

## COURSE TITLE: BIOL 475G – AQUATIC ECOLOGY

- Summer 2021: July 6 – August 5
- Instructor: Dr. Scott Grubbs
- How to contact me: [Email for Dr. Scott Grubbs](#). Please feel free to contact me directly whenever you want. My intent is to always reply within 24 hours. Please also note that I live in the Central Time Zone.
- Textbook: none, but papers may be provided on the course Blackboard site
- Course Lecture Modules: available on your BIOL 475G Blackboard site

### Course Purpose

Aquatic Ecology is intended to provide a holistic background in aquatic sciences with an emphasis with running water systems and freshwater lakes.

### 13 Learning Outcomes

By the end of these short four weeks in this course, you will be able to:

1. List and define several important physical and chemical properties of water
  2. Breakdown and differentiate the hierarchical organization of watersheds and riverine systems into valleys and reaches
  3. Classify lotic systems by stream order
  4. Define and differentiate several channel units of streams and rivers
  5. Compute stream flow (= discharge) and quantify the relationship with channel retention
  6. Classify and contrast tree leaves according to processing rates and calculate the coefficient of mass loss
  7. Classify and differentiate stream macroinvertebrates according to functional feeding groups
  8. Categorize macrobiological riverine communities according to stream size, depth, and streamside riparian characteristics
  9. List and differentiate several origins of natural lakes
  10. Explain and summarize how lake water mixes throughout a season
  11. Explain how carbon and oxygen patterns in lakes change over time and with depth
  12. List and differentiate primary productivity patterns in lakes and riverine systems
  13. Generalize on controversial aquatic ecology topics (e.g., microplastics pollution, mussel extinction, surface coal mining) and justify and defend opinions openly with classmates in discussion boards
- *Note that Learning Outcomes 1–12 will be presented and assessed sequentially with assignments and exams, Outcome 13 will be based on creating (only one per student) and contributing to all Discussion Boards.*
  - *Although I realize perhaps few of you may take content learned in the course and apply this in your personal or professional life, please keep in mind that surface freshwater is a very precious global resource.*
  - *Only 0.02% of global water (including oceans and seas) is present in the form of lakes and ponds, and only 0.0001% is present in rivers, streams, and surface springs.*

## Grading

### Your grade will be based on eight components:

1. Two examinations
  - Exam 1 – 100 pts (20%)
  - Exam 2 – 100 pts (20%)
2. Student topic presentation
  - 75 pts (15%, see below)
3. Student topic paper
  - 75 pts (15%, see below)
4. Four homework assignments
  - Assignment 1 – 25 pts (5%)
  - Assignment 2 – 25 pts (5%)
  - Assignment 3 – 25 pts (5%)
  - Assignment 4 – 25 pts (5%)
5. Leading a topic discussion
  - 5 pts (1%)
6. Active participation in other topics discussions
  - 20 pts (4%)
7. Active participation in two Study Guide Blogs
  - Study guide blog 1 – 10 pts (2%)
  - Study guide blog 2 – 10 pts (2%)
8. Introductory video
  - 5 pts (1%)
  - Overall, your final grade will be based on a straight WKU 10-point grading scale, as: A (100 – 90.0%), B (89.9 – 80.0%), C (79.9 – 70.0%), D (69.9 – 60.0%), F ( $\leq$  59.9%). The format for each exam will be consistent. A variety of question types may be present on each exam, mainly fill in the blank, definition, and compare & contrast. Exam material will include whichever topics we cover prior to each exam. The second exam is not comprehensive.

## Student presentation and paper instructions

The student presentation and paper will be based on a topic that you choose. Please present your idea to me before starting. The philosophy behind this assignment is simple. Some of the best papers are meta-analyses that assemble data and results from several individual papers in order to provide the reader with up-to-date generalizations on a particular topic. The Annual Reviews series ([Overall webpage for the Annual Reviews journal series](#)) provides an outstanding collection of dozens of journals, but these are largely unavailable to WKU students. I will provide you with several examples that should give you ideas of how to organize a paper and presentation.

Your task is two-fold:

1. *Prepare a 12–15 minute combination video and MS PowerPoint lecture based on relevant and recent information. Both Zoom and Blackboard Collaborate Ultra are good vehicles for this assignment, and*
2. *Prepare a paper based on the following requirements:*
  - Minimum 8 pages
  - Must include a cover page, with paper title, your name, class name, and date
  - Double-spaced with 1-in margins using a standard 12-point font
  - Separate and properly formatted References or Literature Cited section
  - Proper citation format throughout the body of your paper.
  - Please keep in mind that there is no singular best way to organize a scientific paper. There seems to be an infinite number of scientific journals, with the number growing each year, each with their own formatting style.
3. *The paper will be submitted via BlackBoard using SafeAssign. I realize that you are limited somewhat by your capacity to access every journal article that you wish to use. If all you have access to is the abstract, and there is clear information available in this summary, you are welcome to include the content provided that you properly cite the source.*
4. *Please be aware of plagiarism: if you take a sentence from someone else's work and only change one or a couple of words, it is still plagiarism even if you cite the source. You must rewrite it in your own words. Plagiarism is a serious offense of academic misconduct: check the student handbook for details, but it can lead to judicial proceedings and even expulsion from the college. Student work may be checked using plagiarism detection software. Each idea has to be referenced (and in the sentence where the idea appears), you cannot simply cite the reference once at the end of a paragraph containing many ideas from the same source. In such cases, you can avoid referencing each idea yet still indicate your source through careful writing, e.g.:*
  - "Roberts and Janovy (1985) were the first to study this phenomenon. They found that ...further, when the ... . Roberts and Janovy go on to state that ... and their conclusion was..."
  - "Roberts and Janovy (1985) were the first to study this phenomenon. In the following paragraph, I will review their work. ...."

## Academic Dishonesty

Students are expected to do their own work throughout this course and demonstrate academic integrity. Academic dishonesty in the form of cheating or plagiarism will not be tolerated. Please refer to the WKU Student Handbook for policies and definitions regarding academic integrity at:

[WKU webpage for academic integrity](#)

Dishonesty on quizzes, exams, or written assignments (see WKU's plagiarism statement below) will result in a failing grade for the class. Cheating (completing an assignment for someone else, allowing someone else to copy your assignment, copying and pasting from internet sources or elsewhere when you have not been instructed that this is acceptable, etc.) on online assignments will be tracked by computer.

*WKU'S PLAGIARISM DEFINITION: "To represent written work taken from another source as one's own is plagiarism. Plagiarism is a serious offense. The academic work of a student must be his/her own. One must give any author credit for source material borrowed from him/her. To lift content directly from a source without giving credit is a flagrant act. To present a borrowed passage without reference to the source after having changed a few words is also plagiarism."*

## **Disability Services**

In compliance with university policy, students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services in DUC A-200 of the Student Success Center in Downing University Center. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.

## **Library Services – Research Appointments with your Personal Librarian**

At WKU Libraries, your Personal Librarians are always ready to help! We have librarians for every program on campus, plus Special Collection librarians and archivists. Our goal is to save you time and help you be successful on term papers and research projects by showing you what you need to know to get started and be successful. Start your research by scheduling an appointment with your Personal Librarian. Find them at [WKU Library webpage](#), call Helm-Cravens Reference at 270-745-6125, or Email for WKU Library.

## **WKU Center for Literacy**

The WKU Center for Literacy is available for all WKU students who would benefit from assistance with reading college-level materials. In addition to a quiet study area, we can also offer small group and one-on-one assistance for reading and writing needs. A weekly study skills seminar series called College Reading Success takes place every Wednesday at 12:45 in GRH 2064. A Blackboard organizational site is available for any distance learners or other interested students who may not be able to physically attend. Please call the Center for Literacy at 270-745-2207, visit us in Gary A. Ransdell Hall 2066, or [Email contact for WKU Center for Literacy](#) with any questions. More information can be found at [Webpage for WKU Center for Literacy](#)