory 1
 ECOL 3500 Ecology 3 AND ECOL 3500L Ecology Lab 1
 ECOL(BIOL) 3510 Ecology Laboratory 3-4
 ECOL 3530 Conservation Biology 3
 ECOL 3600 Tropical Ecology: 3
 ECOL(IDIS) 3820 Evolutionary Medicine 3
 ECOL 3880H Ecosystems of the World (Honors) 3
 ECOL 4000/6000 Population and Community Ecology 3
 ECOL 4010/6010 Ecosystem Ecology 3
 ECOL 4050/6050-4050L/6050L Ichthyology 4
 ECOL 4070/6070-4070L/6070L Invertebrate Biology & Ecology 4
 ECOL 4130L Ecological Methodology 3
 ECOL(BIOL)(IDIS) 4150/6150-4150L/6150L Population Biology of
 Infectious Diseases 4
 ECOL 4160-4160L Ecology of North America 4
 ECOL(MARS) 4225-4225L Methods in Marine Ecology 4
 ECOL 4240-4240L Physiological Ecology 4
 ECOL 4280/6280 Coral Reef Ecology 3
 ECOL 4280L/6280L Coral Reef Ecology Laboratory 1
 ECOL(FISH)(WASR) 4310/6310 Freshwater Ecosystems 3 AND
 ECOL(FISH)(WASR) 4310L/6310L Lab 1
 ECOL(BIOL)(MARS) 4330/6330-4330L/6330L Tropical Marine
 Invertebrates 4
 ECOL 4500/6500 Evolutionary Ecology 4
 ECOL 4540/6540 Behavioral Ecology 3
 EHSC(FDST)(MIBO) 4310-4310L Environmental Microbiology 4
 ENTO 3140-3140L Insect Natural History 4
 ENTO 3645 Medical Entomology Lecture 3
 ENTO 3650 Medical Entomology 3 AND ENTO 3650L Lab 1
 ENTO 4000/6000-4000L/6000L General Entomology 4
 ENTO 4450/6450 Insect Behavior 3
 FDST(MIBO) 4120/6120-4120L/6120L Food Fermentation 3
 FISH(ECOL)(MARS)(WILD) 4300/6300 Environmental Biology of
 Fishes 3 AND FISH(ECOL)(MARS)(WILD) 4300L/6300L Lab 1
 FISH(ECOL) 4360/6360 Fish Ecology 4
 FISH 4500/6500 Fish Physiology 3
 FISH(ECOL)(MARS)(WILD) 4550/6550-4550L/6550L Sustainable
 Aquaculture 4
 GENE 3000-3000D Evolutionary Biology 4
 GENE 3210L Experimental Genetics 3
 GENE 3220L Genetics Problem Solving Laboratory 3
 GENE(ECOL) 4020W/6020W Biotic Responses to Climate Change in
 the Ocean 3
 GENE 4200/6200 Advanced Genetics 3
 GENE 4210L Experimental Molecular Genetics Laboratory 3
 GENE 4220L Laboratory in Genetic Modeling 3
 GENE 4230L Evolutionary Biology Laboratory 3
 GENE 4240L Experimental Microbiome Genetics Lab 3
 GENE 4300/6300 Evolutionary Genomics 3
 GENE(CBIO) 4310/6310 Genetic Approaches to Developmental
 Neuroscience 3
 GENE 4400/6400 Epigenetics 3
 GENE 4500/6500 Human Genetics 3
 GENE 4520/6520 Genetics of Industrial Micro-Organisms 3
 GENE(ECOL) 4530/6530 Molecular Ecology 3
 GENE 4540/6540 Cancer Genetics 3
 GENE 4550/6550 Evolution and Development 3
 HORT(CRSS) 4430/6430 Plant Physiology 3
 IDIS 3100 People, Parasites, and Plagues 3
 KINS 4690/6690 Neuromuscular Physiology 3
 MARS 3450 Marine Biology 3
 MARS 3550 Life in Fluids 3
 MARS(PBIO) 4160-4160L Life and Death in the Salt Marsh 4
 MARS 4200/6200 Biological and Chemical Oceanography 3
 MARS 4500/6500 Field Study in Oceanography & Marine Methods 3-5
 MARS(MIBO) 4620/6620 Microbial Ecology 3
 MARS 4810/6810 Global Biogeochemical Cycles 3
 MARS(FISH) 4380/6380-4380L/6380L Marine Fisheries Biology 3
 MIBO 3500 Introductory Microbiology 3
 MIBO 3500L Introductory Microbiology Laboratory I 1
 MIBO 3510L Introductory Microbiology Laboratory II 3-4
 MIBO 4090/6090 Prokaryotic Biology 4
 MIBO 4110 Plant-Microbe Interactions 3
 MIBO(POPH) 4220/6220 Pathogenic Bacteriology 3
 MIBO 4300/6300 Genome Editing in Mammals, Plants, Insects,
 Microbes 3
 MIBO(POPH)(IDIS) 4450/6450-4450L/6450L Microbial Genetics &
 Genomics 4
 MIBO 4500/6500 Bacterial Symbioses 3
 MIBO 4600L/6600L Experimental Microbiology Lab 4
 MIBO 4680/6680 Industrial Microbiology & Biotechnology 4
 MIBO 4700/6700 Medical Mycology 3
 MIBO 4710L/6710L Medical Mycology Laboratory 3
 PATH(PBIO) 3010 Fungi: Friends and Foes 3
 PATH(PBIO) 4200/6200-4200L/6200L Mycology 4
 PBIO 3100 Plant-Microbe Interactions 3
 PBIO 3270 Flowers 3
 PBIO 3600 Plant Cell and Developmental Biology 4
 PBIO 3650-3650L Plant Ecology 4
 PBIO 3660L Plant Biology Intensive Laboratory 4
 PBIO(CRSS) 4500/6500 Introduction to Gene Technology 3
 PBIO(GENE)(PATH)(BINF) 4510/6510 Genome Evolution 3
 PBIO(ECOL) 4520/6520 Plant-Animal Interactions 3
 PBIO 4640/6640-4640L/6640L Botanical Illustration 3
 PBIO 4650/6650-4650L/6650L Plant Biodiversity 4
 PBIO 4720 Plant Variation and Evolution 4
 PBIO(ECOL) 4750/6750 Tropical Ecology & Conservation 3
 PHRM(PMCY) 4000/6000 The War on Cancer 3
 PMCY 4020/6020 Human Physiology 3
 POPH(MIBO)(IDIS) 4650/6650 Introduction to Virology 3
 POPH(MIBO) 4651 RNA Virus Genomic Diversity 3
 POUL(BIOL) 4060/6060 Reproductive Endocrinology 3
 POUL 4150 Field Studies in Avian Biology 3-6
 PSYC 4120 Sensation and Perception 3
 PSYC 4130 Physiological and Comparative Psychology 3
 PSYC 4140 Cognitive Neuroscience 3
 PSYC 4150 Biological Foundations of Health Psychology 3
 PSYC 5850 Psychopharmacology - Drugs and Behavior 3
 VPAT 3100H Introduction to Disease (Honors) 3
 VPAT 4000/6000 On the Origins of Disease 3
 VPHY 3100 Elements of Physiology 3
 VPHY 3108 Integrative Concepts in Physiology II 3
 VPHY 4200/6200 Physiologic Basis of Diseases 3
 VPHY 4300/6300 Endocrine Physiology 3
 VPHY 4600/6600 Physiological Toxicology 3
 VPHY(KINS) 5690/7690 Skeletal Muscle & Mitochondria Physiology 3
 WILD(ECOL) 3580 Vertebrate Natural History 3 AND WILD(ECOL)
 3580L Laboratory 1
 WILD(ECOL) 4040/6040-4040L/6040L Herpetology 4
 WILD(BIOL) 4050/6050 Mammalogy 3
 WILD(ECOL) 4060/6060-4060L/6060L Ornithology 4
 WILD(ECOL)(POPH) 4575/6575 Conservation Medicine 6
 WILD 5200/7200 International Issues in Wildlife Conservation 2-6