Syllabus: EXST017 Animal Biology
Summer 2015

COURSE INFORMATION
Location: HJ Patterson Hall, room 1229
Times: Monday-Friday, 9:00AM-12:30PM
Website: http://oes.umd.edu/young-scholars/young-scholars-discovery/course-information

INSTRUCTORS
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DESCRIPTION
What can we learn about ourselves by studying animals? This course will explore animal behavior and physiology using a hands-on approach. Students will learn about the diversity of the animal world and how these differences help animals to survive in differing environments. They will also learn about how the commonalities between humans and animals enable us to study animals to gain a greater understanding of human behavior, physiology, and health. (Enrollment limit: 20).

COURSE POLICIES
What to Wear: Open-toed shoes (e.g., sandals) are NOT PERMITTED in the laboratories. Sneakers or other casual, closed-toed footwear are ideal. Plan to wear comfortable, casual (and easily washable) clothes such as T-shirts and jeans or shorts. The laboratories we will be working in are air conditioned, but some outdoor activities are planned, so keep this in mind when you are deciding what to wear. Please wear sensible attire and save your best clothes and shoes for other occasions!
Other General Safety Considerations:
1. All participants must remain under the supervision of the Instructors during the time the program is in session.
2. No food or drink may be consumed in the laboratory room. This rule is in effect at all times. But please note that students will be permitted to briefly leave the classroom for snacks and drinks in the hallway provided the students are quiet and do not disturb students and researchers in the surrounding rooms. Accommodations will be made for students requiring food and/or drink during class time due to medical conditions.
3. Use chemicals only after you have received and understood the safety precautions dealing with each one. Do not ignore such precautions.

General Code of Conduct: In order to maintain an environment conducive to learning, we ask that you follow a few rules.
1. Be courteous and respectful to your instructors and fellow classmates. We expect students to listen quietly when your instructors are talking, speak courteously to each other and respect each other's personal space and belongings.
2. Handle all equipment and materials with care. No throwing of any materials or abusing equipment will be permitted! Intentional destruction of University of Maryland property can result in additional course fees for replacement of destroyed property.
3. Cell phone use (e.g., texting, calling, social media, web browsing, video games, music playing, and other applications) is prohibited while the program is in session unless the instructor states that the phone can be used for class activities (example: using cell phone cameras during crime scene investigations). Ringers must be turned off during lecture times unless the instructor has been informed beforehand that a call is expected. Cell phones will be confiscated and returned at the end of the day if any improper use is detected by the instructors.
4. Portable music players (e.g., mp3 players, cell phones) are not to be used when the program is in session.

EVALUATION
This course is intended to mimic the experiences of a college level course, but provide the students an enjoyable atmosphere to learn at a level appropriate for the age group (i.e., junior high students). Students will be evaluated based on 1)
their understanding of the basic scientific concepts underlying the laboratory exercises and 2) their participation in the course.

Class participation (60 points)
Daily participation = 6pts / day: Daily participation will be evaluated by the teachers of the course. Students must contribute meaningful dialog to the course (e.g., answer questions, ask questions) and/or participate in the laboratory exercises. Points will be deducted for disruptive behavior and other violations of the conduct policy.

Homework (30 points)
Students will be required to complete 3 homework assignments. Homework assignments will be based on the exercises done in class and require critical thinking. Please see the note below about academic dishonesty.

Presentation (10 points)
Each student will be required to give a short 5-minute presentation about some aspect of animal behavior or physiology that interests them. This exercise encourages student to independently explore a topic of interest in greater depth.

PLEASE NOTE: The University of Maryland policies related to academic dishonesty apply to all assignments in this course. Students are to perform their own work and should not copy from any available source of information or another student. Collaboration and group learning are encouraged, but all answers must be of the individual student’s own words. Students with any questions about this policy when performing the work assigned should contact the instructors for assistance.

CLASS SCHEDULE
Day 1 – Welcome and Introduction
  • What can we learn by studying animals?
  • The scientific method
  • Environmental toxicology lab set-up

Day 2 – Animal Sensory Systems
  • Cow eyeball dissection
  • Seeing in the dark: bat echolocation
Day 3 – Adaptations for Feeding
- Variation in Skulls and teeth
- Owl pellet dissection
- Results of toxicology lab

Day 4 – Foraging Behavior
- Squirrel foraging experiment
- Predatory-Prey interactions

Day 5 – Animal locomotion
- Skeletal adaptations for movement

Day 6 – Insect Diversity
- Microscope skills
- Insect collecting and preserving

Day 7 – Animal Communication
- Betta fish aggression and courtship
- Chemical communication in termites

Day 8 – Social Behavior
- Dominance hierarchies in crayfish

Day 9 – Cooperation
- Prisoner’s dilemma game
- Tour of the campus barn

Day 10 – Wrapping Up
- Student presentations
- Careers in biology: meet the scientists

NOTE: The above schedule is subject to change