

Biology 488, Fall 2014

Identification of Aquatic Organisms

Required texts and keys:

- Borman, S., R. Korth and J. Temte. 1997. Through the looking glass....: a field guide to aquatic plants. University of Wisconsin-Stevens Point Foundation Press. Stevens Point, WI (BKT 1997)
- Needham, J.G. and P.R. Needham. 1988. A guide to the study of fresh-water biology. McGrawHill (N&N 1988)
- Voshell, J.R., Jr. 2002. A guide to common freshwater invertebrates of North America. McDonald & Woodward Publishing Co., Blacksburg, VA. (V 2002)

Course description: On line taxonomic and identification exercises. Instruction and practice in the identification of algae, aquatic macrophytes, zooplankton and benthos.

This course is presented on the Blackboard Learn website: Log in on the ISU homepage (www.iastate.edu) and click on the Blackboard tab at the top of the page. You must be registered in the course and have a valid ISU computer login name to access this page. Your login name and password are the same as you use for e-mail. If you do not have one, you need one and can get it at: <http://asw.iastate.edu>. Off-campus students who do not have an e-mail address at ISU (ending in @iastate.edu) should contact the instructor by e-mail and a login procedure will be created.

Important: Before you begin the course, sign on to the Blackboard Learn site using your computer login and password (the usual one you use for ISU e-mail), and do a "Browser Check". Follow the instructions for updating your browser then make sure you have the Real Player and Flash Player plug-ins installed. You will not be able to view all of the course content unless you do this for every computer you will use for taking this course.

Course objectives: Students will:

- learn to recognize and distinguish the major groups of organisms inhabiting fresh waters
- learn the key characteristics used to differentiate the organisms of fresh waters
- be able to recognize the most important genera of aquatic organisms by sight

Assessments and Exams:

- You may use your textbooks (taxonomic keys) and no other documentation for all assessments and exams. This is on the honor system.
- Please complete the first 12 modules by mid-term and take the mid-term exam by the end of the 6th calendar week of classes.
- Please complete the final 11 modules and take the final exam by Wednesday of finals week at 5 pm.

Grading:

Evaluation	Points
(1) 23 on-line assessments (10 points each)	230
(2) (2) Mid-term exam	50
(3) (3) Final exam	50
Total Points	330

You may view your point totals anytime on Blackboard Learn under the "grades" tab.

Final Grades: Percentage Grade 90-100% = A 80-89% = B 70-79% = C 60-69% = D Below 60 % = F
Plus/minus grades will be used.

General course approach: Students will guide their own learning through the use of taxonomic keys, on-line lessons and self-paced assessments. Readings and practice will be provided by the recommended keys.

These keys are meant to provide the learner with concrete learning tools as well as useful reference volumes for future use. Learning modules and lessons will cover the taxa considered to be the most important or common. Although students will be expected to learn to use the keys and understand the terms used in identification, students will only be expected to identify the taxa presented in the on-line lessons.

The order of topics is suggested below but students may choose to complete these lessons in any order. Completion of a section will be indicated by taking the quiz associated with each topic area. Although assessments are open-book, students are expected to work independently on these and ensure that assessments reflect their own, independent abilities. Any breach of these guidelines will be dealt with following ISU's code of ethics.

Special needs: Please address any special needs or special accommodations with me at the beginning of the semester or as soon as you become aware of your needs. Those seeking accommodations based on disabilities should obtain a Student Academic Accommodation Request (SAAR) form from Disability Resources (DR). DR is located on the main floor of the Student Services Building, Room 1 076. Their phone number is 515-294-6624, TDD 515-294- 6335 or email Steven Moats at smoats@iastate.edu. For off-campus students with special needs, please see the note at the end of the syllabus. On campus students with special needs may make special testing arrangements by calling or e-mailing Lori Johnston at 1200 Hixson-Lied Student Success Center (294-5197; loricisu@iastate.edu). Campus turnover in various jobs can be substantial so let me know if you are having difficulty getting accommodation. If there are ways in which I can help you with this, let me know.

Off-campus students with special needs:

- Students must work with Student Disability Resources (SDR) to establish eligibility as set out at www.dso.iastate.edu/dr/ on the 'documenting a disability' link
- SDR staff will initiate a SAAR form, indicate the appropriate accommodations. SDR staff will sign/date, and then mails the form to the student for his/her review and signature.
- After student reviews, signs and dates the SAAR form, he or she retains the green copy of the form. Student will then mail the form to the professor/instructor for review and signature indicating accommodations will be granted.

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Class Schedule

Topic	Study assignment	Module number
Introduction	BKT 1997, N&N 1988, V 2002	01
Microscopic organisms		
Phytoplankton	Section I, N&N 1988	
Cyanobacteria (Blue-green algae)	Section I, N&N 1988	02
Chlorophyta (green algae)	Section I, N&N 1988	03
Bacillariophyceae (diatoms)	Section I, N&N 1988	04
Desmidiaceae (desmids)	Section I, N&N 1988	05
Protozoans & Rotifers	Section II, N&N 1988 Section IV, N&N 1988	06
Microcurstacea: cladocera, copepods and ostracods	Section VI, N&N 1988	07
Macroscopic animals		
Large crustacea and watermites	Section Vi, N&N 1988 p. 82-83, 103-107, V 2002	08
Flatworms, leeches, oligochaetes and tardigrades	P.88-90, V 2002 Section III, N&N 1988	09
Molluscs: snails, mussels & clams	p. 91-102, V 2002 Section V, N&N 1988	10
Bugs and beetles that are aquatic as adults	p. 108-120, V 2002 Section XI, N&N 1988	11
Odonates: damselfly and dragon larvae	p. 121-127, V 2002 Section X, N&N 1988	12
Take mid-term exam covering first 12 modules		1-12
Megaloptera, Neuroptera and Plecoptera: larvae of hellgrammites, Dobsonflies, fishflies, alderflies and stoneflies	p. 128-136, 147-148, V 2002 Sections VII-VIII, N&N 1988	13
Ephemeroptera: mayfly larvae	p. 137-146, V 2002 Section IX, N&N 1988	14
Trichoptera: caddisfly larvae	p. 149-164, V 2002 Section XII, N&N 1988	15
Coleoptera larvae: water pennies, beetle larvae	p. 165-170, V 2002 Section XIV, N&N 1988	16
Dipteran larvae: chironomids, mosquitoes, crane flies and other flies	p. 171-187, V 2002 Table page 31, Section XIII, Plate XIIIB, N&N 1988	17
Macroscopic plants		
Free Floating plants	p. 97-107, BKT 1997	18
Emergent plants with narrow leaves	p. 1-71, BKT 1997	19
Emergent plants with broad leaves	p. 72-95, BKT 1997	20
Floating-leaf plants	p. 109-121, BKT 1997	21
Submersed plants with leaves along entire length of stem (vining)	p. 123-203, BKT 1997	22
Submersed plants with rosette leaves	p. 204-233, BKT 1997	23
Take final exam covering modules 13-23		

