

BIOS: 595: Stream Ecology

CRN: 75185

I. Course Info:

What: Stream Ecology – BIOS 595, CRN 75185, 4 credits
When: Fall 2015, M and W 10:10 - 11:30; evening recitation; 6-8pm Tuesday
Where: GBB 225
URL: Moodle site

II. Instructor Information:

Dr. H. Maurice Valett
Division of Biological Sciences
HS 513A
243 - 6058
email: maury.valett@umontana.edu
office hours: tbd

III. Textbooks (none required – two electronically available):

- i) Allen, J. D. and M.M. Castillo. 2009. Stream Ecology: Structure and Function of Running Waters, 2nd Edition, Springer-Verlag, pp. 436. (ISBN 978-1-4020-5582) – available in Moodle
- ii) Hauer, F.R. and G.A. Lamberti. 2006. Methods in Stream Ecology. 2nd Edition, Academic Press, pp. 877. (ISBN 0-12-332907-8) – electronically available via Mansfield Library

IV. Policies on attendance, academic honesty, and plagiarism

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code available at the following link: [Student Conduct Code](#)

- i) *Attendance:* Attendance is expected and necessary. The instructor recognizes that occasional absence may occur due to a variety of reasons. Students cannot contribute or receive if they are not present. A student's propensity to attend class will be noted in the 'participation' portion of the course grade (see below). Any absence can be considered excused if and only if the student consults the instructor before missing the class.
- ii) *Plagiarism:* Plagiarism will not be tolerated. If the instructor determines that a student has plagiarized any material as part of any content turned into the instructor (or assistants) as part of the course requirements, the student will be dismissed from the course and will receive a failing grade (i.e., F). Further retributions will be determined following the Code of Conduct protocol.

V. Course Content and Structure

1) Learning outcomes

- i) ability to discuss and assert general ecological principles as they pertain to running water ecosystems
- ii) fundamental skills necessary to interpret primary scientific literature directed at ecological issues in running water ecosystems
- ii) composite understanding required to apply concepts and techniques that are fundamental to ecological assessment of streams and rivers to real-world problems influencing form and function

2) Lecture/Discussions: The course is designed to function as a graduate level effort where students and instructor contribute together to provide the course content. In this way, students will be expected to participate in discussion of lecture material, text content, and assigned readings.

3) Recitation: The course will include an evening discussion period of 2 hours duration where the class will address primary literature associated with the lecture topics

4) Class Notebook: We will compile a series of handouts associated with lectures, readings, and laboratory exercises. Notebooks will be collated to generate a comprehensive reference containing schematics, references, and literature citations that will then serve as a future resource. The notebook will be of great importance for the student and will have direct impact on course grades (see below).

VI. Grading - Basis for Scores:

Course grades will be derived from 4 areas:

- A) Class Notebook (20%): The notebook should include handouts associated with lectures and notes from literature discussions. Most important, the notebook should include your class notes. These may be your original notes taken in class or notes included after the original notes have been restructured/rewritten. Students will be expected to bring their notebooks along with them to lecture on the day of (or day before) the first exam and on the last day of lecture to be left with the instructor for assessment and grading.
- B) Class Participation (10%): A good deal of class time will be spent addressing assigned literature and textbook readings. Students will be called on to address literature content and contribute to discussion. The instructor will grade student participation including an assessment of attendance in the classroom.
- C) Exams (45%): Two exams will be offered during the semester; both will be 2-hr exams executed through Moodle. The first exam will cover all materials presented prior to the exam and will consist of approximately 10 short-answer written questions. The final exam will also be a written exam designed to be comprehensive and cumulative. The first exam is worth 20% of the grade and the final is worth 25%.
- D) Recitation (25%): Participation in discussions and ability to display a working knowledge of the literature.
- E) Grade assignment: All students will receive the grade they have earned. No extra-credit points will be available at any point during the course. Grades are generally distributed as follows: A (90 – 100%), B (80-89%), C (70-79%), D (60-69%), F (< 60%). Plus and minus marks will be applied as determined appropriate by the instructor.

VII. Course topics and dates:

Section I - Stream Templates: physical, chemical, and biological features		
Day	Date	Topic
Monday	Aug 31	introduction/overview/ hydrology and stream channels I
Wednesday	Sep 2	hydrology/stream channels - II
Monday	Sep 7	Labor Day – no class
Wednesday	Sep 9	stream water chemistry
Monday	Sep 14	physical factors important to the biota
Wednesday	Sep 16	periphyton/autochthonous OM
Monday	Sep 21	allochthonous organic matter (Dr. Marc Peipoch)
Wednesday	Sep 23	trophic relations

Section II - Population Ecology: predation, competition, herbivory and drift		
Day	Date	Topic/Module
Monday	Sep 28	predation
Wednesday	Sep 30	herbivory
Monday	Oct 5	competition
Wednesday	Oct 7	

Section III - Community Ecology: diversity, disturbance, and niches		
Day	Date	Topic
Monday	Oct 12	drift and colonization
		first Exam
Wednesday	Oct 14	diversity and community concepts
Monday	Oct 19	diversity and community concepts
Wednesday	Oct 21	diversity and community concepts

Section IV - Ecosystem Ecology: energy flow, OM dynamics, and nutrient cycling

Day	Date	Topic
Monday	Oct 26	metabolism & energy flow 1
Wednesday	Oct 28	metabolism & energy flow 2
Monday	Nov 2	OM dynamics 1
Wednesday	Nov 4	OM dynamics 2
Monday	Nov 9	biogeochemical cycles
Wednesday	Nov 11	nutrient spiraling
Monday	Nov 16	hyporheic zones 1 - transient storage
Wednesday	Nov 18	hyporheic zones 2 - biota
Monday	Nov 23	travel day – no class
Wednesday	Nov 25	Thanksgiving break – no class
Monday	Nov 30	disturbance and succession 1
Wednesday	Dec 2	disturbance and succession 2

Section V - Landscape Ecology: large scale models, land use, and anthropogenic influences

Day	Date	Topic
Monday	Dec 7	large river systems
Wednesday	Dec 9	large river systems

Final Exam: 8-10AM Wednesday, Dec 16, 2015