

**ECOLOGY & SOCIETY (EEB 306)**  
Fall Semester 2013

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**When and Where:** 3:40-4:55 PM TTh 427 Hesler Biology Building

**Instructor:** A. C. Echternacht 530 Hesler Biology Building  
974-3065 or 974-2256 echterna@utk.edu

**Texts (Required):** Fishman, Charles. 2011. *The Big Thirst: The Secret Life and Turbulent Future of Water*. Free Press, New York.

Preston, Richard. 1994. *The Hot Zone*. Anchor Books, New York.

Stolzenburg, William. 2008. *Where the Wild Things Were: Life, Death, and Ecological Wreckage in a Land of Vanishing Predators*. Bloomsbury USA, New York, New York.

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**RATIONALE FOR THIS COURSE**

The intent of this course is to introduce basic concepts in ecology that pertain to the health and welfare of the biosphere and its inhabitants, including humans. All of the topics covered involve issues that are frequently discussed in the print and electronic media, and many involve governmental regulation. Although it's probable that few, if any, of you aspire to a career requiring expertise in ecology, all of you will have the opportunity, if only by exercising your right to vote, to become involved in decisions that relate directly or indirectly to critical environmental issues. So ... the purpose of this course is to help you become an "educated layman" when it comes to environmental issues by giving you a better understanding of the issues and the science upon which intelligent decisions should be based.

The course prerequisite is either Bio 130 (Biodiversity), or Bio 101-102 (Humankind in the Biotic World), or Bio 111-112 (General Botany).

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**SCHEDULE**

**Biogeochemical Cycles, Energy Flow, and Water**

Required Reading: Fishman 2011

22 August	Th	Introduction; Basic Terminology
27	T	Biogeochemical Cycles
29	Th	Energy Flow in Ecosystems
3 September	T	Biologically Important Characteristics of Water; Water Cycle
5	Th	The Global Water Crisis
10	T	The Global Water Crisis, continued
12	Th	<i>Examination No. 1: Covers 22 August – 10 September</i>

### Global Climate Change

No Text

17	T	Global Climate, Past and Present
19	Th	Empirical Evidence of Change
24	T	Causes of Change
26	Th	Consequences of Change
1 October	T	Consequences of Change, continued <i>Deadline for approval of 1st paper title/topic</i>

### Biodiversity and Invasive Species

Required Reading: Stolzenburg 2008

3	Th	Ecological Communities; Species Interactions
8	T	Ecosystem Services
10	Th	Ecosystem Services, continued
15	T	Threats to Biodiversity; Invasive Species;
17	Th	Fall Break: No Class
22	T	Invasive Species: Consequences and Costs; <i>1st paper due</i>
24	Th	<i>Examination No. 2: Covers 3 October – 22 October</i>

### Emerging Infectious Diseases (EIDs)

Required Reading: Preston 1994

29	T	Video: Ebola – The Plague Fighters (Nova)
31	Th	What are EID's?
5 November	T	Origins of Human EID Pathogens
7	Th	Links between EID's and Climate Change
12	T	Links between EID's and Biodiversity

### Populations

No Text

14	Th	Characteristics of Populations <i>Deadline for approval of 2nd paper title/topic</i>
19	T	Population Growth and Regulation
21	Th	Human Population Growth
26	T	Video: Sun Come Up
28	Th	Thanksgiving: No Class
3 December	T	Consequences of Human Overpopulation; <a href="#">2nd paper due</a>
10 December	T	<i>Examination No. 3: 2:45 – 4:45 PM, 427 Hesler</i>

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**Course Format:** Each module of the course will consist of lectures and discussion of basic concepts and their implications for humans. The lectures and discussion will be supported by readings from the course texts, and from both scientific and popular sources. For each module, a glossary of terms will be provided

**Examinations:** The examinations will cover only material indicated by dates in the schedule and will be largely fill-in-the-blank and short-answer essay in nature. Examination 1 will be worth a maximum of 25 points, and examinations 2 and 3 will each be worth a maximum of 50 points. Copies of past examinations will not be distributed, but a study guide (review questions) will be posted on Blackboard prior to each exam.

**Paper:** Two short papers are required in this course. You may choose topics related to any of the discussed in the course but *your topic must be approved by Dr. Echternacht no later than the date indicated in the schedule*. Each of the two papers must be no less than five pages and no more than seven pages in length (not counting literature citations, and any figures and/or tables you may choose to include) and must be typed, double spaced, and in 11 or 12 point font. A minimum of six sources must be cited, and no more than 1/3 of these may be internet sources. Wikipedia is *not* an acceptable source. Formatting details will be discussed in class. *One copy of each paper must be submitted to the instructor on or before the due date. Prepare each paper as Microsoft Word document and submit it as a email attachment*. Each paper will account for a maximum of 25 points in the calculation of your final grade.

**Take-home Exercises:** There will be a web-based take-home exercise associated with each of the five modules. *These exercises will be due at the beginning of the class following that in which they were assigned. No late exercises will be accepted*. The exercises will be the basis for class discussion. Each exercise should take no more than 30-40 minutes to complete and each will account for 5 points toward the final grade.

**Attendance:** At the end of each class except the first and days on which an exam is scheduled, you will turn in a form that asks a) what you found new and/or most interesting about the lecture or discussion, and b) what questions, if any, you have about the material presented. It's assumed that everyone will have to miss at least one class session (so few, if any, will receive full points for attendance). *There are no excused absences*. If you are in class and turn in the attendance form, you will receive one point for that day (total possible points = 26). If not, you won't, no matter why you had to be absent.

**Discussion:** After the last class session, you will be assigned a numerical grade for your participation in discussions. Possible points are 0, 6, 12, 18 and 24. This is obviously subjective, but it is definitely worth getting involved in the discussions since 24 points is ~10% of your grade. Being "shy" is not an excuse, nor is the fact that you may have no background in biology other than a year of general biology. You will have an opinion, and this is your opportunity to express it. Do not be intimidated by those in the class who have a more extensive background in biology than you. Those who have little background in biology, and those who have more, often bring different and valuable perspectives to the discussions.

**Grades and Grading:** The total number of points possible will be 125 (exams) + 50 (term papers) + 25 (take-home exercises) + 25 (attendance) + 24 (discussion participation) = 249. Course grades will depend on the class distribution of total points, except that if your total points amount to 232 (~93%) or above of the total possible of 249, you are guaranteed a grade of A, and if your total points are 125 (~50%) or below, you are guaranteed an F.

**Office Hours:** 5:00-6:00 PM Tuesdays in Hesler Room 531. Alternatively, you may schedule an appointment to talk to Dr. Echternacht at a mutually agreed upon time. To schedule an appointment, either contact Dr. Echternacht via email or after class.

**Disabilities:** If you need course adaptations or accommodations because of a documented disability, or if you have emergency information to share, please contact the Office of Disability Services. This will ensure that you are properly registered for services. Campus location: 2227 Dunford Hall. Phone: 865-974-6087. E-mail: [ods@utk.edu](mailto:ods@utk.edu). Website: <http://ods.utk.edu>.

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