Syllabus BIOL 4305 – AQUATIC BIOLOGY   **Fall 2025**

Professor:
Marsha G. Williams, HPR 107 (check BEP 118, BEP 128, or BEP 129 if you can't find me),
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Office Hours: T Th 9:30 – 11:00 a.m., or by appointment.

Course Meeting Times and Location: T Th 8:00-9:20 a.m. in Room RBS 1031

Catalog Description: Ecology and general biology of freshwater ecosystems. Emphasis is placed on the interrelationships of biological, chemical, and physical factors.

Course Objectives/Student Learning Outcomes:
   1) Describe the physical and chemical conditions of freshwater ecosystems.
   2) Describe the biota of freshwater ecosystems.
   3) Understand the interrelationships of biological, chemical, and physical factors in aquatic systems.
   4) Critically read, analyze, and interpret research findings.

Required Texts:
Allan, J. D., M. M. Castillo, and Krista A. Capps. 2021. Stream Ecology: Structure and Function of Running Waters. 3rdEdition. Springer, The Netherlands.

A 2nd edition of this textbook is available for free from the UT Tyler library:
https://libguides.uttyler.edu/c.php?g=883817&p=10342100
I have requested that the 3rd edition be procured for free so stay tuned to this website for the latest version.

I will assign primary literature for you to read throughout the semester. I will provide the readings on Canvas. All assigned literature will be eligible for exam materials.

Evaluation:
Students will be evaluated based on the following work:
   1) **Examinations (60%):** Two midterms and a final exam will be given. ***Each will be worth 20% of the final grade.*** In the event you wish to dispute an exam question, an essay outlining your argument must be submitted within one week of the exam being handed back to you.
   2) **Attendance and Participation (20%):** I will take attendance every class period to determine who is coming to class regularly. In class activities will count towards your attendance/participation grade. ***Attendance/participation will be 20% of your final grade***.
   3) **Group presentation:** An in class, group presentation will be assigned later in the semester and will cover a topic in the textbook and/or assigned readings. Grades will be given individually to prevent group conflicts, but the overall cohesiveness and quality of the presentation will be part of this grade. ***This assignment will be worth 20% of the final grade.***

We will follow a 10-point scale for grading, I will only round up a 0.5 or above (e.g., 79.5 would round to 80):

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

At the end of the semester, the grade earned during the course will be the recorded grade. I cannot 'give' grades. I am professionally and ethically obligated to record the grade that was earned over the course of the semester. No end of semester extra credit assignments to improve your overall grade will be available.

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.

Artificial Intelligence (AI) Statement (compiled from the Clemson University website (https://media.clemson.edu/otei/documents/AI-use-statements.pdf) and Dr. Bill, UT Tyler Biology Dept.)**:**

The use of artificial intelligence (AI) tools is integrated into the work for this course. AI tools will be used intentionally to support course learning, and learning outcomes include developing your ability to use these tools effectively. Your ethical use of AI tools must be documented and cited, and you must be able to demonstrate understanding of the content of any work submitted. Please be aware that you are accountable for the responsible, ethical use of these tools. Concerns regarding potential violations of this policy will be reviewed fairly through the appropriate university academic integrity process.

Remember, AI is a tool, just like a pencil or a computer. However, unlike most tools you need to acknowledge using it. Pay close attention to whatever information you use in your own work that is produced from AI and explain how/what you used at the end of assignments. Basic attribution rules still apply. Cite everything,

   i.   Use your prompt as the article title in your citation manager.
   ii.   The software name (Open AI, ChatGPT, etc.) should be cited as the Author
   iii. The date that you access the query can be the publication date – Day, Month and year.
   iv.   Copy and paste the website address for future access.

Some caveats of using AI are discussed below.

The quality of the prompts used is critical to generating successful AI results. If you provide minimum effort prompts, you will get low quality results. You will need to refine

your prompts to obtain better outcomes. This will take practice, and we will strive to improve our skills over the course of this semester.

Don't automatically trust the information the system compiles for you. Assume it is incomplete or inaccurate, until you verify the information with trusted sources. AI works best as a tool when you already have some understanding of the topic being researched. Please note you must always verify the sources that the AI platform provides.

Use your best judgement to determine if/where/when to use these tools. They don't always make products easier and/or better. You should also realize that most of these tools are not designed to work with the scientific literature, rather they rely heavily on popular works and older works that are open to the public; therefore, content and style may be worse than what you can do yourself.

TENTATIVE CLASS SCHEDULE

Week	Lecture Topics
Aug 26th and 28th	Introduction: Rivers in the Anthropocene (Ch. 1), Stream Flow (Ch. 2)
Sep 2nd and 4th	Fluvial Geomorphology (Ch 3); Campus Stream Walk (wear comfortable clothes and shoes)
Sep 9th and 11th	Water Chemistry (Ch. 4), The Abiotic Environment (5)
Sep 16th and 18th	The River Continuum Concept and other River Ecosystem Models (assigned readings)—*End of Material for Exam 1*
Sep 23rd and 25th	Production, Decomposition, and Microbial Ecology (Ch. 6-8); **Exam 1 Sep 25**
Sep 30th and Oct 2nd	Continue Ch. 6-8; Trophic Structure (Ch. 9); Assign Group Projects
Oct 7th and 9th	Species Interactions: Herbivory, Predation, Competition, and Parasitism (Ch. 10); Behavioral Ecology (Drift)
Oct 14th and 16th	Lotic Communities (Diversity; Ch. 11); Energy Flow (Food Webs; Ch. 12) —*End of Material for Exam 2*
Oct 21st and 23rd	Group Presentations (Nutrient Dynamics Ch. 13 and 14)
Oct 28th and 30th	Finish Group Presentations; **Exam 2 Oct 30**
Nov 4th and 6th	Stream Metabolism (Ch. 14); Last Call at the Oasis (Video)
Nov 11th and 13th	How we Manage Rivers, and Why? (Ch. 15)
Nov 18th and 20th	Lakes and Wetlands; Fisheries Management (guest lecture)
Nov 24-28th	**Thanksgiving Break (No Classes)**
Dec 2nd and 4th	TBD—Stay tuned!
Dec 9th	**Final Exam Dec 9th 8:00-10:00 a.m.**

Important Dates:
Sep 1st – Labor Day (no classes)
Nov 3rd – Last day to Withdraw
Nov 24-28th – Thanksgiving Break (no classes)