Department of Biological Sciences- Chair Dr. Gary Bulla
Master of Science in Biological Sciences- Graduate Coordinator Dr. Britto Nathan
Proposal to clarify catalog copy and degree audit
Effective Spring 21

CGS Agenda Item: 20-28
Effective Spring 21

Degree requirements include those outlined for the master's degree by the Graduate School (see "Requirements for the Master's Degree"). The department offers a thesis option (30 semester hours), a non-thesis option (32 semester hours), and an internship option (32 semester hours).

Students are initially assigned to the Coordinator, Biological Sciences Graduate Program Committee for academic advisement. A permanent advisor should be selected during the first term of residence. In consultation with the advisor, the student will select at least two additional graduate faculty to serve as his or her advisory committee. Each student's program of study is designed to fit individual student needs and interests within the framework of degree requirements of the Graduate School.

Thesis Option: Total Hours 30

Research and Thesis: 9 hours
Please note that students can take more than 9 hours of BIO 5900 and BIO 5950 for various reasons (for example, to maintain full-time student status), however only a total of 9 hours (BIO 5900 + BIO 5950) will be counted toward the degree
BIO 5900. Credits: 3-6
BIO 5950. Credits: 3-6

Seminar: 1-2 hours
A minimum of one seminar hour is required, however, students are allowed to take a maximum of 2 seminars to count as graduate credit.
BIO 5150. Credits 1

Elective Coursework: 19-20 hours

All coursework must be from the department of Biological Sciences. A maximum of 12 hours will be counted for courses 4750-4999. No credit will be issued for courses BIO 5980, or BIO 5990. Choose from the following courses:

- BIO 4750 - Statistical Analysis of Scientific Data
- BIO 4751 - Advanced Molecular Cell Biology
- BIO 4810 - Plant Ecology
- BIO 4812 - Fisheries Ecology and Management
- BIO 4814 - Conservation Biology
- BIO 4816 - Study of Biotic Communities
- BIO 4818 - Environmental Microbiology
- BIO 4820 - Spatial Analysis for Environmental Sciences
- BIO 4830 - Comparative Vertebrate Physiology

- BIO 4832 - Animal Behavior
- BIO 4833 - Neurobiology of Diseases
- BIO 4834 - Neurobiology
- BIO 4835 - Advanced Neurobiology
- BIO 4836 - Pathogenic Microbiology
- BIO 4840 - Resource Management and Environmental Assessment
- BIO 4842 - Wildlife Ecology
- BIO 4850 - Wildlife Techniques
- BIO 4892 - Introduction to Paleobotany
- BIO 4914 - Plant Anatomy
- BIO 4920 - Medicinal Plants
- BIO 4940 – Phycology
- BIO 4942 - Mycology
- BIO 4944 - Lichens
- BIO 4946 - Bryology
- BIO 4948 - Plant Taxonomy
- BIO 4950 – Ichthyology
- BIO 4952 - Herpetology
- BIO 4954 - Ornithology
- BIO 4956 - Mammalogy
- BIO 4958 – Parasitology
- BIO 4960 - Wetland and Aquatic Vascular Plants
- BIO 4964 – Entomology
- BIO 4984 - Evolutionary Biology
- BIO 5200 - Stream Ecology
- BIO 5202 - Behavioral Ecology
- BIO 5204 - Ecotoxicology and Biological Monitoring of Pollution
- BIO 5206 - Advanced Limnology
- BIO 5207 - Microbial Ecology
- BIO 5208 - Population Ecology
- BIO 5209 - Community Ecology
- BIO 5210 - Insect Morphology and Physiology
- BIO 5225 - Systematics
- BIO 5232 - Plant Cell and Tissue Culture
- BIO 5250 - Biological Microtechniques
- BIO 5333 - Bioenergy and Bioresources
- BIO 5340 - Population Genetics
- BIO 5360 - Field Mycology
- BIO 5366 – Biogeography
- BIO 5380 - Landscape Ecology
- BIO 5381 - Advanced Biostatistics
- BIO 5385 - Experimental Design for Laboratory and Field
- BIO 5400 - Cell Physiology
- BIO 5402 - Advanced Plant Physiology I, Plant Growth and Development

- BIO 5404 - Advanced Plant Physiology II, Metabolism
- BIO 5406 – Endocrinology
- BIO 5433 - Neurobiology of Diseases
- BIO 5434 – Neurobiology
- BIO 5435 - Advanced Neurobiology
- BIO 5460A - Special Topics in Biological Sciences
- BIO 5490 - Genomics and Genetic Engineering
- BIO 5630 - Advanced Evolutionary Medicine

Non-Thesis Option: Total Hours 32

Seminar: 1-2 hours
A minimum of one seminar hour is required, however, students are allowed to take a maximum of 2 seminars to count as graduate credit.
BIO 5150. Credits 1

BIO Coursework: 21 - 31 hours
A maximum of 12 hours will be counted for courses 4750-4999. A maximum of 3 hours of BIO 5990 will be counted towards the degree. No credit will be issued for courses BIO 5900, BIO 5950,or BIO 5980. Choose from the following courses:

- BIO 4750 - Statistical Analysis of Scientific Data
- BIO 4751 - Advanced Molecular Cell Biology
- BIO 4810 - Plant Ecology
- BIO 4812 - Fisheries Ecology and Management
- BIO 4814 - Conservation Biology
- BIO 4816 - Study of Biotic Communities
- BIO 4818 - Environmental Microbiology
- BIO 4820 - Spatial Analysis for Environmental Sciences
- BIO 4830 - Comparative Vertebrate Physiology
- BIO 4832 - Animal Behavior
- BIO 4833 - Neurobiology of Diseases
- BIO 4834 - Neurobiology
- BIO 4835 - Advanced Neurobiology
- BIO 4836 - Pathogenic Microbiology
- BIO 4840 - Resource Management and Environmental Assessment
- BIO 4842 - Wildlife Ecology
- BIO 4850 - Wildlife Techniques
- BIO 4892 - Introduction to Paleobotany
- BIO 4914 - Plant Anatomy
- BIO 4920 - Medicinal Plants
- BIO 4940 – Phycology
- BIO 4942 - Mycology

- BIO 4944 - Lichens
- BIO 4946 - Bryology
- BIO 4948 - Plant Taxonomy
- BIO 4950 – Ichthyology
- BIO 4952 - Herpetology
- BIO 4954 - Ornithology
- BIO 4956 - Mammalogy
- BIO 4958 – Parasitology
- BIO 4960 - Wetland and Aquatic Vascular Plants
- BIO 4964 – Entomology
- BIO 4984 - Evolutionary Biology
- BIO 5200 - Stream Ecology
- BIO 5202 - Behavioral Ecology
- BIO 5204 - Ecotoxicology and Biological Monitoring of Pollution
- BIO 5206 - Advanced Limnology
- BIO 5207 - Microbial Ecology
- BIO 5208 - Population Ecology
- BIO 5209 - Community Ecology
- BIO 5210 - Insect Morphology and Physiology
- BIO 5225 - Systematics
- BIO 5232 - Plant Cell and Tissue Culture
- BIO 5250 - Biological Microtechniques
- BIO 5333 - Bioenergy and Bioresources
- BIO 5340 - Population Genetics
- BIO 5360 - Field Mycology
- BIO 5366 – Biogeography
- BIO 5380 - Landscape Ecology
- BIO 5381 - Advanced Biostatistics
- BIO 5385 - Experimental Design for Laboratory and Field
- BIO 5400 - Cell Physiology
- BIO 5402 - Advanced Plant Physiology I, Plant Growth and Development
- BIO 5404 - Advanced Plant Physiology II, Metabolism
- BIO 5406 – Endocrinology
- BIO 5433 - Neurobiology of Diseases
- BIO 5434 – Neurobiology
- BIO 5435 - Advanced Neurobiology
- BIO 5460A - Special Topics in Biological Sciences
- BIO 5490 - Genomics and Genetic Engineering
- BIO 5630 - Advanced Evolutionary Medicine

Additional Coursework: 0 - 10 hours

A maximum of 10 hours of coursework numbered 5000 and above from the disciplines of Chemistry, Physics, Mathematics, Sociology and Geographic Information Systems may be counted towards the degree.

Internship Option: Total Hours 32

Seminar: 1-2 hour
A minimum of one seminar hour is required, however, students are allowed to take a maximum of 2 seminars to count as graduate credit.
BIO 5150. Credits 1

Internship: 1-6 hours
BIO 5980 Credits 1-6

Elective Coursework: 24 - 30 hours

All coursework must be from the department of Biological Sciences. A maximum of 12 hours will be counted for courses 4750-4999. No credit will be issued for courses BIO 5900 or BIO 5950. Choose from the following courses:

- BIO 4750 - Statistical Analysis of Scientific Data
- BIO 4751 - Advanced Molecular Cell Biology
- BIO 4810 - Plant Ecology
- BIO 4812 - Fisheries Ecology and Management
- BIO 4814 - Conservation Biology
- BIO 4816 - Study of Biotic Communities
- BIO 4818 - Environmental Microbiology
- BIO 4820 - Spatial Analysis for Environmental Sciences
- BIO 4830 - Comparative Vertebrate Physiology
- BIO 4832 - Animal Behavior
- BIO 4833 - Neurobiology of Diseases
- BIO 4834 - Neurobiology
- BIO 4835 - Advanced Neurobiology
- BIO 4836 - Pathogenic Microbiology
- BIO 4840 - Resource Management and Environmental Assessment
- BIO 4842 - Wildlife Ecology
- BIO 4850 - Wildlife Techniques
- BIO 4892 - Introduction to Paleobotany
- BIO 4914 - Plant Anatomy
- BIO 4920 - Medicinal Plants
- BIO 4940 – Phycology

- BIO 4942 - Mycology
- BIO 4944 - Lichens
- BIO 4946 - Bryology
- BIO 4948 - Plant Taxonomy
- BIO 4950 – Ichthyology
- BIO 4952 - Herpetology
- BIO 4954 - Ornithology
- BIO 4956 - Mammalogy
- BIO 4958 – Parasitology
- BIO 4960 - Wetland and Aquatic Vascular Plants
- BIO 4964 – Entomology
- BIO 4984 - Evolutionary Biology
- BIO 5200 - Stream Ecology
- BIO 5202 - Behavioral Ecology
- BIO 5204 - Ecotoxicology and Biological Monitoring of Pollution
- BIO 5206 - Advanced Limnology
- BIO 5207 - Microbial Ecology
- BIO 5208 - Population Ecology
- BIO 5209 - Community Ecology
- BIO 5210 - Insect Morphology and Physiology
- BIO 5225 - Systematics
- BIO 5232 - Plant Cell and Tissue Culture
- BIO 5250 - Biological Microtechniques
- BIO 5333 - Bioenergy and Bioresources
- BIO 5340 - Population Genetics
- BIO 5360 - Field Mycology
- BIO 5366 – Biogeography
- BIO 5380 - Landscape Ecology
- BIO 5381 - Advanced Biostatistics
- BIO 5385 - Experimental Design for Laboratory and Field
- BIO 5400 - Cell Physiology
- BIO 5402 - Advanced Plant Physiology I, Plant Growth and Development
- BIO 5404 - Advanced Plant Physiology II, Metabolism
- BIO 5406 – Endocrinology
- BIO 5433 - Neurobiology of Diseases
- BIO 5434 – Neurobiology
- BIO 5435 - Advanced Neurobiology
- BIO 5460A - Special Topics in Biological Sciences
- BIO 5490 - Genomics and Genetic Engineering
- BIO 5630 - Advanced Evolutionary Medicine