

Biology (MS)

Degree Requirements

Students may choose from the degree tracks below to complete coursework within a focus area.

Degrees earned will be distributed as: "Master of Science" without track specifications.

Code	Title	Hours	Counts towards
Core Courses			3
AEC 502	Introduction to Biological Research		
PHI 816	Introduction to Research Ethics (or equivalent ethics course) ¹		
Additional Courses			27
Additional Courses are determined in conjunction with the academic committee to meet the 30 total hours			
Total Hours			30

¹ Students may take PHI 816 Introduction to Research Ethics or equivalent to meet this requirement.

Aquaculture and Aquatic Sciences Track

Code	Title	Hours	Counts towards
Quantitative Requirement			3
Select one of the following courses:			
ST 511	Statistical Methods For Researchers I		
or ST 512	Statistical Methods For Researchers II		
BIT 815	Advanced Special Topics ²		
AEC 510	Machine Learning Approaches in Biological Sciences		
ST 505	Applied Nonparametric Statistics		
BMA 567	Modeling of Biological Systems		
Restricted Elective			3

Select one of the following courses:

AEC/ENT 509 Ecology and Conservation of Freshwater Invertebrates

AEC 515	Fish Physiology
AEC 519	Freshwater Ecology
AEC 624	Advanced Fisheries Science
AEC 592	Special Topics in Applied Ecology (Management of Small Impoundments)
AEC 592	Special Topics in Applied Ecology (Aquatic Plant Ecology)
AEC 592	Special Topics in Applied Ecology (Advanced Biology of Fishes)
AEC 624	Advanced Fisheries Science
AEC 710	Sampling Animal Populations
AEC 726	Quantitative Fisheries Management
BMA 772	Biomathematics II
FW 511	Human Dimensions of Wildlife and Fisheries
MEA 549	Principles of Biological Oceanography
NR 595	Special Topics in Natural Resources
TOX 715	Environmental Toxicology
ZO 524	

Total Hours **6**

² BIT 815 or any Bioinformatics course determined in conjunction with the academic committee.

Molecular, Cellular and Developmental Biology Track

Code	Title	Hours	Counts towards
Quantitative Biology Requirement			3

Select one of the following courses:

ST 511 Statistical Methods For Researchers I
or ST 512 Statistical Methods For Researchers II

BIT 815	Advanced Special Topics ²
AEC 510	Machine Learning Approaches in Biological Sciences

Biotechnology Requirement 4

Select one course from the following:

BIO 592	Topical Problems (Capstone Course in Molecular, Cellular, and Developmental Biology)
GN 701	Molecular Genetics
GN 702	Cellular and Developmental Genetics
GN 750	Developmental Genetics

Restricted Electives 3

Select one of the following courses determined in conjunction with the academic committee based on thesis research

BIT 510	Core Technologies in Molecular and Cellular Biology
BIT 595	Special Topics

Total Hours 10

² BIT 815 or any Bioinformatics course determined in conjunction with the academic committee.

Ecology and Evolution Track

Code	Title	Hours	Counts towards
Quantitative Requirement 3			

Select one of the following courses:

ST 511	Statistical Methods For Researchers I
or ST 512	Statistical Methods For Researchers II
AEC 510	Machine Learning Approaches in Biological Sciences
ST 505	Applied Nonparametric Statistics

BMA 567	Modeling of Biological Systems
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Ecology or Evolution Requirement 3

Select one of the following courses from "Ecology" or "Evolution"

Ecology

AEC 503	Foundations of Ecology
AEC 519	Freshwater Ecology
AEC 718	Community Ecology
AEC 761	Conservation and Climate Science
BIO/BMA 560	Population Ecology
MEA 752	Marine Plankton Ecology

Evolution

BIO 570	Evolutionary Ecology
ENT 591	Special Topics In Entomology
GN 703	Population and Quantitative Genetics
GN 713	Quantitative Genetics and Breeding
GN 740	Evolutionary Genetics
GN 757	Quantitative Genetics Theory and Methods
PB 503	Systematic Botany
PB 545	Paleobotany

Total Hours 6

Code	Title	Hours	Counts towards
Quantitative Requirement 3			

Select one of the following courses:

ST 511	Statistical Methods For Researchers I
or ST 512	Statistical Methods For Researchers II
AEC 510	Machine Learning Approaches in Biological Sciences
ST 505	Applied Nonparametric Statistics

BMA 567	Modeling of Biological Systems
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Ecology Requirement 3

AEC 503	Foundations of Ecology
AEC 519	Freshwater Ecology
AEC 718	Community Ecology
AEC 761	Conservation and Climate Science
BIO/BMA 560	Population Ecology
MEA 752	Marine Plankton Ecology

Evolution Requirement 3

BIO 570	Evolutionary Ecology
ENT 591	Special Topics In Entomology
GN 703	Population and Quantitative Genetics
GN 713	Quantitative Genetics and Breeding
GN 740	Evolutionary Genetics
GN 757	Quantitative Genetics Theory and Methods
PB 503	Systematic Botany
PB 545	Paleobotany

Total Hours 9

Code Title Hours Counts towards

Restricted Electives 4

BIO 520	Skeletal Biological Laboratory Methods in Human Identification & Cold Cases
BIO 811	Forensic Sciences Seminar

Quantitative Requirements 9

ST 511	Statistical Methods For Researchers I
ST 512	Statistical Methods For Researchers II

ST 540	Applied Bayesian Analysis
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Total Hours 13

Other Requirements

- Every student is required to complete training logs. Many of the modules can be completed while taking the BIO 520 course. Please contact the Forensic Sciences Concentration Chair for additional information.
- Students are also required to start the Training Case Record Form after their first year and/or after taking BIO 520, whichever comes first. Please contact the Forensic Sciences Concentration Chair for additional information.
- Forensic Anthropology Society of Europe Level II Certification is strongly recommended but not required- costs associated with this exam are the student's responsibility.

Integrative Biology Track

This concentration is open to MS and PhD students who do not fit academically within the other Biology concentrations, or who integrate across multiple concentrations. Coursework is determined in consultation with your PhD mentor and committee and is approved by the DGP.

David Derek Aday

Betty L. Black

Russell J. Borski

David Buchwalter

Jeffrey A. Buckel

Ignazio Carbone

Jaime A. Collazo

William Gregory Cope

Harry Valentine Daniels III

Robert R. Dunn

David B. Eggleston

John R. Godwin

Kevin Gross

Craig A. Harms

Jeffrey M. Hinshaw

Rebecca Elizabeth Irwin

Thomas J. Kwak

Thomas M. Losordo

Carolyn Jane Mattingly

Heather B. Patisaul

Luis Alonso Ramirez-Ulate

Ann Helen Ross

Mary Higby Schweitzer	Lindsay E. Zanno
David R. Tarpy	Peter T. Bromley
Scott M. Belcher	Billy J. Copeland
Shobhan Gaddameedhi	Frederick T. Corbin
Adam Hartstone-Rose	Phillip D. Doerr
Randall Brian Langerhans	William C. Grant
John Edward Meitzen	Robert M. Grossfeld
Nanette M. Nascone-Yoder	Thurman L. Grove
Marianne Niedzlek-Feaver	Harold F. Heatwole
Antonio Planchart	Joseph E. Hightower
Reade Bruce Roberts	Richard A. Lancia
Jie Cao	Richard L. Noble
Khara Deanne Grieger	Kenneth H. Pollock
Nathan James Hostetter	James Alan Rice Jr.
Kurt Marsden	John F. Roberts
Jamian Krishna Pacifici	Damian Shea
Seema Nayan Sheth	Theodore R. Simons
Caitlin Suzanne Smukowski Heil	Herbert A. Underwood
Joy Little Snowden	John G. Vandenberg
Bradley William Taylor	Thomas G. Wolcott
Christopher Scott Walker	Robert R. Anholt
Elsa Youngsteadt	Tyler Ray Black
Jennifer L. Campbell	Arthur E. Bogan
Louis Broaddus Daniel III	Heather Evans
Miles Dean Engell	John G. Boreman Jr.
Miriam G. Ferzli	David T. Cobb
Jesse Robert Fischer	Louis Broaddus Daniel III
Terry Allen Gates	Mitchell J. Eaton
William Miller Johnstone III	John Jeffrey Govoni
Jane L. Lubischer	Nicholas M. Haddad
Erin Alison McKenney	Andrew Bittinger Heckert
Lisa M. Paciulli	Ryan J. Heise
Lisa D. Parks	Corinne J. Kendall
Martha Burford Reiskind	Reid W. Laney
Damian Shea	Trudy F. MacKay
Adrian Alan Smith	Alexa J. McKerrow

Gerard McMahon

James Adiel Morris Jr.

Jennifer R Runkle

Megan Elizabeth Serr

Rowland M. Shelley

Kyle W. Shertzer

Adrian Alan Smith

Seth Patrick Stapleton

Bryan Lynn Stuart

Adam J. Terando

Adjunct Professors

Christian Farrell Kammerer

Candice Small

Teaching Associate Professor

Jennifer Landin

Assistant Professors

Christa Baker

Natalia Dugue-Wilckens

Maria L. Rodgers