Comparative Anatomy and Physiology

**Course Description**

This one-year course engages students in rigorous study of the body's physiological systems and then compares these systems across many species in the animal kingdom (both vertebrates and invertebrates). Course assignments range from formal assessments to hands on dissections and labs. Additionally, this course places an emphasis on public speaking through scientific presentations and independent research to enhance scientific reading and writing skills. Students will also learn to read and interpret published scientific articles to examine evolutionary relationships between species, making connections that will be built on in later bioinformatics studies.

**Course Objectives**

- Demonstrate an understanding of academic honesty and ethics.
- Demonstrate effective communication skills, through team working, oral presentations, and good written communication.
- Develop and refine skills related to academic research and the effective communication of complex ideas.
- Demonstrate mastery of how different body systems work and relate to each other across or within an array of different species

**Assessing Performance**

Students are assessed by obtaining weekly grades from the following: Tests, Lab Reports, Communicative Projects, Group Reports, Dissections, Bioinformatics Project

**Units**

| | | | |
|---|---|---|---|
| **Introduction** | **Anatomical Terms** | **Cells/Microbiology** | **Tissues** |
| **Integument** | **Skeletal** | **Muscular** | **Circulatory** |
| **Respiratory** | **Digestive** | **Urinary** | **Neurological** |
| **Special Senses** | **Reproductive** | **Bioinformatics** | |

**Materials**

A desktop or laptop computer, access to 1-to-1 daily, and Internet. Chromebooks will not work for the virtual dissection software.

There are two options for this class.

Option 1: Actual Dissection

| Hardware/Reusable Material | Recommended Unit | Cost/Unit |
|---|---|---|
| Complete Dissection kit (scalpel, blades, forceps) | 1 per Classroom | $175 |

# COMPARATIVE ANATOMY AND PHYSIOLOGY

1. Materials

   A desktop or laptop computer, access to 1-to-1 daily, and Internet. Chromebooks will not work for the virtual dissection software.

   There are two options for this class.

   Option 1: Actual Dissection

| **Hardware/Reusable Material** | **Recommended Unit** | **Cost/Unit** |
|---|---|---|
| Complete Dissection kit (scalpel, blades, forceps) | 1 per Classroom | $175 |
| Dissection trays | 1 per 6 students | $72 |
| **Consumable Material** | **Recommended Unit** | **Cost/Unit** |
| Materials necessary for project | 1 per Classroom | $400-600* |

   *Consumable one time uses items = Cost dependent on chosen dissection specimens

   Option 2: Virtual Dissection

| **Software** | **Recommended Unit** | **Cost/Unit** |
|---|---|---|
| Virtual dissection software and equipment | 1 per 10 students | $250- $560* |

   *These range in price depending if you want supplemental material to be included or not and how many animals you want to dissect. The cost shown is for one animal for 10 individual activation codes

2. Required software, networking access, and access to LSU servers

   No software is required for option 1. If using the virtual dissection, the software that is purchased will need to be available to the students.

3. Required teacher collaborations

   Teachers will communicate with LSU Biomedical Pathway instructors via a Google group set up for this purpose. Teachers will need to share sample student work with their designated LSU Pathway Point-of-Contact.

4. Required administration of course content, pre/post test, and research instruments

   All required materials and instruments will be either posted in a Google drive or their location announced via the Google group for this course.

5. Course Work

   Teachers must present the course material in sequence or as approved by collaboration with the LSU Pathway Point-of-Contact. Teachers are expected to deliver a minimum of 80% of the course material.

6. Other

   As this is a project-based learning class, we strongly suggest that each section of the course should be limited to a *maximum* of 30 students. If the course is overloaded with students, they will not receive adequate support.