IST 435, PS 581 – Biomonitoring

 4:00 pm Thursday ML 119 Fall 2017

**Instructor:** Thomas G. Jones Office: Morrow 115 Phone: 389-5832 E-Mail: Jonest@Marshall.edu

**Required Texts:**

Stream Hydrology: An Introduction for Ecologists**.** 2004 2ed ISBN 978040843581

Fishes of Indiana Thomas P. Simon. 2011. ISBN 978-0-253-22308-1

Introduction to Aquatic Insects of North America, Merritt and Cummings 4th edition ISBN 978-0-7575-63218

**Purpose:**

 A foundation of environmental assessment is the utilization of aquatic communities to monitor water quality. This course introduces students to several protocols that utilize biological community structure to monitor streams. These procedures are more sensitive to many environmental changes than traditional chemical analysis.

**Course Content:**

 The biomonitoring protocols introduced in this course include the Rapid Bioassessment protocols (RAPIDs), EPA EMAP protocols (EMAP), West Virginia Stream Condition Index (WVSCI), A Macroinvertebrate Bioassessment index for the headwater streams of the eastern Coalfield region, Kentucky (MBI)**,** and the Index of Biological Integrity (IBI). These protocols are utilized by federal and state agencies that are mandated to protect the freshwater environments of the United States. The lecture portion of the course will cover the history, construction, and interpretation of each protocol. Laboratory sessions will cover the data collection, taxonomy, data entry and metric calculations.

**Course Student Learning Outcomes and Assessment Measures:**

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| Course Student Learning Outcome  | How Practiced in this Class | How Assessed in this Course  |
| Students will be familiar with the stream ecology literature and laws that forms the basis of biomonitoring assessment. | Class lecture (CL), Hands on examples and discussion (HOED) | Class projects, paper, & presentation  |
| Students will be familiar with the collection, calculation, and interpretation of stream biomonitoring assessment indices. | CL, HOED | Class projects, paper, presentation, quizzes & exams |
| Students will be familiar with the collection, calculation, and interpretation of stream habitat assessment indices. | CL, HOED | Class projects, paper, presentation, quizzes & exams |
| Undergraduate students will be able to identify regional benthic invertebrates to family level. Graduate students will be able to identify regional benthic invertebrates to family level. | CL, HOED | Class project, quizzes, & exams paper |
| Undergraduate students will be able to identify region fish to genus level. Graduate students will be able to identify regional fish to species level.  | CL, HOED | Class project, presentation, quizzes & exams |

**Class Attendance:** In this course the instructor will require active participation of each student during each class meeting. Class participation points and homework will only be accepted late, when accompanied with appropriate documentation. By missing class you will not be able to participate in class discussions and the class will not benefit from your ideas and comments. If you are absent, you must contact the professor as soon as possible.

**Students with Disabilities:** Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities.  University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability.  Following this, the DSS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading.  The instructor and student will meet to discuss how the accommodation(s) requested will be provided.  For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.”

The reason for this request is so that students with disabilities understand both their rights and responsibilities regarding requesting accommodations.

**Policy on Academic Dishonesty:** I take cheating very seriously. I will follow the student handbook on definitions and actions precisely.

**Other Policies:**

By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <http://www.marshall.edu/academic-affairs/?page_id=802>

Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

**Requirements:**

 Assignments Possible Points

 HSI project 100pts

Lab Quizzes (5) 100 pts

 Lab Test (2) 200 pts

 Lecture exams (3) 300 pts

 Field Project 200 pts

 Presentation 100 pts

 Collections 200 pts

 Total: 1200 pts

**Grading Scale:**

 90% - 100% = A

 80% - 89% = B

 70% - 79% = C

 etc…

**Office Hours:**

Tuesday 8:00 am to 9:15 am and 2:30 to 3:30 pm; Wednesday 1 pm to 5 pm if scheduled ahead of time; Thursday 2 pm to 5 pm

**Schedule:**

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| Topics: Week 1: Aug 21 Introduction/habitats |
| Week 2: Aug 28 Habitats/hydrological cycle |
| week 3: Sept 4 Stream Morphology – Basic laws  |
| week 4: Sept 11 HIS projects- WV SOS Bug ID |
| week 5: Sept 18 Intro to benthic - Orders/Families EPT  |
| week 6: Sept 25 Knowledge celebration (exam) I – Habitats/basic ecology/Laws - bug ID |
| week 7: Oct 2 WV SCI – bug ID |
| week 8: Oct 9 KY Eastern coal field – bug ID |
| week 9: Oct 16 WV fish Index – Bug lab Test |
| week 10: Oct 23 Knowledge celebration II – Benthic invert indices – Fish ID |
| week 11: Oct 30 ORFIN – Fish ID |
| week 12: Nov 6 ORFIN |
| week 13: Nov 13 WV Fish Index  |
| week 14: Nov 20 Thanksgiving Break |
| week 15: Nov 27 Other Fish Techniques - Fish lab test |
| week 16: Dec 4 Review; Closing materials |
| Week 17: Dec 11 Final Knowledge celebration III (exam) – Fish indices |