

## Special Topics Courses in Biological Sciences – Spring 2018

### **BIOL 4301-003 (CRN #33128) Metagenomics - Dr. Caleb Phillips**

**TR 9:30 – 10:50**

Description: Metagenomics is a computer lab-based course in which students will learn how to explore what microbial inhabitants live in an environment (such as the human skin or digestive tract) and what metabolic functions these communities are performing. By completion of the course students will be skilled in program scripting and bioinformatics and will have an improved understanding of the role of microbiomes in host function. No prior experience is required.

*Prerequisite: BIOL 3416 or instructor permission at [caleb.phillips@ttu.edu](mailto:caleb.phillips@ttu.edu)*

*In addition to being an upper-division Biology elective, this class may be used to satisfy an elective for C&MB majors*

### **BIOL 4301-006 (CRN #39941) Virology II – Dr. Ruth Serra-Moreno**

**TR 12:30 – 1:50**

This course aims at building up on the materials covered in Introduction to Virology. We will discuss in more detail aspects of infectious diseases caused by viruses that are a major threat for humans. This goal will be achieved by reviewing the replication cycle of those human viruses, the epidemiology of the diseases they cause, and discussing of the current research on those viruses (methodology and accomplishments). By the end of the course, students are expected to elaborate strategic plans to investigate the mechanism of infection of human viruses and suggest potential avenues for vaccines or therapy.

*Prerequisite: MBIO 4310 or permission of instructor [ruth.serra-moreno@ttu.edu](mailto:ruth.serra-moreno@ttu.edu)*

*In addition to being an upper-division Biology elective, this class may be used to satisfy an elective for C&MB and MBIO majors*

### **BIOL 4301-007 (CRN# 49652) Biofilms – Dr. Catherine Wakeman**

**MWF 9:00-9:50**

This course focuses on microbial communities in the context of single and multi-species biofilms as well as cooperative and competitive interspecies interactions. The beneficial and detrimental impacts of these communities in medical, industrial, and environmental settings will be explored. The course is designed to accommodate the intellectual needs and interests of students majoring in microbiology, but may also be of interest to students studying health sciences, chemistry/biochemistry, and ecology who would like to learn more about how their interests apply to the microbial world. Lectures and class discussions will be geared towards students who have taken MBIO 3401 or equivalent and have a general knowledge of microbiology.

*(Prerequisite: MBIO 3401)*

*In addition to being an upper-division Biology elective, this class may be used to satisfy an elective for C&MB and MBIO majors*

### **BIOL 4301-010 (CRN# 33131) Microbiomes - Dr. Amanda Brown**

**MWF 10:00 – 10:50**

Microbiomes: We can't live without them! A survey of beneficial microbes associated with human, animal, and plant health and disease, covering in depth tools used to understand the role of the microbiome and consequences of disruption resulting from human activity.

*(Prerequisite: BIOL 1403 and 1404)*

*In addition to being an upper-division Biology elective, this class may be used to satisfy an elective for MBIO majors.*

### **BIOL 4301-011 (CRN #33132) Animal Ecophysiology - Dr. Jim Carr**

**MW 4:00 – 5:20**

This course is designed for undergraduate and graduate students interested in a physiological approach to examining how animals adapt to their environment. Topics will include gas exchange, circulation, metabolic scaling, endocrinology, reproduction, and development.

Emphasis is placed on the ecophysiology of vertebrate animals.

*Prerequisites: BIOL 1403 and 1404*

*In addition to being an upper-division Biology elective, this class may be used to satisfy an elective for C&MB majors*

### **BIOL 4301-014 (CRN# 47397) Environmental Radiation Studies - Dr. Ron Chesser**

This course will focus on the properties of radioactive elements, radiation dosimetry, biological effects of radiation, how nuclear reactors operate, and how nuclear accidents occur and affect the environment. Recent events in Japan will be discussed as well as the Chernobyl accident, Chelyabinsk, Iraq, 3-mile Island, and North Korea.

*Prerequisites: BIOL 1401 or 1402 or 1403 plus CHEM 1307*

### **BIOL 4301-015 (CRN# 33135) South Plains Wildlife Rehab Center Professional Internship – Dr. Lou Densmore**

**Hours TBD (requires a minimum 100 hours per semester)**

This internship will provide college students with a wide range of skills and experience preferred for many entry-level positions in the diverse fields of wildlife, conservation and animal care. The intern will gain experience identifying various wildlife species, caring for and feeding birds, mammals and reptiles, entering records into the database, fielding phone calls about wildlife issues, greeting the public, admitting new animals, fundraising and educating the community with environmental education programs.

*Contact Gail Barnes at 806-799-2142. Once approved, Gail will notify Pam Hellman and Dr. Densmore and a permit for the class will be entered.*

**BIOL 4301-016 (CRN# 33136)      Neurobiology – Dr. Karina Alvina**

**TR 8:00-9:20**

The main objective of this course is to provide students with a comprehensive guide to study the Central Nervous System (CNS). The course will start with the physiology of brain cells (neurons and glia), then the formation of CNS circuits and systems will be reviewed. Finally, neural mechanisms underlying behavior and cognition will be discussed. This course will be divided in 4 units:

*Prerequisite: BIOL 1403 & 1404; PHYS 1404 (Cell biology recommended)*

*In addition to being an upper-division Biology elective, this class may be used to satisfy an elective for C&MB majors*

**BIOL 4301-059 (CRN# 33155)      Biology of the Andes – Dr. Jorge Salazar-Bravo**

**TR 9:30 – 10:50**

The biology and the natural history of the Andean fauna and flora will be investigated in relation to biogeographical history and ecology of the region. The course examines the biology of South American Flora and Fauna as examples of the physiological, behavioral and nutritional adaptations to a dynamic environment punctuated by major environmental changes and the challenges that these brought about. Specific topics will include: Biogeography of South America; basic ecology and diversity of major vertebrate groups and major ecosystem types. Introduction to physiological, ecological and behavioral adaptations high elevation, extreme temperatures and aridity. Introduction to studies on coevolution of plant-animals in the Neotropics.

*Prerequisite: BIOL 1403 & 1404*

**BIOL 4301-077 (CRN #49684)      Genomes and Society – Dr. David Ray**

**MWF 10:00 – 10:50**

Genomics is the study of the entire genetic complement of an organism. Utilizing such vast amounts of information has the potential to change, and has already begun changing, the way our society thinks about medicine, law, agriculture, and the environment. This course will describe the basic ideas of genomics and explore how discoveries in the field have influenced our lives now and will likely influence the way we live our lives in the future.

*Prerequisite: BIOL 3416*

**BIOL 4301-D76 (CRN #46304)      Environmental Plant Physiology – Dr. Bobbie McMichael**

**Distance Education**

A course designed to apply basic physiological processes to stress responses in plants.      *Prerequisite: BIOL 1403 and 1404*

**This class is available to Distance Ed students only until the Provost's Office opens it to all a few weeks before classes begin.**

**BIOL 4110-008 (CRN #31850)      So you are a Biology Major – Dr. Robert Bradley**

**W 9:00 – 9:50**

This course is designed to be an introduction into opportunities available to undergraduate majors in the Department of Biological Sciences (DBS). We will explore options and experiences relative to: your choice of a major, scholarships, undergraduate research, health and other professional schools, graduate school, postgraduate careers and employment. In addition we will “meet” the DBS faculty and discuss their research and courses they offer.

The goal is to allow students to “explore” the DBS early in their academic career so that they are more knowledgeable about the activities of the DBS. Hopefully, students can then make more informed decisions about opportunities relative to their chosen career path.

*Prerequisite: Freshmen and 1<sup>st</sup> semester transfer students.*

**BIOL 4110-054 (CRN# 31870)      Special Topics in Biology-Case Studies in Immunology - Dr. Brian Reilly**

**M 1:00-1:50 pm**

This Special Topics course covers human diseases caused by autoimmune problems, immunodeficiency, cancer, hypersensitivity reactions, and transplantation. The major component of this course will be group discussions and student presentations of Medical Case Studies illustrating disorders that occur when the immune system is compromised.

*Prerequisite: Having taken or are currently taking MBIO 4402-001.*

*Required Text: Case Studies in Immunology. 7<sup>th</sup> Edition ISBN: 9780815345121*