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

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

Jennifer Gruenke (2009). Professor of Biology and Director of the Center for Scientific Studies. B.S., Bryan College; Ph.D., University of Virginia.

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 at 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 Edwardsville; Ph.D., Florida Institute of Technology.

James Marcus Lockett (2004). Associate 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.

James Mahar (2010). Associate Professor of Biology. B.A., Vanderbilt University; M.S. and Ph.D., University of Memphis.

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

Michael Schiebout (2012). Assistant Professor of Biology. B.A., Dordt College; M.S. and Ph.D., University of Northern Colorado.

William Thierfelder (2014). Associate Professor of Biology. Sc.B, Brown University; Ph.D., University of Pennsylvania; Additional study, St. Jude Children's Research Hospital.

Faith A. Zamamiri-Davis (2011). Assistant Professor of Biology. B.S., Westmont College; Ph.D., Pennsylvania State University; Additional study, St. Jude Children's Research Hospital.

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

Cathy Huggins (2009). Laboratory Specialist. B.S. and B.S.M.T., Arkansas State University; M.B.A., Union University.

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Kelly Farrar (2012). Academic Secretary—Biology and Chemistry. B.S.B.A., Union University.

The curriculum in biology is designed to acquaint students with living organisms as whole, 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 which 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 well as specific courses.

Because contemporary biology leans heavily on mathematics and physical sciences, students majoring in biology should include mathematics, statistics, chemistry, and physics. In the freshman year students in BIO 112 will 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 will 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, with seminar reserved for the senior year. Students will examine in detail how organisms function and interact with 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.

Conservation Biology Majors may meet the requirements to become a Certified Wildlife Biologist by taking twelve 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 with your assigned faculty advisor.

I. Major in General Biology – 42–45 hours
   A. Independent Research Option
      1. BIO 112, 210, 211, 215, 315, 318 – 24 hours
      2. Four 300-level BIO courses – 14 hours minimum
      3. BIO 425, 426, 437, 498 – 4 hours
   B. Collaborative Research Option
      1. BIO 112, 210, 211, 215, 315, 318 – 24 hours
      2. Four 300-level BIO courses – 14 hours minimum
      3. BIO 304, 415, 498 – 7 hours

II. Major in Zoology – 43–47 hours
   A. Independent Research Option
      1. BIO 112, 200, 210, 211, 301, 312, 316, 336 – 32 hours
      2. Select one from: BIO 304, 310, 315, 317, 323, 325 – 4 hours
      3. Select one from: BIO 318, 321, 324, 356, 357, 360 – 3 or 4 hours
      4. BIO 425, 426, 437, 498 – 4 hours
   B. Collaborative Research Option
      1. BIO 112, 200, 210, 211, 301, 312, 316, 336 – 32 hours
      2. Select one from: BIO 310, 315, 317, 323, 325 – 4 hours
      3. Select one from: BIO 318, 321, 324, 356, 357, 360 – 3 or 4 hours
      4. BIO 304, 415, 498 – 7 hours

III. Major in Cell and Molecular Biology—72–76 hours
   A. Independent Research Option
      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, 321, or 324—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
   B. Collaborative Research Option
      1. BIO 112, 211; 210, 215—12 hours
      2. BIO 315, 323, 325, 397—15 hours
      3. Three of BIO 307, 309, 310, 316, 317, 320, 321, or 324—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 304, 415, 498—7 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, 335, 355—20 hours
   D. BIO 425, 426, 437, 498—4 hours
   E. Two of BIO 337, 358, 359, or 360—8 hours
      Four of BIO 301, 312, 315, 316, 321, 324, 336, 356, 357—14–16 hours
   F. No minor is required.

V. Major in Botany—43-47 hours
   A. Independent Research Option
      1. BIO 112, 211, 215, 337, 358, 359, 360 – 28 hours
      2. Select three electives (at least one from each group):
         Group A: BIO 304, 318, 321, 355
         Group B: BIO 315, 323, 325
      3. BIO 425, 426, 437, 498 – 4 hours
   B. Collaborative Research Option
      1. BIO 112, 211, 215, 337, 358, 359, 360 – 28 hours
      2. Select three electives (at least one from each group):
         Group A: BIO 318, 321, 355
         Group B: BIO 315, 323, 325
      3. BIO 304, 415, 498 – 7 hours

VI. Teacher Licensure in Biology (Grades 6–12)
   A. Major requirements as shown above with General Biology Major (I.A.or B) to include 316 (or 307 and 309).
   B. Additional requirements: PHY 111 and 112; CHE 111 and 112; MAT 114 or 208 (in B.S. core); CSC 105; and membership in BIOME.
   C. Professional Education:
      1. Prior to Internship – EDU 150, EDU 305, EDU 358, PSY 213, PSY/SE 230.
      2. Fall of Internship Year – EDU 306, 340, 418, 440
      3. Spring of Internship Year – EDU 441 and 451
      4. CSC 105 is required in the BA core

Progression

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Environmental Applications for Geographic Information Systems (4)
Theory and application of spatial analysis for applied social and ecological problem-solving. This course combines GPS field data collection; ArcGIS use for storage, processing, interpretation, and presentation of data; location and integration of existing source information; and remote sensing integration with GIS applications. The course is designed around an environmental project to apply GIS techniques for real-world problem-solving in protecting and restoring ecosystems.

Restoration Ecology (4)
Ecological and theoretical foundations for ecosystem and biotic community restoration. This course develops ecological principles for ecosystem restoration and applies them to redeeming and restoring degraded and damaged ecosystems and endangered species. Field studies include analysis of restoration and rehabilitation work with the Kirtland Warbler, an officially designated wild river, coastal dunes, kettle-hole bogs, deforested lands, degraded residential and farming sites, and abandoned oil wells. A practical field laboratory is included in which techniques are applied to a specific site. Prerequisite: one year of biology and one course in ecology or field biology, or permission of professor.

179-279-379-479. External Domestic Study Programs (1-3) As Needed
All courses and their applications must be defined and approved prior to registering.

180-280-380-480. Study Abroad Programs (1-4)
All courses and their application must be defined and approved prior to travel.

195-6-7. Special Studies (1-4)
295-6-7. Special Studies (1-4)
Lower-level group studies that do not appear in the regular departmental offerings.

395-6. Special Studies (1-4)
Upper-level group studies that do not appear in the regular departmental offerings.

397. Special Studies in Cell and Molecular Biology (3) F or S
Upper-level group studies that do not appear in the regular departmental offerings.

495-6-7. Independent Study (1-4)
Individual research under the guidance of a faculty member(s).