

ENVIRONMENTAL SCIENCE

BIOLOGY 137 section 01

MWF 9:00-9:50 AM

3 credit hours

Spring 2008

Pre-requisites: none

Instructor: Matthew Rowe

Office: 143 LDB

Phone: 294-4250 or 294-3227

Office Hours: MWF 10 AM -noon
or by appointment¹

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¹ Dear students – you may know that a day in the life of the average faculty member consists not only of teaching their classes, but also a frenetic mix of meetings, appointments, research, and more than an occasional brush fire or two. Thus, I (like all faculty members) am frequently called away from my office, even during my regularly scheduled office hours. Nonetheless, I am always happy to meet with you to discuss the specifics of this course, or biology in general. The BEST way to catch me, given my frenzied schedule, is to call either of the telephone numbers listed above to schedule an appointment – this way nothing else can be scheduled “on top” of that appointment.

COURSE DESCRIPTION

Biology 137 deals with environmental problems, their underlying causes, and their possible solutions. The problems will be discussed in the context of basic ecological principles. An interdisciplinary framework, however, will integrate both the biological and social aspects of the problems, causes, and potential solutions. Less-developed and more-developed (some would say “over-developed”) countries will be compared, focusing on the combined impacts of population growth and per capita resource consumption. Topics of special emphasis will include human population dynamics, the biodiversity crisis, pollution, food production, energy, land use practices, and sustainable development.

Important note: credit in BIO 137 as a laboratory science is contingent upon completion of BIO 117.

COURSE OBJECTIVES

- √ Understand what science is, and what it is not
- √ Acquire a factual knowledge base of current environmental issues
- √ Learn fundamental principles and theories of biology as applied to environmental problems and their solutions
- √ Learn to apply your knowledge of science in general, and biology specifically, to critically evaluate information when solving problems and making decisions

REQUIRED MATERIALS:

- TEXTBOOK: Miller, G. Tyler Jr. 2007. *Living in the Environment*. 15th edition. Thomson/Brooks Cole.
- “CLICKER” Interwrite PRS RF remote clicker, model R1. Note: if you purchase a new clicker, there is a rebate!
- ISBN: 0-495-01598-9

OPTIONAL (but extremely useful!) MATERIALS:

- WEBSITE: www.thomsonedu.com (Access code included with the purchase of a new 15th edition of your textbook).

METHODS OF INSTRUCTION:

Lectures will consist of material from the text *Living in the Environment* as well as from related materials, including but not limited to environmental issues that are “in the news.” Figures and tables from the textbook and other sources will be presented during the lecture; some concepts will be emphasized through the use of short videos, animations, and small group discussions.

GRADING:

LECTURE EXAMS	BEST 3 OUT OF 4 ² @ 100 PTS. EACH	300 PTS.
LECTURE QUIZZES	BEST 10 OUT OF 12 ³ @ 10 PTS. EACH	<u>100 PTS.</u>
	TOTAL	400 PTS.

²Note: Three of these four exams will be given during regularly-scheduled class-times spaced throughout the semester; the 4th of these exams will be a comprehensive final exam, taken during finals week! I will allow you to drop the lowest of the 4 exam grades. Refer also to the **MAKE-UP POLICY** discussed below.

³Note: A minimum of 12 in-class pop quizzes will be administered during lectures throughout the semester; your overall quiz grade will be based on your 10 best scores from the 12 quizzes. If more than 12 quizzes are administered, your grade will still be based on your best 10 (i.e., you will be allowed to drop your 3 lowest quiz grades if 13 quizzes are given; you can drop 4 if 14 quizzes are given, etc.). Refer also **MAKE-UP POLICY** discussed below.

The letter grade you receive will be fixed by the percentage of points you accumulate for the entire class: $A \geq 90\%$; $B \geq 80\%$; $C \geq 70\%$; $D \geq 60\%$; $F < 60\%$. These standards may be adjusted downwards based on class performance, but never upward. Notice that these are absolute, rather than relative ("a curve") standards, and any student who gets 90% or above will receive an "A". You are not in competition with each other; rather, your challenge is to learn the material and to participate actively in the course.

Note: there will be **NO EXTRA CREDIT** available in this course; i.e., no additional points beyond those you earn on the quizzes and exams.

TENTATIVE EXAM DATES⁴

Exam #1 (Feb. 20 th)	100 pts.
Exam #2 (Apr. 4 th)	100 pts.
Exam #3 (May. 7 th)	100 pts.
Final (May. 14 th , 8-10 AM)	100 pts.

⁴Note: exam dates listed above are tentative, with the exception of the final. I will give you at least one week's notice if any of the exam dates need to be changed.

MAKE-UP POLICY

Students are required to take examinations at the instructor-scheduled times. Make-up exams will not be given; if you miss an exam, for whatever reason, that will be the exam grade you will drop. If you miss a pop quiz, that too will be one of the grades that you will drop. Remember that your grade for the course will be based on your best 3 out of 4 exams (including the final), and on your best 10 out of 12+ quizzes. If you miss more than one exam or two quizzes, the grade you earn will reflect your absences.

*TENTATIVE LECTURE SCHEDULE*⁵

<u>WEEK OF:</u>		<u>CHAPTER:</u>
Jan. 16	Administrative details. Intro: people & the env't	1
Jan. 23	Science, matter, & energy	2
Jan. 28	How ecosystems work	3
Feb. 4	Evolution & biodiversity	4
Feb. 11	Climate & biodiversity	5-6
Feb. 18	Community & population ecology	7-8
Feb. 25	Human population growth	9
Mar. 3	Ecosystem approach to sustaining biodiversity	10
Mar. 17	The species approach to sustaining biodiversity	11-12
Mar. 24	Food, soils, & pests	13
Mar. 31	Water & water pollution	14
Apr. 7	Geology & nonrenewable mineral resources	15
Apr. 14	Energy	16-17
Apr. 21	Environmental hazards & human health	18
Apr. 28	Air & water pollution	19-21
May 5	Sustaining human societies	23-26

⁵The lecture schedule is subject to change, depending on how fast or how slow material is covered/uncovered. I will always keep you posted of where we are in the schedule and where we are headed.

CLASS ATTENDANCE: Regular and punctual class attendance is expected of each student. To do well, you must be an equal and active participant in your education - therefore it is your responsibility to attend class. Most quiz and test material will be based on class lectures and assigned readings. It should be no surprise, therefore, that to do well on quizzes and on exams you must attend lectures and read (and assimilate!) the assignments! Per University policy, attendance will be taken daily. Excessive absences (≥ 3) from class will influence your final grade for the course.

If you are unable to come to class due to illness or unexpected circumstances, it is your responsibility to obtain the class notes. You may contact me in my office if you have specific questions about a given lecture; however, I cannot repeat lectures for students who have missed them.

TIPS AND RULES

I. Studying Strategies

The key to doing well is to KEEP UP WITH THE MATERIAL. Read the assignments prior to coming to class. Take good notes during class (write down the main points, don't worry about prepositions, conjunctions, etc.), leaving a wide left-hand margin. Review your notes that same day, writing down (in a different color of pen or pencil) things you remember from lecture that did not make it into your notes (you will be surprised how much you WILL remember, but you MUST review your notes soon after class, not the next day or the next week). Reread the assigned material, adding yet another set (in a third color of pen or pencil) of points/examples/comments to the margin NEXT to similar points/concepts/examples that we discussed in class. Taking notes in this manner does two things. First, studies show that such repetition helps most of us take stuff from short-term memory and put it into long-term memory. Second, this technique will provide you with a very complete set of notes from class and from your reading that will be your BEST guide in helping you study for quizzes and exams.

Bring your textbook, a notebook, and a writing tool to all classes, as well as a tape recorder if you would like to record class lectures. Many of the figures in the texts will be used in lecture and you should feel free to make notes in the margins of your textbook. Additional handouts will be provided periodically, either as hardcopy or posted on BlackBoard. Do not lose or ignore them. If I take the time to make the handouts, they are important and you should study and understand their content.

II. Academic Honesty

You may find that your performance in this class will benefit from discussions with your classmates and from working in small, motivated study groups. I encourage you to work with others to help clarify concepts and understand the class material. However, on exams and during quizzes, you must rely on your **own** reasoning, your **own** memory, and your **own** answers. Cheating is a violation of the Honor Code and will not be tolerated. Regulations and responsibilities put forth in the *Student Code* and in the *Faculty Handbook* will be followed in the event of academic dishonesty.

III. Student Absences on Religious Holy Days

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student desiring to absent himself/herself from a scheduled class in order to observe a religious holy day(s) must present to their instructor(s) a written statement concerning the religious holy day(s). This request must be made in the **first fifteen days of the semester** in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

IV. Disabled Student Policy

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may adversely affect your work in this class, you are encouraged to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until you register with the Counseling Center.

V. Classroom Rules of Conduct

Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the University. Cellular telephones and pagers must be turned off before the start of class. No talking is allowed during the class except during appropriate contexts (e.g., when asking a question of the instructor or during instructor-approved mini-group discussions). Students engaging in inappropriate behavior may be asked to leave the class and may be reported to the Dean of Students for disciplinary action.

VI. Visitors in the Classroom

Visitors to class must have prior approval by the instructor to be present in the classroom. Visitors must adhere to the same rules of conduct as outlined above for students.

Additional hints for success in Env'l Science

1. Take personal responsibility to learn the material. My goal, for example, is to come to class each and every day well prepared and full of enthusiasm. Make the same pledge – come to class prepared and excited too! Set a goal for yourself, both in terms of mastering the class material, and perhaps as well regarding the grade you want to earn. Remember that the rule of thumb when taking a difficult college course (and most biology courses are difficult) is that to earn a “C” will require 3 hours of outside study time per week for every credit hour of the course. Thus, for the typical student, a 3 credit hour course will require nine hours/week (not including class time) of reading, thinking, writing, etc. just to get a “C.” Earning an “A” will require even more effort. If you find that you are not achieving your goal, come by and talk with me -- together we might identify the best ways for you to succeed in this course. Do not wait until the Final Exam to start worrying about your grade!

2. If you are a full time student you should consider studying for your courses as your FULL TIME "job". Remember the general rule (3 hours of study time per week per SH to earn an average grade) – thus, if you are enrolled in 15 credit hours this semester, you will need to spend 45 hours per week studying outside of class/lab in order to earn C's in all of your courses. When you add it all up, going to college is really more than a full

time job! If you take this "job" seriously and plan the hours of your day wisely, you will succeed. Any additional employment and extracurricular activities should not detract from this time.

3. Study without distractions. It is difficult for most students to study in a noisy dorm or distracting library.

4. Read the textbook and other assignments before the material is covered in class and again afterward. For most of us, a single reading of difficult material is insufficient.

5. Take good notes during lectures. Let me encourage you again to look back over your notes soon after class – you will be surprised how many more details you will remember that you can add to your notes. If you do not understand a concept covered in class, deal with it *immediately*. Go back to the texts and assigned readings and review the topics. Learn to use your textbook and the Campbell web page as reference sources. Learn how to consult their indices to look up topics you need to review (or in which you are interested). There are also many other good texts in the library - use them to your advantage. Take a *personal* interest in what you learn.

6. Keep on top of the material. Do not wait until the week before an exam to learn everything.

7. Participate in active studying. When you study, do not simply read your notes and the book. Active studying may involve outlining the material, drawing diagrams, discussing concepts with classmates, surfing the Campbell web page for additional insights, etc.

8. You should begin reviewing (NOT studying the material for the first time) at least a week prior to each exam. The best way to review for midterms and the final exam is to study your class notes which, if you follow my suggestions above, will provide you with a detailed summary of the important concepts and examples. The best way to study for the quizzes is to stay on top of the material!

10. Get adequate sleep the night before each exam. Most students will not reach their goal by pulling "all-nighters" before tests - there is simply too much material to cram!!

11. Take all of you work seriously! Learning should be enjoyable, but it is surprisingly hard work.