Huffman **Biology 3460** Fall 2006

AQUATIC BIOLOGY

A. OFFICE HOURS: Mon 10-12, Tue.Th. 3-5, or by appointment. My office is 212 Freeman Aquatic Biology Bldg. **Please call in advance** (at 245-3550) to make arrangements for a conference. I can be reached by e-mail at (dh09@txstate.edu).
The lab instructor is Brad Caston. **He has my authority with you when we are in the field**. His email is cc1319@txstate.edu. Please check his entries in the Staff section of BlackBoard for contact info and office hours.

B. TEXTS:

Required For Lecture - Dodds (2002) FRESHWATER ECOLOGY: CONCEPTS AND ENVIRONMENTAL APPLICATIONS. Academic Press. ISBN: 0-12-219135-8

Required For Lab - Thorp & Covich (2001) ECOLOGY AND CLASSIFICATION OF NORTH AMERICAN FRESHWATER INVERTEBRATES, 2e. Elsevier (Academic Press); ISBN: 0-12-690647-5.

Optional for Lab - Merritt & Cummins (1996) AN INTRODUCTION TO THE AQUATIC INSECTS OF NORTH AMERICA, 3e. (spiral bound) ISBN 0-7872-3241-6

Bring Dodds to lecture and the lab books to the lab meetings.

C. COURSE OBJECTIVES**:**

1. To provide you with a background in Aquatic Biology that will prepare you for the advanced courses and graduate work in the Aquatic Biology program at Texas State.
2. To provide you with enough experience with the identification of aquatic macro organisms that you will be able to:
   a. identify, or know where to go to identify, virtually any animal out of Texas lakes and streams, and
   b. qualify for many jobs requiring skills with identification of aquatic macro organisms and aquatic ecology.
3. To give you what you need to be an informed voter regarding water issues in Texas.

D. ABSENCE POLICY:
Upon the accumulation of nine (9) hours of absence in any Biology course, a student may receive a grade of F in that course (Biology Department policy). Note that it is YOUR responsibility to keep track of your own absences.

E. LECTURE:
This is an academically rigorous upper division course. It is designed to be challenging to mature, dedicated, biology majors aspiring to excel as aquatic ecologists and field naturalists.

Lecture meetings will open with a call for questions regarding the previous lecture and a call for comments about recent aquatic news, or personal encounters of the aquatic kind.

Lectures will be projected from PowerPoint and much of the formal lecture material will be available on the BlackBoard web site for the course (you can enter through TxState web page). Be sure you are using a version 7.x or later of Netscape or version 5 or later of Internet Explorer. Also make sure you have Adobe Acrobat Reader v7.x, Macromedia Flash Player v7, and Apple QuickTime Player 6.x installed. There are several computer labs on campus already equipped with all this software, as well as MS Office.

After I have finished presenting a lecture unit, I will prepare a pdf file of the lecture to post on BlackBoard, along with the actual ppt file. I will send you an email advising you of their availability. They will be available under the Course Documents button and the **Lectures** folder, and the **Notes** link.

Questions, comments, and other forms of engagement are strongly encouraged at all times during lecture and lab.

F. LABORATORY:

Please refer to Brad's laboratory section on BlackBoard.

G. LECTURE EXAMS**:**

There will be one (1) "hourly" lecture exam (at around mid-semester) and a final lecture exam. The final will not be comprehensive, but simply serves as the second exam covering the balance of material. Approximately 90% of the questions on exams will be material discussed in lecture. About 10% will be material from the reading assignments but not discussed thoroughly in lecture. Most of the credit on the lecture exams will be from drawings and major essays.

There may be several graphs to be drawn on an exam. A numbered list of required labels will be provided for each required drawing. The labels on the drawings should be numbered in accordance with the numbers in the list. The drawings should be large and detailed, and the numbered labels properly connected to the drawing. Fortunately for many of you, artistic aesthetics are not expected (and will not count extra).

Essays will be graded critically for evidence that you have developed a working knowledge of concepts. Your written answers should directly, specifically, and exclusively address the question, and should be precise (everyone reading your answer for the first time should come to the same understanding) and pedagogically complete (**your written answers and drawings should be sufficient to actually provide a working knowledge of the concept to someone who has adequate background preparation**).

A study guide with a list of practice essay questions (including those requiring drawings) will be posted on BlackBoard a week before both scheduled exams. **All** major essay questions and required drawings on the exam will come directly, word-for-word from those in the study guide. However, the study guide will not have the lists of labels that will be required for the drawings. At any time after you receive the study guide, you may ask me to critique your practice drawings or essays.

We will schedule a review session just before the exams to clear up any remaining questions or issues.

H. GRADE CURVE**:**

I grade on a straight scale, regardless of the class mean: <60=F, 60-69=D, 70-79=C, 80-89=B, and 90-100=A.

I. GRADE CALCULATIONS**:**
Lecture exams will count 50% of the final grade. The laboratory grade you get from Brad will count 50% of your final grade in the course. Check Brad's enry on BlackBoard for spe-

cifics about your lab grade.

J. STUDY TIPS**: If you anticipate having difficulty with this course, I URGE you to strike up an acquaintance with one or two of your classmates and plan to study and do field work together weekly. This will probably be worth at least a letter grade to you.**

You should read all assigned material, and search the web for additional info.

K. LECTURE EXAM SCHEDULE**:**

- Tuesday. October 10. 7: Midterm lecture exam.
- Thursday, December 7 @ 8:00am-10:30am: Final Exam.

L. WEEKLY CLASS SCHEDULE**:** These listings are tentative and subject to change. Use them as a guide. I will occasionally announce changes, and post a revised version of the table that follows.

Aquatic Biology Lecture and Exam Schedule, Fall 2006

Date	Wk#	Day	Lect #	Lab #	Topic/Event	Readings
08/24/06	1	Thu	1		Orientation and introduction to aquatic biology	Dodds, pp xvii-xviii, Chapter 1
08/28/06	2	Mon		1	Lab orientation; Insect morphology; Taxonomic keys; Introduction to insect orders	
08/29/06	2	Tue	2		Water (Duh!)	Dodds, Chapters 2 & 3
08/31/06	2	Thu	3		Introduction to hydrology	Dodds, Chapter 4
09/04/06	3	Mon	*No Classes*			
09/05/06	3	Tue	4		Introduction to hydrology	Dodds, Chapter 4
09/07/06	3	Thu	5		Physiography of streams	Dodds, Chapter 5
09/08/06	3	Fri	*Drops with no record & full refund ends*			
09/11/06	4	Mon		2	Insect orders Ephemeroptera and Plecoptera	
09/12/06	4	Tue	6		Physiography of streams	Dodds, Chapter 5
			Drops with auto "W" ends at midnight			
09/14/06	4	Thu	7		Physiography of lakes	TBA
09/18/06	5	Mon		3	Field trip (SM River); Insect order Hemiptera; Topic for research paper due	
09/19/06	5	Tue	8		Wetlands (Dr. Wes Nowlin)	TBA
09/21/06	5	Thu	9		Aquatic chemistry	Dodds, Chapter 11
09/25/06	6	Mon		4	LAB PRACTICAL 1; Insect order Odonata	
09/26/06	6	Tue	10		Carbon in aquatic ecosystems	Dodds, Chapter 12
09/28/06	6	Thu	11		Nitrogen, sulfur, phosphorus, et al	Dodds, Chapter 13
10/02/06	7	Mon		5	Insect orders Trichoptera, Megaloptera, and Lepidoptera	
10/03/06	7	Tue	12		Toxic chemicals and other pollutants	Dodds, Chapter 14
10/05/06	7	Thu	13		Aquatic toxicology (Dr. Joe Tomasso)	TBA
10/09/06	8	Mon		6	Field trip, Canyon Lake & Gruene (Guadalupe R.)	
			Review for MidTerm Lecture Exam, 5:00pm - ??:??pm			
10/10/06	8	Tue	14	*Midterm Lecture Exam, Chapters 1-5, 11-14, guest lects*		
10/12/06	8	Thu	15		Water Pollution Biology (Dr. Glenn Longley)	TBA
10/16/06	9	Mon		7	Insect orders Coleoptera and Diptera	
10/17/06	9	Tue	16		Extreme aquatic ecosystems	Dodds, Chapter 15
10/19/06	9	Thu	17		Aquatic macrophytes Dr. Al Groeger)	TBA
10/23/06	10	Mon		8	Local field trip for aquatic Macrophytes; Research paper due	
10/24/06	10	Tue	18		Nutrients and remineralization	Dodds, Chapter 16
10/26/06	10	Thu	19		Nutrients and remineralization-	Dodds, Chapter 16
10/30/06	11	Mon		9	LAB PRACTICAL 2; Subphylum Crustacea	
10/31/06	11	Tue	20		Community dynamics in aquatic ecosystems	Dodds, Chapters 18-20
11/02/06	11	Thu	21		Community dynamics in aquatic ecosystems	Dodds, Chapters 18-20
11/06/06	12	Mon		10	; Phylum Mollusca	
11/07/06	12	Tue	22		Community dynamics in aquatic ecosystems	Dodds, Chapters 18-20
11/09/06	12	Thu	23		Community dynamics in aquatic ecosystems	Dodds, Chapters 18-20
11/13/06	13	Mon		11	Phyla Annelida, Turbellaria, Cnidaria, and Porifera; Plankton, etc.	
11/14/06	13	Tue	24		TBA	TBA
11/16/06	13	Thu	25		TBA	TBA
11/20/06	14	Mon		12	LAB FINAL (COMPREHENSIVE); Collections due tomorrow	

Aquatic Biology Lecture and Exam Schedule, Fall 2006

Date	Wk#	Day	Lect #	Lab #	Topic/Event	Readings
			Drop/Withdrawal ends at 5:00 pm			
11/21/06	14	Tue	26		LAB COLLECTIONS DUE	
					Fish ecology & fisheries	Dodds, Chapter 21
11/23/06	14	Thu	*No Classes*			
11/27/06	15	Mon		13	Rapid Bioassessment	
11/28/06	15	Tue	27		Fish ecology & fisheries (Dr. Tim Bonner)	TBA
11/30/06	15	Thu	28		Comparison of FW ecosystems	Dodds, Chapter 22
12/04/06	16	Mon		14	TBA	
12/07/06	16	Thu	29	*Final Lecture Exam,* 8:00-10:30 a.m.; Chapters 15-22, guest lects, labs 11/28 & 12/4, and readings		

M. END OF SYLLABUS: