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
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
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		
AEC 726		
BMA 772	Biomathematics II: Stochastic Models in Biology	
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
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
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
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**
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**

Code	Title	Hours
Restricted Electives		**4**
BIO 520	Skeletal Biological Laboratory Methods in Human Identification & Cold Cases	3
BIO 811	Forensic Sciences Seminar	1
Quantitative Requirements		**9**
ST 511	Statistical Methods For Researchers I	
ST 512	Statistical Methods For Researchers II	
ST 540	Applied Bayesian Analysis	
Total Hours		**17**

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

David Alan Andow

Betty L. Black

Russell J. Borski

David Buchwalter

Jeffrey A. Buckel

JoAnn Marie Burkholder

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

David Muddiman

Heather B. Patisaul

Luis Alonso Ramirez-Ulate

Ann Helen Ross

Bruce A Schulte

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. Vandenbergh

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

Alexandra Grace Duffy

Natalia Dugue-Wilckens

Corey Dunn

Nadya Rose Mamoozadeh

Maria L. Rodgers

Julie K Wesp

Adjunct Professors

Michael Childress

Christian Farrell Kammerer

Carol Price

Candice Small

Teaching Associate Professor

Jennifer Landin

Adjunct Associate Professor

Guohong Cui