

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		
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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			
AEC 726			
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

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

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

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

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

Total Hours	9
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Code	Title	Hours	Counts towards
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Restricted Electives		4	
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BIO 520	Skeletal Biological Laboratory Methods in Human Identification & Cold Cases	3	
BIO 811	Forensic Sciences Seminar	1	

Quantitative Requirements		9	
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ST 511	Statistical Methods For Researchers I		
ST 512	Statistical Methods For Researchers II		
ST 540	Applied Bayesian Analysis		

Total Hours	17
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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

David R. Tarpy

Scott M. Belcher

Shobhan Gaddameedhi

Adam Hartstone-Rose

Randall Brian Langerhans

John Edward Meitzen

Nanette M. Nascone-Yoder

Marianne Niedzlek-Feaver

Antonio Planchart

Reade Bruce Roberts

Jie Cao

Khara Deanne Grieger

Nathan James Hostetter

Kurt Marsden

Jamian Krishna Pacifici

Seema Nayan Sheth

Caitlin Suzanne Smukowski Heil

Joy Little Snowden

Bradley William Taylor

Christopher Scott Walker

Elsa Youngsteadt

Jennifer L. Campbell

Louis Broaddus Daniel III

Miles Dean Engell

Miriam G. Ferzli

Jesse Robert Fischer

Terry Allen Gates

William Miller Johnstone III

Jane L. Lubischer

Erin Alison McKenney

Lisa M. Paciulli

Lisa D. Parks

Martha Burford Reiskind

Damian Shea

Adrian Alan Smith

Lindsay E. Zanno

Peter T. Bromley

Billy J. Copeland

Frederick T. Corbin

Phillip D. Doerr

William C. Grant

Robert M. Grossfeld

Thurman L. Grove

Harold F. Heatwole

Joseph E. Hightower

Richard A. Lancia

Richard L. Noble

Kenneth H. Pollock

James Alan Rice Jr.

John F. Roberts

Damian Shea

Theodore R. Simons

Herbert A. Underwood

John G. Vandenberg

Thomas G. Wolcott

Robert R. Anholt

Tyler Ray Black

Arthur E. Bogan

Heather Evans

John G. Boreman Jr.

David T. Cobb

Louis Broaddus Daniel III

Mitchell J. Eaton

John Jeffrey Govoni

Nicholas M. Haddad

Andrew Bittinger Heckert

Ryan J. Heise

Corinne J. Kendall

Reid W. Laney

Trudy F. MacKay

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

Assistant Professors

Christa Baker

Carter K. Clinton

Natalia Dugue-Wilckens

Corey Dunn

Maria L. Rodgers

Adjunct Professors

Christian Farrell Kammerer

Candice Small

Teaching Associate Professor

Jennifer Landin

Adjunct Associate Professor

Guohong Cui