

Syllabus BIOL 4305 – AQUATIC BIOLOGY

Fall 2026

Professor:

Marsha G. Williams, HPR 107 (check BEP 118, BEP 128, or BEP 129 if you can't find me),
Phone 903-566-6194, Email – mwilliams@uttyler.edu
Office Hours: MWF 9:00 – 10:00 a.m., or by appointment.

Course Meeting Times and Location: MWF 8:00-8:55 a.m. in Room BEP 213

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. 3rd Edition. Springer, The Netherlands.

This textbook is available for free (!) from the UT Tyler library (<https://www.uttyler.edu/library/>). Please visit the library web page and select 'Library-Provided Textbooks' then select 'Biology'. You can scroll down the list and find our textbook available for free download.

I will assign primary literature for you to read throughout the semester. These readings will be available on Canvas. All assigned literature will be included in 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 (20%):** 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

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

<u>Week</u>	<u>Lecture Topics</u>
Aug 24 - 28	Introduction: Rivers in the Anthropocene (Ch. 1), Stream Flow (Ch. 2); Fluvial Geomorphology (Ch 3)
Aug 31 - Sep 4	Life in Freshwater; Fluvial Morphology/Stream Ecology Terms; Campus Stream Walk (wear comfortable clothes and shoes)
Sep 7 - 11	Sep 7 - No class (Labor day) Water Chemistry (Ch. 4), The Abiotic Environment (5)
Sep 14 - 18	The River Continuum Concept and other River Ecosystem Models (assigned readings) — Exam 1 Sep 18
Sep 21 - 25	Production, Decomposition, and Microbial Ecology (Ch. 6-8)
Sep 28 - Oct 2	Trophic Structure (Ch. 9); Assign Group Projects
Oct 5 - 9	Species Interactions: Herbivory, Predation, Competition, and Parasitism (Ch. 10); Behavioral Ecology (Drift)
Oct 12 - 16	Lotic Communities (Diversity; Ch. 11); Energy Flow (Food Webs; Ch. 12)
Oct 19 - 23	Nutrient Dynamics (Ch. 13 and 14) — Exam 2 Oct 23
Oct 26 - 30	Group Presentations
Nov 2 - 6	Stream Metabolism (Ch. 14); Last Call at the Oasis (Video)
Nov 9 - 13	How we Manage Rivers, and Why? (Ch. 15)
Nov 16 - 20	Lakes and Wetlands; Fisheries Management (guest lecture)
Nov 23 -27	Thanksgiving Break (No Classes)
Nov 30 – Dec 4	TBD—Stay tuned!
Dec 9	Final Exam Dec 9th 8:00-10:00 a.m.

Important Dates:

Sep 7 – Labor Day (no classes)

Oct 30 – Last day to Withdraw

Nov 23-27 – Thanksgiving Break (no classes)