

## **Entomology 4050 : Freshwater Biomonitoring**

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### **Course Outline:**

**Week 1:** Introduction to biomonitoring  
**Week 2:** Clean water act and water policy  
**Week 3:** Sources and types of contaminants, quiz 1  
**Week 4:** Bioavailability of contaminants, paper discussion, quiz 2  
**Week 5:** Stream hydrology and characteristics, test 1  
**Week 6:** Physical factors affecting aquatic biota, quiz 3  
**Week 7:** Macroinvertebrates in aquatic systems, quiz 4  
**Week 8:** Ecology of aquatic insects, paper discussion, quiz 5  
**Week 9:** Life history of aquatic insects, quiz 6  
**Week 10:** River continuum concept, test 2  
**Week 11:** History of biomonitoring, quiz 7  
**Week 12:** Scales and types of biomonitoring, paper discussion, quiz 8  
**Week 13:** EPA rapid bioassessment protocol, quiz 9  
**Week 14:** RIVPACs, AusRivAS, BEAST assessment protocols, quiz 10  
**Week 15:** Multimetric vs multivariate assessments, project presentations  
**Final Exam**

### **Course Requirements:**

**Tests:** 2 tests + final exam

**Quizzes:** 10 quizzes on lecture materials

**Group Project and Presentation:** Students will divide up into groups and will be assigned streams to assess using methods and protocols learned in the laboratory section of this course. The data gathered will be analyzed and presented to the entire class.

**Class Attendance and Participation:** Students are expected to attend class and participate in the discussion of lecture topics.

**Grading Policy:** Grades will be determined from total points accumulated from tests (30%), quizzes (10%), final exam (15%), and group project (15%). Additional points will be obtained from three tests (30%) in the laboratory section of this course.

**Attendance Policy:** Everyone is expected to attend class unless notifying the instructor that they will not be able to attend for specified reasons. A total of five unexcused absences will be allowed before points for participation will be revoked.

**Required Course Material:** There is no required text for the lecture portion of this course. Students will be given references for information used in class or handouts will be provided.

**Make-Up Test or Exam Policy:** Students must inform the instructor prior to the test date of any conflict in schedule that will prohibit them from taking the test or exam unless an emergency situation arises. In case of an emergency, a written explanation must be provided. An alternate date and time will be agreed upon between the student and instructor. Failure to take a test or exam without notification will result in no points obtained by the student.

## Entomology 4050L: Freshwater Biomonitoring Lab

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**Text:** *Aquatic Insects of North America*, R.W. Merritt and K.W. Cummins (eds.), Kendall/Hunt Publishing 1996.

### **Course Outline:**

- Week 1:** Classification of aquatic insects and use of taxonomic keys (Video), sampling aquatic insects (Video)
- Week 2:** Demonstration of aquatic insect samplers and water quality instruments, demonstration of Rapid Bioassessment procedures, field assessment stream 1
- Week 3:** Ephemeroptera
- Week 4:** Odonata
- Week 5:** Plecoptera
- Week 6:** Test 1
- Week 7:** Field assessment stream 2
- Week 8:** Hemiptera (Heteroptera), Megaloptera, Neuroptera
- Week 9:** Field assessment stream 3
- Week 10:** Trichoptera
- Week 11:** Test 2
- Week 12:** Field assessment stream 4
- Week 13:** Coleoptera
- Week 14:** Diptera, other macroinverts
- Week 15:** Test 3

### **Course Requirements:**

**Tests:** 3 tests

**Group Project and Presentation:** Students will divide up into groups and will be assigned streams to assess using methods and protocols learned in this course. The data gathered will be analyzed and presented to the entire class.

**Grading Policy:** There is no credit for the laboratory. All points obtained from the lab will be added to points obtained from the lecture component of this course. Points for the lab will comprise 30% of the final grade for the entire course.

**Attendance Policy:** Everyone is expected to attend class unless notifying the instructor that they will not be able to attend for specified reasons.

**Make-Up Test or Exam Policy:** Students must inform the instructor prior to the test date of any conflict in schedule that will prohibit them from taking the test or exam unless an emergency situation arises. In case of an emergency, a written explanation must be

provided. An alternate date and time will be agreed upon between the student and instructor. Failure to take a test or exam without notification will result in no points obtained by the student.