Mark Bolyard (2006). University Professor of Biology and Department Chair. B.A., Hanover College; Ph.D., University of North Carolina; Additional study, Michigan State University Penn State College of Medicine.

Jeremy Blaschke (2015). Assistant Professor of Biology B.S., Bryan College; M.S. and Ph.D., University of Tennessee, Knoxville.

Euna (Esther) Choi (2016). Assistant Professor of Biology B.S. and M.S., Hallym University (Chuncheon, South Korea); Ph.D., University of Illinois; Additional Study University of Nebraska

Micah Fern (2018). Assistant Professor of Biology B.S., Union University M.S. and Ph.D., Auburn University

Hannah Henson (2016). Assistant Professor of Biology B.S., Union University Ph.D., University of Tennessee; Additional Study University of Kentucky

James A. Huggins (1987). University Professor of Biology B.S.A. and M.S., Arkansas State University Ph.D., University of Memphis; Additional study, University of Tennessee, Memphis, Mid-America Baptist Theological Seminary and University of Memphis.

James Kerfoot, Jr. (2009). Associate Professor of Biology B.S. and M.S., Southern Illinois University Edardsville; Ph.D., Florida Institute of Technology

James Marcus Lockett (2004). Professor of Biology B.S. and M.S., Murray State University Ph.D., University of Tennessee.

Andy Madison (2002). Professor of Biology B.S., University of Tennessee; M.S., University of Kentucky Ph.D., Kansas State University

Tamara Popplewell (2008). Assistant Professor of Biology B.S. and M.A.Ed., Union University M.S., Mississippi State University

Michael Schiebout (2012). Associate Professor of Biology B.A., Dordt College; M.S. and Ph.D., University of Northern ColoradoTc 0.125 T 10 0 0 10 54 212.3701 Tm[(Mic)h 0.125 T 10 0 0 10 54 212.37 /TT1 1 Tf 40 Union U

Juliana Cobb (2017). Laboratory Specialist. B.S., Union University M.S., East Carolina University

Lisa Conway (2012). Laboratory Specialist. B.S. and D.V.M., Texas A&M University

Heather Hetrick (2019). Laboratory Specialist. B.S. and M.U.Ed., Union University

Robert Wamble (2011-2015, 2017). Laboratory Specialist, Director for Anatomical Services and Director for Plastination. B.S., University of Tennessee; D.V.M., Auburn University

The curriculum in biology is designed to acquaint students ith living organisms as hole, functioning entities that, in their diversity share many common features. In addition to providing the scientific background required of all educated citizens, the courses provide a foundation upon hich the student may build a graduate program, undertake training in health-related or other professions, or prepare for secondary-level science teaching. Students participate in independent or group research as ell as specific courses.

mathematics, statistics, chemistry and physics. In the freshman year students in BIO 112 ill build a foundation for study of biological processes. Students can proceed to the first 200-level biology course during the second semester of the freshman year. In the sophomore year, students ill continue the survey of the kingdoms of life by taking additional 200-level biology courses. Students should strengthen their understanding of mathematics and obtain a background in organic chemistry as appropriate. Biology courses at the 300-400 level should be taken during the junior and senior years, ith seminar reserved for the senior year. Students ill examine in detail ho organisms function and interact ith their environment and each other.

General Biology, Botany, and Zoology majors are required to complete a minor and are encouraged to minor in chemistry. Conservation Biology and Cell and Molecular Biology majors are exempt from the minor requirement.

Additional study, St. Jude Children

Conservation Biology Majors may meet the requirements to become a Certified Wildlife Biologist by taking telve hours of communication. The General Core requirement for COM 112 and electives of COM 121 and COM 235 may be used to fulfill 9 hours of this requirement. The remaining hours may be selected in consultation ith your assigned faculty advisor.

I. Major in General Biology—42 hours
   1. BIO 112, 210, 211, 215, 315, 318 or 328~~24~~ hours
   2. Four 300-level BIO courses~~14~~ hours minimum
   3. BIO 425, 426, 437, 498~~4~~ hours
   (Majors are required to take CHE 111 from Group A list of laboratory science options in the general core.)

II. Major in Zoology—43–44 hours
   1. BIO 112, 200, 210, 211, 301, 312, 316, 336~~32~~ hours
   2. Select one from: BIO 304, 310, 315, 317, 323, 325, 326~~4~~ hours
   3. Select one from: BIO 318 or 328, 324, 329, 356, 357~~3~~ or 4 hours
   4. BIO 425, 426, 437, 498~~4~~ hours
   (Majors are required to take CHE 111 from Group A list of laboratory science options in the general core.)

III. Major in Cell and Molecular Biology—72–73 hours
   1. BIO 112, 211; 210 or 215~~12~~ hours
   2. BIO 315, 323, 325, 397~~15~~ hours
   3. Three of BIO 307, 309, 310, 316, 317, 320, 324, 326~~12~~ hours
   4. One 300-level BIO Elective~~3~~ or 4 hours
   5. CHE 111, 112, 314, 315, 324, 326, 319, 329~~26~~ hours
   6. BIO 425, 426, 437, 498~~4~~ hours
   7. No minor is required

IV. Major in Conservation Biology—66–68 hours
   A. Prerequisites or Corequisites: CHE 111; 2 MAT courses 111 or higher
   B. BIO 112, 200, 210, 215; PHY 112 or higher~~20~~ hours
   C. BIO 303, 304, 305, 318 or 328, 335, 355~~20~~ hours
   D. BIO 425, 426, 437, 498~~4~~ hours
   E. To of BIO 337, 358, 359~~8~~ hours
      Four of BIO 301, 312, 315, 316, 324, 329, 336, 356, 357~~1416~~ hours
   F. No minor is required.

V. Major in Botany—42-44 hours
   1. BIO 112, 211, 215, 337, 358, 359~~28~~ hours
   2. Select three electives (at least one from each group):
      Group A: BIO 304, 318 or 328, 355
      Group B: BIO 315, 323, 325
   3. BIO 425, 426, 437, 498~~4~~ hours
   (Majors are required to take CHE 111 from Group A list of laboratory science options in the general core.)

VI. Teacher Licensure in Biology (Grades 6–12)
   A. Major requirements as shon above ith General Biology Major to include 316 (or 307 and 309).
   B. Students ill take BIO 419 and an additional 300-level elective applicable to biology major in place of BIO 425, 426, 437.
   C. Additional requirements: PHY 111 and 112; CHE 111 and 112; MAT 114 or 208 (in B.S. core); CSC 105; and membership in BIOME.
   D. C5 DeETEed

Biology majors are required to take to terminal courses as a requirement for graduation: BIO 410, Research Experience for Educators or BIO 437 Research Experience; and BIO 498, Seminar. The Department may administer the Major Field Examination to senior biology majors in BIO 419 and 437.

Biologists In Observation of the Master's Earth, BIOME, serves students interested in exploring the world of biology

323. Cell Biology (4) S
Prerequisite: BIO 112 and 8 hours of BIO courses applicable to the BIO major.
A study of biological systems at the cellular and subcellular levels emphasizing functional aspects such as protein procession and sorting, membrane systems, energy generation in mitochondria and chloroplasts, and cell signaling. Three hours lecture and three hours laboratory/week.

324. Medical Parasitology (4) W—Every Third Year
Prerequisite: BIO 112 and 8 hours of BIO courses applicable to the BIO major.
Parasitology is a course that ill apply information learned in a variety of Biology courses to the study of parasites and parasitic diseases. Specifically, this course ill address the ecology, epidemiology and biochemistry of parasites and diseases caused by parasites. The laboratory ill focus on the identification of important parasite groups and methods for host examination and diagnosis. Three hours of lecture and 3 hours laboratory/week.

325. Molecular Biology (4) F
Prerequisites: BIO 112, 211 and a 4 hour BIO course applicable to the BIO major; CHE 314/324 is recommended. [For Forensic Science majors only, alternative prerequisites are Bio 112, Bio 211, Bio 221, Che 314, and Che 324]
Basic principles of molecular biology focusing on recombinant DNA methods as applied to a variety of biological questions. Students ill learn basic research laboratory skills through a ide range of methods from gel electrophoresis to subcloning. Three hours lecture and three hours laboratory/week.

326. Neurobiology (4) W—Every Third Year
Prerequisites: BIO 112 and 8 hours of BIO courses applicable to the BIO major.
This course is designed to provide an overvie regarding the mechanisms of neurobiology in a ide variety of organisms. Students ill gain a better understanding of ho several neurological processes occur including electrical signaling of nerve cells, synaptic transmission, synaptic plasticity pain, movement, sleep, memory, repair and regeneration. Three hours lecture and 3 hours laboratory/week.

328. Tropical Ecology (4) S—Even Years
Prerequisites: BIO 112 and 8 hours of BIO courses applicable to the BIO major.
This field course is designed to shocase the basic flora and fauna of the tropics and revie ecological principles ithin these unique tropical environments. Lectures and labs focus on the nature of life in tropical climates ith specific emphasis on coral reefs, tropical rainforests, mangrove samps, and

356. Marine Biology (3) W
Prerequisite: BIO 112 and 8 hours of BIO courses applicable to the BIO major.
Corequisite: BIO 357.
Lectures and labs on the nature of life in the ocean and in coastal environments. The first part of the semester is spent at Union Universityfacilities and the second part is spent exploring the coastal environments of South Georgia and the

Environmental Applications for Geographic Information Systems (4)
Theory and application of spatial analysis for applied social and