BIOLOGICAL SCIENCES (BIO)

BIO 112 (3 credit hours)
Introduction to Biology
Basic study of structure, function and interactions of living organisms including cell theory, genetics, energetics, evolution and ecology. Lecture: 3 credits (45 contact hours).
Attributes: SN - Science
Components: LEC: Lecture

BIO 113 (1 credit hours)
Introduction to Biology Lab
Emphasizes basic laboratory studies of structure, function and interactions of living organisms including cell theory, genetics, energetics, evolution, and ecology. Pre-requisite/). Laboratory: 1 credit (30 contact hours).
Co-requisite: BIO 112 (If a student taking the courses concurrently fails or withdraws from BIO 112, they may continue to complete and earn credit for BIO 113 with instructor's consent.
Attributes: SL - Science Laboratory, Course Also Offered in Modules
Components: LAB: Laboratory

BIO 114 (3 credit hours)
Biology I
Examines basic biological concepts such as cell structure and function, metabolism, the chemical basis of biology, protein synthesis, genetics, and evolution with emphasis placed on the cellular level. Lecture: 3.0 credits (45 contact hours).
Co-requisite: BIO 115.
Attributes: SN - Science
Components: LEC: Lecture

BIO 115 (1 credit hours)
Biology Laboratory I
A two-hour laboratory to be offered concurrently with BIO 114. Designed to acquaint the student with the use of analytical techniques in biology, theory, and methods involved in experimentation, in order to facilitate a greater understanding of concepts presented in lecture and the way in which information is gathered in science. Laboratory: 1 credit (30 contact hours).
Co-requisite: BIO 114
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 116 (3 credit hours)
Biology II
Examines basic biological concepts such as ecology, biological diversity (to include the kingdoms of life), reproduction, growth, and development, with emphasis placed on multicellular systems. Lecture: 3.0 credits (45 contact hours).
Co-requisite: BIO 117.
Attributes: SN - Science
Components: LEC: Lecture

BIO 117 (1 credit hours)
Biology Laboratory II
A two-hour laboratory to be offered concurrently with BIO 116. Designed to acquaint the student with the use of analytical techniques in biology, theory, and methods involved in experimentation in order to facilitate a greater understanding of concepts presented in lecture and the way in which information is gathered in science. Laboratory: 1 credit (30 contact hours).
Co-requisite: BIO 116.
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 118 (3 credit hours)
Microbes and Society
An introduction to the science of microbiology addressing the role of microorganisms in nature and in human welfare. Contemporary topics will include infectious diseases, genetic engineering, the environment and biological warfare. Lecture: 3 credits (45 contact hours).
Attributes: SN - Science
Components: LEC: Lecture

BIO 120 (3 credit hours)
Human Ecology
Interrelationships among humans, other organisms and the environment including principles of energy and matter, resource use, biogeochemical cycling, trophic structures, sustainability and environmental impacts by humans. Lecture: 3 credits (45 contact hours).
Attributes: SN - Science
Components: LEC: Lecture

BIO 121 (1 credit hours)
Human Ecology Laboratory
Basic laboratory studies of interactions among living organisms and their environment including biogeochemical cycling, trophic structures, sustainability and human impacts on the environment. Pre-requisite/ Laboratory: 1 credit (30 contact hours).
Co-requisite: BIO 120 or BIO 124.
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 122 (3 credit hours)
Introduction to Conservation Biology
Historical and current perspectives on species extinction and global loss of biological diversity is presented. Methods used to conserve plant and animal life in the United States and around the world are surveyed, and conservation activities and needs are discussed in societal, cultural, economic, and political contexts. Lecture: 3 credits (45 contact hours).
Pre-requisite: High school biology recommended.
Attributes: SN - Science
Components: LEC: Lecture

BIO 124 (3 credit hours)
Principles of Ecology
Study of the principles and interrelationships between organisms and their environment with emphasis on the analytical and statistical methods of ecology. Pre- Requisite: College Readiness in Math, Writing and Reading. Lecture: 3.0 credits (45 contact hours).
Attributes: SN - Science
Components: LEC: Lecture

BIO 130 (3 credit hours)
Aspects of Human Biology
Aspects of human biology will be introduced from the molecular level to the integrated whole. Attention will be given to the biological bases of various health and wellness issues. Lecture: 3 credits (45 contact hours).
Attributes: SN - Science
Components: LEC: Lecture

BIO 135 (4 credit hours)
Basic Anatomy and Physiology with Laboratory
Presents the fundamental structure of the human body and the physiological mechanisms involved in normal functioning are presented through lecture and student participation in laboratory activities. Lecture: 3.0 credits (45 contact hours). Lab: 1.0 credit (30 contact hours).
Pre-requisite: Minimum ACT Composite score 16 (or KCTCS determined equivalency); OR completion with "C" or better of any college biology or chemistry course; OR ACT of 13-15 with co-requisite OR supplemental instruction; OR consent of instructor.
Attributes: SL - Science Laboratory, SN - Science
Components: LAB: Laboratory, LEC: Lecture

BIO 135S (1-2 credit hours)
Supplemental Instruction for Human Anatomy and Physiology with Laboratory
Provides supplementary instruction for students who do not meet college readiness standards for BIO 135. Covers content necessary for success in BIO 135 as needed. Lecture: 1.0-2.0 credits (15-30 contact hours).
Co-requisite: BIO 135.
Attributes: Other, Supplemental Science
Components: LEC: Lecture

BIO 137 (4 credit hours)
Human Anatomy and Physiology I with Laboratory
The interrelationship of structure and function of each body system will be presented in two semesters. The first semester will include basic chemistry, cell structure, cell physiology, metabolism, tissues, and integumentary, skeletal, muscular, and nervous systems. Lecture: 3.0 credits (45 contact hours); Lab: 1.0 credit (30 contact hours).
Pre-requisite: College readiness in math, reading, and English; OR successful completion (C or better) of a college biology or chemistry course; OR consent of instructor for enrollment in co-requisite supplemental instruction; OR consent of instructor.
Attributes: SL - Science Laboratory, SN - Science
Components: LAB: Laboratory, LEC: Lecture

BIO 137S (1-2 credit hours)
Supplemental Instruction for Human Anatomy and Physiology I
Provides supplementary instruction for students who do not meet college readiness standards for BIO 137. Covers content necessary for success in BIO 137 as needed. Lecture: 1.0-2.0 credit hours (15-30 contact hours)
Pre-requisite: Consent of BIO 137 Instructor.
Co-requisite: BIO 137.
Attributes: Other, Supplemental Science
Components: LEC: Lecture

BIO 139 (4 credit hours)
Human Anatomy and Physiology II with Laboratory
The second semester continues the study of the interrelationships of organ systems, including the endocrine, reproductive, cardiovascular, lymphatic, digestive, respiratory, and urinary systems. Lecture: 3 credits (45 contact hours); Laboratory: 1 credit (30 contact hours).
Pre-requisite: BIO 137.
Attributes: SL - Science Laboratory, SN - Science
Components: LAB: Laboratory, LEC: Lecture

BIO 140 (3 credit hours)
Botany
The anatomy, physiology, and biodiversity of plants emphasizing life processes, the cell, development, heredity, plant systems, evolution, taxonomy, phylogeny and ecology. Lecture: 3 credits (45 contact hours).
Pre-requisite: BIO 112 or consent of instructor.
Attributes: SN - Science
Components: LEC: Lecture

BIO 141 (4 credit hours)
Botany with Laboratory
The anatomy, physiology, and biodiversity of plants emphasizing life processes, the cell, development, heredity, plant systems, evolution, taxonomy, phylogeny and ecology. Includes laboratory studies of the morphology, physiology, and reproduction of plants with emphasis on flowering plants. Lecture: 3 credits (45 contact hours); Laboratory: 1 credit (30 contact hours).
Pre-requisite: BIO 112 or consent of instructor.
Attributes: SL - Science Laboratory, SN - Science
Components: LAB: Laboratory, LEC: Lecture

BIO 142 (3 credit hours)
Zoology
The anatomy, physiology, and biodiversity of animals emphasizing life processes, the cell, development, heredity, body systems, evolution, taxonomy, phylogeny and ecology. Lecture: 3 credits (45 contact hours).
Pre-requisite: BIO 112 or consent of instructor.
Attributes: SN - Science
Components: LEC: Lecture

BIO 143 (4 credit hours)
Zoology with Laboratory
The anatomy, physiology, and biodiversity of animals emphasizing life processes, the cell, development, heredity, body systems, evolution, taxonomy, phylogeny and ecology. Lecture: 3 credits (45 contact hours); Laboratory: 1 credit (30 contact hours).
Pre-requisite: BIO 112 or consent of instructor.
Attributes: SL - Science Laboratory, SN - Science
Components: LAB: Laboratory, LEC: Lecture

BIO 144 (3 credit hours)
Insect Biology
Presents an overview of the biology of both beneficial and detrimental insects including physiology, behavior, ecology, and evolution. Lecture: 3 credits (45 contact hours).
Attributes: SN - Science
Components: LEC: Lecture

BIO 145 (1 credit hours)
Insect Biology Laboratory
Investigate insect structure and function utilizing basic biological laboratory methodologies including study in taxonomy, phylogeny, behavior and ecology. Lab: 1 credit hour (30 contact hours).
Pre- or co-requisite: BIO 144 - Insect Biology.
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 148U (3 credit hours)
Introductory Biology I
BIO 148 introduces the student to the biological mechanisms operating at the molecular cellular and population level that contribute to the origin maintenance and evolution of biodiversity including the origins and history of the evolutionary process. Course material is presented within a phylogenetic context emphasizing the shared history of all living organisms on earth through common ancestry. The first semester of an integrated one-year sequence (BIO 148 and BIO 152). (KCTCS equivalents: MA 109=MAT 150; CHE 105=CHE 170). Lecture: 3.0 credits (45 contact hours)
Pre-requisite: Math ACT of 23 or above or MA 109, past or current enrollment in CHE 105.
Attributes: University Course (University of Kentucky)
Components: LEC: Lecture
University Course: University of Kentucky

BIO 150 (3 credit hours)
Principles of Biology I
Presents knowledge of biological principles at the cellular and molecular levels, similarities and differences in structure and function of simple and complex cells and theories on the origin and evolution of biological systems. Part one of a two semester sequence (BIO 150 and BIO 152). Lecture: 3 credits (45 contact hours).
Pre-requisite: (CHE 170 or concurrent enrollment) or consent of instructor.
Attributes: SN - Science
Components: LEC: Lecture

BIO 151 (2 credit hours)
Principles of Biology Laboratory I
Includes studies of cellular and molecular biology. Laboratory: 2 credits (60 contact hours).
Pre-requisite: BIO 150 or Concurrent enrollment.
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 152 (3 credit hours)
Principles of Biology II
Presents knowledge of organismal, population and community biology. Part two of a two semester sequence (BIO 150 and BIO 152). Lecture: 3 credits (45 contact hours).
Pre-requisite: BIO 150 or consent of instructor.
Attributes: SN - Science
Components: LEC: Lecture

BIO 153 (2 credit hours)
Principles of Biology Laboratory II
Includes organismal, population and community biology. Laboratory: 2 credits (60 contact hours).
Pre-requisite: BIO 152 or concurrent.
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 155 (3 credit hours)
Astrobiology
Examines topics related to the origins of planets, the requirements for life, the search for life away from Earth, the societal implications of discovering other forms of life, and the future of life on Earth and in space from a multidisciplinary perspective. Credit not available for both BIO 155 and AST 155. Lecture: 3 credits (45 contact hours).
Pre-requisite: MT65 and ENC91or equivalent as determined by KCTCS placement examination.
Attributes: SN - Science
Components: LEC: Lecture

BIO 155U (1 credit hours)
Introductory Biology Laboratory
This course is designed to provide a broad introduction into the data, results, and information associated with biological research, and into some of the analytical approaches used to test biological hypotheses. Communication of these aspects of biological research is crucial, and much of this lab course will be focused on the development of effective writing skills for the delivery of this information. Laboratory: 1 credit hour (2 contact hours).
Pre-requisite: Math ACT of 23 or above or MA 109, past or current enrollment in CHE 105 (KCTCS equivalents: MA 109=MAT 150; CHE 105=CHE 170).
Attributes: University Course (University of Kentucky)
Components: LAB: Laboratory
University Course: University of Kentucky

BIO 209 (2 credit hours)
Introductory Microbiology Laboratory
Laboratory exercises in general microbiology. Laboratory: 4 hours. BIO 208/226 should be taken concurrently.
Pre-requisite: One unit of chemistry or consent of instructor.
Attributes: SL - Science Laboratory
Components: LAB: Laboratory

BIO 220 (3 credit hours)
The Genetic Perspective
Covers introductory genetics for non-science majors examining how heredity affects humans and the remainder of the living world and providing some insights into other fields of science from the geneticists' perspective. Lecture: 3 credits (45 contact hours).
Pre-requisite: BIO 112 or consent of instructor.
Attributes: SN - Science
Components: LEC: Lecture

BIO 225 (4 credit hours)
Medical Microbiology with Laboratory
The characteristics of microorganisms and their relation to health and disease are studied. Lecture: 2 credits (30 contact hours); Laboratory: 2 credits (60 contact hours).
Pre-requisite: BIO 137 and BIO 139 or equivalent.
Attributes: SL - Science Laboratory, SN - Science, Course Also Offered in Modules
Components: LAB: Laboratory, LEC: Lecture

BIO 226 (3 credit hours)
Principles of Microbiology
Introduction to fundamental microbiological principles and techniques emphasizing structural functional, ecological, and evolutionary relationships among microorganisms. Lecture: 3 credits (45 contact hours).
Pre-requisite: BIO 112 or consent of instructor.
Attributes: SN - Science
Components: LEC: Lecture

BIO 227 (5 credit hours)
Principles of Microbiology with Laboratory
Introduces fundamental microbiological principles and techniques emphasizing structural, functional, ecological, and evolutionary relationships among microorganisms. Includes laboratory exercises in general microbiology. Lecture: 3 credits (45 contact hours); Laboratory: 2 credit (60 contact hours).
Pre-requisite: BIO 114 or BIO 150 or consent of instructor.
Attributes: SL - Science Laboratory, SN - Science
Components: LAB: Laboratory, LEC: Lecture

BIO 295 (1-3 credit hours)
Independent Investigation In Biology
Investigates specific topics or problems in the field of the biological sciences. May be repeated for a maximum of six credits. Laboratory varies with credit. Laboratory: Varies with credit.
Pre-requisite: Permission of Instructor.
Attributes: Other
Components: IND: Independent Study, LEC: Lecture

BIO 299 (1-3 credit hours)
Selected Topics In Biology: (Topic)
Addresses recent trends and discoveries in selected areas of biology in a seminar format. Emphasizes discussion and critical thinking. May be repeated with different subtitle for a maximum of six credits. Lecture: Varies with credit.
Pre-requisite: Permission of Instructor.
Attributes: Other
Components: LEC: Lecture

BIO 1351 (1 credit hours)
Cells, Skin & Bones
Presents the fundamental structure of the human body including Cell and Cellular Physiology, the Integumentary System, and the Skeletal System. Covers the physiological mechanisms involved in normal functioning presented through lecture and student participation in laboratory activities. Laboratory: 0.75 credits (11.25 contact hours). Clinical: 0.25 credits (7.5 contact hours).
Pre-requisite: Reading and English assessment exam scores above the KCTCS developmental level and a mathematics placement score above the score range for MAT 65 or successful completion of the prescribed developmental course(s) or consent of the instructor.
Components: CLN: Clinical, LAB: Laboratory

BIO 1352 (1 credit hours)
Muscle, Regulators & Generation
Presents the fundamental structure of the human body including the Muscular System, Nervous system, Endocrine System, and Reproductive System. Covers the physiological mechanisms involved in normal functioning presented through lecture and student participation in laboratory activities. Lecture: 0.75 credits (11.25 contact hours). Laboratory: 0.25 credits (7.5 contact hours)
Pre-requisite: BIO 1351 or Consent of Instructor.
Components: LAB: Laboratory, LEC: Lecture

BIO 1353 (1 credit hours)
Lymph, Blood & Gases Lymph, Blood & Gases
Presents the fundamental structure of the human body including the Lymphatic System, Cardiovascular System, and Respiratory System. Covers the physiological mechanisms involved in normal functioning presented through lecture and student participation in laboratory activities. Lecture: 1 credit (18.75 contact hours).
Pre-requisite: BIO 1352 or Consent of Instructor.
Components: LAB: Laboratory, LEC: Lecture

BIO 1354 (1 credit hours)
Digestive, Renal & Electrolytes
Presents the fundamental structure of the human body including the Digestive System, the Urinary System, and Water and Electrolyte Balance. Covers the physiological mechanisms involved in normal functioning presented through lecture and student participation in laboratory activities. Lecture: 0.75 credits (11.75 contact hours). Laboratory: 0.25 credits (7.5 contact hours).
Pre-requisite: BIO 1353 or Consent of Instructor.
Components: LAB: Laboratory, LEC: Lecture