

E443/E555 – Aquatic Habitat Analysis
Summer 2003

Tuesday & Thursday 8:00 a.m. - 12:00 p.m., SPEA 272 or Field (meet at SPEA loading zone for field days)
Some labs may depart earlier than 8:00 a.m.

Instructor: Melissa Clark

Lab: 375 SPEA
Office Hours: Tuesday 1-3 & by appointment
Office Phone: 855-1600
Home Phone: 323-9919 (before 10 p.m.)
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Secretary: Jennifer Mitchner

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Class Web Page

www.spea.indiana.edu/mlaney/e443.htm

Teaching Assistant: Craig Tapscott

Lab: 445 Geology
Office Hours: Thurs. 2-4 & by appointment
Email: ctapscot@indiana.edu

Required Texts

- 1) Reid, Pond Life, Golden Books Publishing Company, 1967.
- 2) Ambrose and Ambrose, A Handbook of Biological Investigation, 6th edition, Hunter Textbooks, 1995. I STRONGLY recommend this book as a guideline for writing scientific papers.
- 3) Readings on reserve in SPEA library (R)
- 4) A field notebook

Recommended Texts

- 1) Any good aquatic life textbook.
- 2) Habitat Suitability Indices - <http://www.nwrc.usgs.gov/wdb/pub/hsi/hsiindex.htm>

Required Equipment

- 1) Field notebook. Please do not use a spiral-bound notebook.
- 2) Pencils for taking notes in the field (pens smear in the rain!).
- 3) Sturdy sandals, don't recommend flip-flops, or water shoes. Be sure it is a shoe that you do not mind getting wet. for wading in lakes and streams.
- 4) Water and snacks.
- 5) Personal medical supplies, such as allergy medication.
- 6) Field books. Always bring your field guides to laboratory outings.

Recommended Equipment

- 1) Sunblock and insect repellent.
- 2) Rain gear.
- 3) Clipboard for notetaking.
- 4) Chest waders if you have them. Otherwise SPEA has some for students to use.
- 5) Some days long pants are desirable, but most days short will be fine and preferred.

Course Description

Aquatic Habitat Analysis is a hands-on field course that combines the disciplines of ecology, natural history, statistics, and environmental policy to understand the habitat requirements of a variety of aquatic species. We will evaluate and measure various characteristics of the aquatic environment and determine the suitability of these characteristics for a variety of aquatic species.

Course Objectives

By the end of E443/E555, each of you should have experiential and theoretical understanding of the concept of *habitat* and what that means for a variety of aquatic species. To this end, you will learn:

1. The natural history and field identification of a wide variety of plants and animals living in the many aquatic areas around Bloomington;
2. Ecological field techniques for assessing species populations, community distribution, and natural/human changes to the aquatic ecosystem;
3. How to read the aquatic landscape to interpret the history and dynamics of an area; and
4. How to present your research findings in a scientific paper.

Policies

- ✓ Please attend all lectures and labs. Each class is worth 5 points toward your final grade. We only have eight weeks to cover a large amount of material. If you need to miss a lecture or lab, please inform Melissa ahead of time (this probably count as an excused absence). If you have to miss class unexpectedly, please contact Melissa as soon as possible (documentation is required for these to be excused absences). **Absences = lost points.** Excused absences lose 2.5 points for the day missed whereas unexcused absences lose the entire 5 points for the day missed.
- ✓ Students are responsible for all note taking and data collection. This reinforces the importance of student attendance and participation.
- ✓ Assignments must be typed, concise, organized, and supported with relevant literature (please see the bibliographic citation rules section). A poorly written assignment will not receive full credit. **We will not accept unexcused late assignments.** Excused late assignments will lose 5% of the total points of the assignment per day of lateness. **You must ask for an extension BEFORE the assignment is due.** If you ask for an extension after the due date (i.e., at the end of class), you will receive a zero for that assignment. **All assignments are due at the beginning of class.**
- ✓ **No electronic submissions of assignments will be accepted.**
- ✓ Please complete all reading assignments before class. Keeping up with the readings will ensure that you keep up with the fast pace of the lectures and labs.
- ✓ **Please be on time.** The vans will leave SPEA at 8:00 a.m. (SPEA time) or earlier (we will announce earlier times in lecture and via email). If you arrive to SPEA at 8:01 a.m. expect to miss the vans.
- ✓ Please work within sight of at least one other student while we are in the field. Play it safe and follow the 'buddy system.'
- ✓ Topics and assignments will follow the class schedule as closely as possible; **however, this schedule is subject to change.** Adjustments to topics and due dates may occur.
- ✓ Academic misconduct, as defined by Section IIIA of the Indiana University Code of Student Rights, Responsibilities and Conduct ('the code') will be handled as described by the code. Please see <http://campuslife.indiana.edu/Code/index.html> for an online copy of the code. If it is determined that any form of academic misconduct has been committed, an "F" will result for that student's grade for the course.
- ✓ **Material from the internet is not allowed as a primary source.** It is not peer-reviewed; therefore, anyone can publish anything! While the internet can be a rich information source, such material is acceptable as a supplemental source only. Material from non-governmental sites must be approved by Melissa before use as a reference.

Grading

Final grades will be based on the point system below. Some of the homework assignments will be individual and some will be group. You will know ahead of time what to expect.

<u>Assignments</u>	<u>Date</u>	<u>Points</u>
Attendance	---	60
Quizzes (3)	Unannounced	30
Field notebook I	July 15	5
Final project proposal	July 15	10
Rapid Bioassessment Protocol report	July 22	40
Fish QHEI	July 29	30
Herpetile/aquatic vegetation report	August 5	30
Waterfowl Mgt. Report	August 12	10
Final project report	August 14	40
Final project presentation	August 14	20
Field notebook II	August 14	5
Total Points		270

Class Schedule

Vans for Thursday labs leave promptly at 8:00 a.m. unless otherwise specified.

Day	Date	Topic	Readings
T	June 24	Introduction to class, basic skills, and stream habitat. SPEA 272	--
R	June 26	Rapid bioassessment protocol (RBP) lab – Stream morphology I. Meet at SPEA loading zone. <i>GriffyCreek/JacksonCreek</i>	1) Reid pp. 4-28 2) www.epa.gov/OWOW/monitoring/rbp/ch05main.html - RBP Ch 5 3) www.usda.gov/stream_restoration/newgra.html - Ch 1 & 2 4) Horne & Goldman - Streams & Rivers (R)
T	July 1	RBP lab - Macroinvertebrates I. Meet at SPEA loading zone. <i>Griffy Creek/Jackson Creek</i>	www.epa.gov/owow/monitoring/rbp/ch07main.html - Ch 7: Multihabitat Approach
R	July 3	NO CLASS	--
T	July 8	RBP lab - Stream morphology II. Meet at SPEA loading zone. <i>Griffy Creek/Jackson Creek</i>	Vannote et al. – RCC (R)
R	July 10	RBP lab - Macroinvertebrates II. Meet at SPEA loading zone. <i>Griffy Creek/Jackson Creek</i>	Same as for July 8
T	July 15	RBP - Macroinvertebrate ID. SPEA 272. Final Project Proposal Due. Field Notebook Check I.	1) McCafferty – Intro to Insect Orders (R) 2) Reid pp. 74-119
R	July 17	RBP - Macroinvertebrate ID. SPEA 272.	1) Same as for July 15 2) Karr et al. (R)
T	July 22	Fish QHEI lab I. Meet at SPEA loading zone <i>Clear Creek</i> RBP Report Due	1) www.epa.gov/owow/monitoring/rbp/ch08main.html (Ch 8) 2) www.epa.gov/owow/monitoring/rbp/app_c-1.html (Appendix C - Do not print out – just FYI and for report if needed) 3) Ohio EPA (R)
R	July 24	Fish QHEI lab II. Meet at SPEA loading zone. <i>Clear Creek</i>	1) Reid pp. 120-128 2) Pflieger pp. 1-17 (R) 3) Pliieger – Intro to Each Family (R)
T	July 29	Herpetile/aquatic vegetation lab. Meet at SPEA loading zone at 7:45 a.m. <i>Griffy Lake.</i> Fish QHEI Report Due	1) Reid pp. 30-73 & 129-139 2) Wetzel – Littoral Communities ch 18 (R)
R	July 31	Herpetile/aquatic vegetation lab. Meet at SPEA loading zone at 7:45 a.m. <i>Yellowwood Lake.</i>	1) Harding (R) 2) Wetzel – Structure & Productivity of Aquatic Ecosystems ch 8 (R)
T	Aug 5	Waterfowl lab I. Meet at SPEA loading zone Location TBA Herpetile Report Due	1) Reid pp. 143-151 2) HSI: TBA www.nwrc.usgs.gov/wdb/pub/hsi/hsiindex.htm
R	Aug 7	Waterfowl lab II. Meet at SPEA loading zone Location TBA	Same as for Aug. 5
T	Aug 12	Final project work day ~ CLASS DOES NOT MEET Waterfowl Report Due by 5:00pm in Melissa's Mailbox	--
R	Aug 14	Final project presentations. SPEA 272 Final Project Reports Due. Field Notebook Check II.	--

Bibliographic and Citation Rules

1. Always cite everything that you quote directly or paraphrase.
2. Use in-text citations whenever you quote or paraphrase.

Frequently asked questions:

1. *If I paraphrase a whole page, how should I cite?*
First, it should not be necessary for you to paraphrase an entire page. If you do paraphrase a long paragraph, cite the author(s) in the beginning of the paragraph. For example: According to Clark (1998), in "Bibliographic and Citation Rules for SPEA E100," paraphrasing should be kept to a minimum...
2. *Should I include page numbers with my in-text citations?*
"Include page numbers only with direct quotes" (Clark, 1998, p. 1). Otherwise only include pages for journal articles in your bibliography.
3. *If I use in-text citations, why do I need to list them in the bibliography too?*
To give full credit to the authors you cited, you must list full references in your bibliography. This also gives me a chance to check your references if necessary.
4. *This article doesn't list an author, how should I cite it?*
Use the organization, the journal title or the publisher as the author.

The rest of the information in this handout was taken from Day, R.A. 1988. How to Write & Publish a Scientific Paper. Oryx Press.

In text citations (credit immediately following a quote or paraphrase) - You may use ONE three styles for in-text citation. Be consistent with your style - use one and only one style throughout your paper.

1. Name and year system - list the author(s) and the year of the publication. If the reference has 1-2 authors, list both. If the reference has three or more authors, list the first author, then et al., then year (Clark et al., 1998). List all authors in the references.
2. Alphabet-number system - alphabetize references and number in order (if your list is Clark, Johnson, Yancy, your citations are 1, 2 and 3, respectively). Refer to your reference in-text by number only. For example "Include page numbers only with direct quotes" (1).
3. Citation-order system - similar to alphabet, except you number in order of the citation's first appearance within your text. If I cited something Yancy said before Clark, Yancy is (1) and Clark is (2) for the duration of the paper.

Reference styles:

Books →

Day, R.A. 1988. How to write and publish a scientific paper. 3rd ed. Oryx Press, Phoenix, AZ.

Journal articles →

Huth, E.J. 1986. Guidelines on authorship of medical papers. *Annals of Internal Medicine*. 104(2):269-274. [for your information: 104 = volume number and (2) = issue number]

Web site →

Smith, J.A. 1998. Rules for manuscript preparation. Society of Environmental Toxicology and Chemistry. <http://www.setac.org/manuscript>. Last visited 9/8/98.