Syllabus BIOL 4105 – AQUATIC BIOLOGY LABORATORY

Spring 2022

Professors:

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Catalog Description: Diversity, ecology, and management of the major groups of freshwater organisms, with an emphasis on North American flora and fauna. Major focus will be placed on basic field techniques, experimental design, and identification of field-captured organisms.

Course Objectives/Student Learning Outcomes

1) Identify freshwater organisms,
2) Describe the distribution and ecology of freshwater organisms,
3) Critically read, analyze, and interpret research findings,
4) Understand how aquatic field biologists design experiments and collect quantitative data, and
5) Integrate scientific literature and data collected by each student group to present research results.

Required Texts:


Evaluation: Students will be evaluated based on the following work:

1. Participation 20%. This will include attendance in lab and on field trips, including active participation.
2. Lab practical 40%. Exam will focus on ecology and identification of field-collected organisms.
3. Project and presentation 15%. Students will be formed into groups of 2-3 to assess the ecological health of a local Tyler stream using methods and indices learned in the course. Each group will then present their research to the class. The presentation should include an introduction, study site descriptions, methodology, results, and conclusions including the overall ecological health of their study stream. The presentation will be the format of a scientific conference (15 minutes total; about 12 for presentation and 3 for questions). The grade will be based on the instructors’ evaluations and peer evaluations of within group participation.
4. Final Paper over project 25%. Students will submit a group lab report. The report will be in
scientific format (intro, methods, results, discussion) and will assess the health of the same water body that the final project covers. The report rubric will be provided at a later date.

We will follow a 10-point scale for grading:

A = 90-100%  B = 80-89%  C = 70-79%  D = 60-69%  F = 0-59%

**Field Trips:** As this is a field-based course, attendance and active participation for field trips is required. We will make every attempt to return to campus by the end of lab, but driving time (and unforeseen circumstances) may necessitate a later return – students should make appropriate arrangements ahead of time in case we run late. Appropriate field clothing should be worn on field trips. Students should plan to bring water, bug spray, hat, and waders if they are available, etc.

**Academic Misconduct:** Submitting plagiarized work to meet academic requirements including the representation of another’s work or ideas as one’s own; the unacknowledged word for word use of another person’s ideas; and/or the falsification, fabrication, or dishonesty in reporting research results shall be grounds for charges of academic misconduct. Any cheating or other type of academic misconduct will be reported to university administration and at minimum will result in automatic failure of the course.

**TENTATIVE CLASS SCHEDULE** by week (for both labs)

Jan 10th  Introduction; Taxonomy-Macroinvertebrate Orders; *Local field trip – Gilley Creek*
Jan 17th  *Local field trip – Sabine River, Hawkins, TX*
Jan 24th  Taxonomy – Fish Orders and Families
Jan 31st  Taxonomy – identify organisms from Gilley Creek and Sabine River
Feb 7th   *Local field trip – Mud Creek, Troup, TX*
Feb 14th  Taxonomy – identify organisms
Feb 21st  *Local field trip – Black Fork Creek, Tyler, TX*
Feb 28th  Taxonomy – identify organisms
Mar 7th   Spring Break
Mar 14th  *Lab Practical* (40% of total grade)
Mar 21st  Introduction to Aquatic Community Ecology Group Study
Mar 28th  *Local field trip – visit group project sites*
Apr 4th   Lab Groups--collect data and process samples
Apr 11th  Data Analysis and Scientific Writing
Apr 18th  *Group Project Presentations* (15% of total grade)
Apr 25th  *Final Lab Reports Due* (25% of total grade)

Note: Due to extreme weather, some rearrangements of this schedule may be necessary.