

**SEMESTER AT SEA COURSE SYLLABUS**  
**University of Virginia, Academic Sponsor**

**Voyage: Fall 2014**

**Discipline: Environmental Science**

**SEMS 2500-102: Introduction to Environmental Studies**

**Division: Lower**

**Faculty Name: Sergei A. Polozov**

**Credits: 3, Contact hours: 38**

## **INTRODUCTION**

**WELCOME!**

Please address me as: “Dr. Polozov”

It is my plan and my hope that we will have an interesting and meaningful experience working together in this class. Success of this work will be determined by several factors, and your participation is one of the most important among them. Constant active involvement in the class work will contribute to a productive and stress-free environment where everybody in the class are equal colleagues sharing the same goals. I offer you as much authorship in shaping this class as you are ready to accept: any of your productive suggestions will be considered and implemented if it can improve our work. This syllabus provides general framework for our class; some adjustments are possible during the voyage, and students will be informed about them in class in a timely manner.

### **Pre-requisites:**

1. Comfortable use of Metric System and World Map;
2. Ability to use a digital camera;
3. Ability to resize, e-mail, and incorporate digital images into Word documents.
4. Ability to take written test in English without dictionary/electronic translator.
5. Additional Resources as indicated below.

## **COURSE DESCRIPTION**

This introductory course will prove that with minimal efforts, vital environmental problems may be identified and productively addressed anytime, anywhere, and in any professional field. Foundational ecological, philosophical, social, cultural, and political aspects will be addressed within the interdisciplinary field of Environmental Science with emphasis on the urgency of educated professional actions in coming decades. Objective scientific reasoning behind important environmental collisions between the public, businesses, and governments will be used to encourage environmentally responsible actions of educated citizens. Importance of intercultural communication and international collaboration on environmental issues will be illustrated via regional and global examples; historical and contemporary events. Diverse field assignments will be incorporated into the course providing variety of options to learn about Environmental Science when following individual interests and career goals.

## **COURSE OBJECTIVES**

- A. The students who successfully complete this course will, in the area of attitudes,
1. recognize the difficulties of balancing population and material growth with the earth's limited resources.
  2. become more active in working toward the establishment of a sustainable society.
  3. appreciate the environmental challenge as a unifying principle for all mankind that transcends boundaries of race, gender, religion or nationality.
- B. The students who successfully complete this course will, in the area of knowledge,
1. know the major impacts humans have had on natural ecosystems.
  2. know how natural ecosystems work, how biological species are interrelated one with another and with their environment.
  3. know how local and global aspects of environmental problems are interrelated with one another.
- C. The students who successfully complete this course will, in the area of skills,
1. be able to read, view, and listen critically in order to extract the intended meaning of communication on environmental issues from general and scientific sources.
  2. develop field observation skills while exploring environmental problems.
  3. be better able to differentiate valid scientific arguments from non-scientific arguments with respect to environmental issues.
  4. carry out an individually-designed field assignments and present their results in class.

## **REQUIRED TEXTBOOKS**

AUTHOR: Eldon D. Enger, Bradley F. Smith  
TITLE: Environmental Science, A study of Interrelationships  
PUBLISHER: McGraw-Hill  
ISBN #: 97800-07-338327-9  
DATE/EDITION: 2013, 13<sup>th</sup> ed.

## **TOPICAL OUTLINE OF COURSE**

This is a seminar-based course and every student should expect to participate in it actively. You should always have one question and one comment relevant to the topic we discuss at any given moment, and you may be invited by the professor to share your question and/or comment with the class at any time. Doing anything in class that is not related to the ongoing discussion will automatically cause an unexcused absence.

All assigned reading from our textbook, as well as learning of all terms in bold font should be completed *before* we meet in class. Class discussions will address main concepts from home

reading as well as questions you may have, but they will not duplicate content of the book, so your good preparation is essential. Students are responsible for knowledge and comfortable use of the vocabulary and identification of all major concepts from the assigned chapter(s). Order of chapters covered in the course may be different from the order of chapters in the textbook, so students should be prepared for cross-reference and cross-reading between chapters as required. It is strongly recommended to use hard copy textbook in this class.

Our usual work in class on an average day will include:

Terminology quiz (all vocabulary quizzes will be comprehensive, i.e. they can include all previous terms in addition to currently assigned reading; quizzes may be offered at any time of the class period, or twice per day, depending on curriculum and workflow);

Small group discussion when you clarify any questions you may have after independent homework;

Whole class discussion to address questions your small group did not handle;

Lecture from professor on the most challenging and/or important concepts;

Articles, news, video reviews.

*Attendance is required*, and the attendance roster should be signed personally by every student before the beginning of class (not when class is in session). Every student can miss one class, and can be late (within 5 min) once without questions asked, but after that points will be deducted from the final grade (please see Grading section below).

All assignments except quizzes and tests in this class should be submitted (via email, or local intranet, or in hard copy as specified in class) as single spaced (Times New Roman, 12 font, standard margins) Word document attached to the message and copied inside the message itself, and/or printed on both sides of the page. Any home work assignments should be submitted before class on day due, and no points will be offered for late submissions. All assignments should be completed to pass this class.

No laptops, tablets, smart phones, smart glasses, etc. can be used in class; no audio or video recording is permitted; so no electronic activity is expected on the students' side unless they do specific assignment requiring use of an electronic media.

The day before arrival to a specific port, review of the **Country Data Profile and Ocean Health Index** on Coastal/Marine Ecosystems and Related Economic Activities for this particular country will be due in addition to the reading from the textbook (these documents and/or assignments will be available for students on intranet). It should be performed within both Regional and Global perspective, and it will include independent reading/analysis (including written independent home assignments submitted before class) and work in class (including brief presentations, reflections, quizzes, etc.).

**COURSE OUTLINE** (may be adjusted at any time depending on class work-flow, learning curve, dynamics of the voyage, weather, etc., and in any of these cases students will be informed in advance about any adjustments):

Depart Southampton- August 23:

**A1- August 25: INTRODUCTION.** Environmental Interrelationships (Chapter 1).

**A2-August 27:** Environmental Ethics, Risk; Scientific Principles (Chapter 2, 3, 4).  
**Country Data Profile & Environmental Issues Review: Russia**  
St. Petersburg: August 29- September 2

**A3- September 3:** Interactions: Environments and Organisms-1 (Chapter 5).

**A4- September 5:** Interactions: Environments and Organisms-2 (Chapter 5).  
**Country Data Profile & Environmental Issues Review: Germany**  
Hamburg: September 7-11

**A5- September 12:** Kinds of Ecosystems and Communities-1 (Chapter 6).  
**Country Data Profile & Environmental Issues Review: Belgium**  
Antwerp: September 14-16  
Le Havre: September 17-19

**A6-September 20:** Kinds of Ecosystems and Communities-2 (Chapter 6).

**A7- September 22:** Populations (Chapter 7).  
**Country Data Profile & Environmental Issues Review: Ireland**  
Dublin: September 24-27

**A8- September 28:** Energy and Civilization (Chapter 8).

**A9- September 30:** Nonrenewable Energy Sources (Chapter 9).  
**Country Data Profile & Environmental Issues Review: Portugal, Spain**  
Lisbon: October 1-2  
In transit: October 3  
Cadiz: October 4-5

**A10- October 7:** Nonrenewable & Renewable Energy Sources (Chapter 9, 10).  
**Country Data Profile & Environmental Issues Review: Morocco**  
Casablanca: October 8-11

**A11-October 13:** Renewable Energy Sources (Chapter 10).

**A12- October 15:** Biodiversity Issues (Chapter 11).  
**Country Data Profile & Environmental Issues Review: Senegal**  
Dakar: October 16-19

**A13- October 21: MIDTERM EXAM (Chapters 1-11)**

**A14- October 23:** Ecology & Biosphere (Chapters 5-7).  
**Country Data Profile & Environmental Issues Review: Ghana**  
Takoradi: October 25-26  
Tema: October 27-28

**A15- October 29:** Land-use Planning (Chapter 12).

**A16- October 31:** Soil (Chapter 13).

STUDY DAY: November 2

**A17-November 3:** Water Management-1: Fresh Water (Chapter 15).

**A18- November 5:** Agricultural Methods and Pest Management (Chapter 14).

**Country Data Profile & Environmental Issues Review: Brazil**

Rio de Janeiro: November 7-9

**Field Lab – November 7**

In-transit: November 10-11

Salvador: November 12-14

**A19- November 15:** Water Management-2: Salt Water (Chapter 15).

**A20- November 17:** Air Quality (Chapter 16).

Study Day: November 19

**A21-November 20:** Solid waste Management (Chapter 17).

**Country Data Profile & Environmental Issues Review: Barbados**

Bridgetown: November 22-24

**A22-November 25:** Environmental Regulations and Policies (Chapter 18, 19).

**A23- November 27:** REVIEW

**Country Data Profile & Environmental Issues Review: Cuba**

Havana: November 29- December 2:

Study Day- December 3

**A24-December 4 (A Day Finals): COMPREHENSIVE FINAL EXAM**

## **FIELD WORK**

**Attendance and participation in the Field Lab is Mandatory.**

### ***FIELD LAB***

One 8-hour Field Lab is required in this class with follow-up Field Journal based on specific parameters provided in class before this lab (70 points total: 10 p – involvement and participation, 20 p – Field Notes, and 40 points -- Field Journal).

The Field Journal is based on your *Field Notes* that you take in a pocket size notebook on the go during the day. It is one of the most important parts of any field work and it should be considered a major priority of your learning work-load.

Guidelines below outline the main aspect of journaling on the field trip (details will be explained during orientation before the field lab).

1. All entries should be 100% honest, factual, and with no extrapolation, stretch, or making things up.
2. Field journal entries should be totally completed at the end of the following day when all your memories are fresh, sharp, and not mixed with the new following information. Under extraordinary circumstances journaling may be postponed, but never longer than for 30 hours.
3. Habitats visited should be described in terms of landscape and vegetation every time when moving from one of them to another, and photographed.
4. Every specific observation should be separated from the previous and from the following one with double space and should include:
  - 1- time (military time format only);
  - 2- self-sufficient description of the phenomena addressed with:
    - a- as many numerical parameters as reasonably possible, and
    - b- answering as many potential questions about this particular observation as possible.
5. Names of the species should be correctly spelled and underlined every time when they are used. Latin names are only required on a species lists.
6. A Species List is built in a chronological order of observation/identification for the taxonomic groups specified in class before the lab.

Field Lab attendance is mandatory for all students enrolled in this course. Please do not book individual travel plans or a Semester at Sea sponsored trip on the day of our field lab.

Specific Field Lab for this course is:

### **ECOLOGY AND CONSERVATION OF COASTAL ECOSYSTEMS (MANGROVES, RESTINGAS, FORESTS, AND BEACHES)**

This lab is 70 points (Participation -- 20 points; Field Notes – 20 points, and Field Journal – 30 points).

As a preparation to this lab students will create and review data sheets on mangrove, restingas, forests, and beach ecosystems and the biodiversity of this specific location. During the introductory field hike (lecture and observations), students will learn firsthand about general features of coastal vegetation (mangroves, restingas); major environmental factors impacting them; natural zonation; ecological successions; biodiversity, and human impact.

After the lunch group will continue to explore coastal ecosystems, and anthropogenic factors impacting them. Small teams of students will be assigned to investigate and observe specific phenomena (factors, microhabitats, species, communities, interrelations, etc.) with collection of numerical data while performing independent observations and measurements in accordance with specific protocols. Every student will perform independent observations on location. Results will be assembled into Field Notes, and later – into a Field Journal.

#### *Field Lab Academic Objectives:*

1. Study of General Ecology of coastal ecosystems (mangroves, restingas, forests, and beaches)

2. Study of Biodiversity and Ecological Successions in Coastal Ecosystems
3. Study of Anthropogenic Impact on Coastal Ecosystems of Brazil
4. Development of independent field observational skills, and field data processing

### ***FIELD ASSIGNMENTS***

In addition to the Field Lab one Independent Field Assignments (IFA, 3+ h of the field work; 30 points,) should be performed during the voyage and documented in the form of a IFA Report (3 pages of text; 2,000 words) including:

Date, time;

Location (Country, city, specific location/facility)

Goal of the assignment;

Weather conditions;

Data & Discussion:

detailed description of the activities performed;

all major facts gathered/observed and with pictures (resized to 320 x 240 pixels)

illustrating all major meaningful points of interest;

independent comments and analysis of the collected information.

Conclusion: conclusive statement on: a- your analysis of the collected information; and b- on the efficiency and logistics of this IFA.

Students are encouraged to perform IFA in small groups but with clear understanding and planning how they will produce strictly individual reports.

In every port students will have diverse opportunities to do their IFA while exploring a broad spectrum of course-related problems (within the context of the particular location, and depending on availability of resources):

1. Diversity of coastal ecosystems;
2. Terrestrial and aquatic environmental factors shaping observed coastal and marine ecosystems;
3. Vertical zonation and biodiversity within intertidal zones;
4. Biodiversity of the coastal areas (with emphasis on the taxonomic group of interest);
5. Biodiversity in aquatic ecosystems (snorkeling research);
6. Human impact on coastal ecosystems;
7. Fishing (whaling, aquaculture) practices;
8. Fish markets as reflections of both natural and social/economic aspects;
9. Local fishing communities (villages, towns);
10. Natural exhibits (aquarium, zoo, museum, etc.);
11. Conservational initiatives (national parks, preserves, ecological trails, educational centers, etc.);
12. National mass media involvement/participation in coverage of the management of coastal ecosystems and ocean resources.

Rubrics above represent general fields of inquiries, and students will be encouraged to plan their IFAs in advance specifically in accordance with their personal interests.

Every student should be ready to present (and several students will be randomly selected

to do it) about his/her IFA in class in form of 5-min Power Point Presentation providing description of IFA, collected facts, and meaningful critical analysis of collected data.

## METHODS OF EVALUATION / GRADING RUBRIC

### GRADE SCALE (including both objective and subjective components):

<b>A</b>	95%-100% + <b><u>outstanding</u></b> performance class
<b>A-</b>	<b>90%</b> -94.9% + <b><u>outstanding</u></b> performance class
<b>B+</b>	87%-89.9% + <b><u>above average</u></b> performance in class
<b>B</b>	84%-86.9% + <b><u>above average</u></b> performance in class
<b>B-</b>	<b>80%</b> -83.9% + <b><u>above average</u></b> performance in class
<b>C+</b>	77%-79.9% + <b><u>average</u></b> performance in class
<b>C</b>	74%-76.9% + <b><u>average</u></b> performance in class
<b>C-</b>	<b>70%</b> -73.9% + <b><u>average</u></b> performance in class
<b>D+</b>	67%-69.9% + <b><u>below average</u></b> performance in class
<b>D</b>	64%-66.9% + <b><u>below average</u></b> performance in class
<b>D-</b>	<b>60%</b> -63.9% + <b><u>below average</u></b> performance in class

### *Performance standards:*

**Outstanding** – consistent efforts on improvement, consistent participation and full attention in class; never late, never missing class without excuse;

**Above average** – tangible trend to improvement, often participation and good attention in class; never late, never missing class without excuse;

**Average** – periodic efforts and periodic participation and passive attention in class, meeting all deadlines; never late, never missing class without excuse;

**Below average** – not enough efforts to improve; lack of participation and attention in class; being late; missing class without excuse;

It is extremely important to pay full attention to these *performance standards* (above), because students too often are fully focused only on points, forgetting that their own motivation, general attitude, working ethics, and the overall working mode are much more important and are actually the main factors determining efficiency of learning and final grade.

### ELEMENTS OF EVALUATION

ATTENDANCE & PARTICIPATION	10% (50 points)
FIELD EXPERIENCE	20% (100 p: 70 p Lab +30 p IFA)
TERMINOLOGY QUIZZES	30% (150 p)*
MIDTERM EXAM	20% (100 p)
FINAL EXAM	20% (100 p)
TOTAL:	100% (500 p)*

(\* = approximately; it can vary a little depending on the amount and nature of specific assignments)

As indicated above, all homework assignments should be submitted before class on day due, and no points will be offered for late submissions. All assignments should be completed to pass this class.

Attendance is required in this class, and only extraordinary circumstances can cause you to miss the class. Every student can miss one class with no questions asked, but after that every absence should be individually documented with written signed explanatory note provided before the class you are intended to miss (any recording is prohibited in this class, so if missing the class please do not plan to ask somebody to record it). In case of sickness note from the medical personnel serving this voyage is required.

Undocumented absences (as well as falling asleep, or any activity in class which is not related to the ongoing discussion/assignment) will be considered as an unexcused absence and will result in a 10-point deduction from the final grade for each case. Students missing three classes without an excuse, or five classes total (including excuses) cannot pass this class.

Student missing Field Lab cannot pass this course.

Please do not be late. Second and subsequent tardy will result in deduction of 5 points each from the final grade (being late for 20 min or more will be considered an absence). If you are late and come to class when a terminology quiz is already in session, you cannot take it.

In the very improbable case of student behavior representing any obstacle for teaching/learning process, this student may be asked to leave the class and it will be considered as unexcused absence. Breaking any rules/policies approved for this class/voyage can cause penalties in the form of deduction of points for participation from final grade based on professor's discretion.

Any cheating or plagiarism (including copy/paste without quotation) will result in "F" grade for this class with no right to audit this course after that.

Please remember that in case of any complications, concerns, problems, etc. you always address them to your teaching professor first. Do it as soon as possible, do not let it grow; the sooner you deal with it, the easier it is to fix.

## **ELECTRONIC COURSE MATERIALS**

Data sheets on specific countries and topics; handouts and other supporting materials for the approved field labs prepared by professor will be available on the ship's intranet.

Students are encouraged to utilize resources available at the textbook related Student Center Online: [http://glencoe.mcgraw-hill.com/sites/0003192012/student\\_view0/](http://glencoe.mcgraw-hill.com/sites/0003192012/student_view0/) when doing homework.

## **ADDITIONAL RESOURCES**

1. INTRO CARD: Standard white 3 x 5" index card with nicely glued or taped (no staplers, please) official current passport picture (no selfies, please), and typed (no handwriting, please use font 16 for your name, and smaller font as required to fit the rest of the information on the card) and formatted to fit the size of the card answers to the following questions (feel free to use both sides of the card):

- a. Your name (bold font 16), and the number of this course;

- b. Where you are from;
- c. Your school (name, city, state), and your status as a student (freshmen-senior);
- d. Any Biology and/or Environmental Science courses you have taken earlier;
- e. Previous trips outside of the US (if any, where, when, for what purpose);
- f. Other courses you are taking on this voyage;
- g. Your ideal career 5 years after graduation;
- h. Hobbies; what makes you special (optional);
- i. The one thing you do best;
- j. Your e-mail address.

Please prepare this card before the trip, and bring it with you to our first class (it will be graded as a part of your participation). These cards will be used in class every day (only the professor will have access to them and will see them, so your privacy never will be compromised).

- 1. Digital camera;
- 2. Binoculars (optional; minimal recommended magnification 10 x 40)
- 3. Pocket-sized all-weather notebook with waterproof paper;  
(like: <http://www.rainwriter.com/Notebooks-s/1817.htm> )
- 4. Watch with stopwatch.

## **HONOR CODE**

Semester at Sea students enroll in an academic program administered by the University of Virginia, and thus bind themselves to the University's honor code. The code prohibits all acts of lying, cheating, and stealing. Please consult the Voyager's Handbook for further explanation of what constitutes an honor offense.

Each written assignment for this course must be pledged by the student as follows: "On my honor as a student, I pledge that I have neither given nor received aid on this assignment." The pledge must be signed, or, in the case of an electronic file, signed "[signed]."

Please remember that you always will be considered as an equal colleague by your professor in this class, and nobody will watch your behavior, but in case of cheating or any other obvious breach of academic integrity you will be immediately expelled from the class with "F" grade, and you will not be permitted to audit this course after that.

## **FINAL WORD**

Certain items in this syllabus can be interpreted as strict disciplinary requirements, and they are not. They are simply some tools helping all of us to be successful in our work during this amazing opportunity, and with our common positive and responsible attitude they will not be even implemented. The whole purpose of this experience is to provide you with creative freedom in your productive learning, when you contribute to the class work while learning and helping others to learn (I expect to learn a lot from all of you). We will all have extraordinary adventure in our lives while participating in this voyage, and I very much look forward to working with you this semester.

Thank you.  
Dr. S.P.

Start by marking "Environmental Science: A Study of Interrelationships" as Want to Read: Want to Read savingâ€¦ Want to Read.Â  Excellent book, I have learned quite a few things I didn't know about the environment and how important is to know all that information. flag Like Â· see review. Aug 09, 2007 Uc chima is currently reading it Â· review of another edition. This full-color, introductory environmental science text is known for being concise, conceptual, and value-priced. The approach and reading level cover the basic concepts without overloading students with too much detail. The authors reinforce the text's central theme of "interrelationships" by providing a historical perspective, information on economic and political realities, discuss the role of different social experiences, and integrate this with the crucial science to describe the natural world and how we affect it. (source: Nielsen Book Data). All Documents from Environmental Science: A Study of Interrelationships.Â  Top Questions from Environmental Science: A Study of Interrelationships. The development of agriculture is said to be a coevolutionary process because. Which one of the following irrigation systems is most efficient and LEAST likely to lead to soil salinization?

Environmental Science: A Study of Interrelationships (13TH International Edition) eBook, please click the link under and download the document or gain access dev.tray.com.br. <https://dev.tray.com.br/.../get-now-environmental-science-a-study-of-interrelationships-1-9780073383279.pdf>. Accompanies the textbook Environmental Science: A Study of Interrelationships, by Eldon Enger. [secure-media.collegeboard.org. https://secure-media.collegeboard.org/apc/ap07\\_envsci\\_teachersguide.pdf](https://secure-media.collegeboard.org/apc/ap07_envsci_teachersguide.pdf). clipped from Google - 10/2020. Environmental Science A Study Of Interrelationships Enger Student [ons.oceaneering.com. ons.oceaneering.com/.../viewcontent.php?environmental-science.a.study.of.interrelationships](https://ons.oceaneering.com/ons.oceaneering.com/.../viewcontent.php?environmental-science.a.study.of.interrelationships) Environmental Science: A Study of Interrelationships is a perfect choice for an honors/electives course with a full-color, student friendly layout, an introductory-level approach that doesn't overwhelm students with too much detail, and a concise and conceptual writing style that is both interesting and accessible. Students are taken on a scientific journey of our Earth and the relationship between humans and the natural world through Enger's interdisciplinary approach that is presented through multiple perspectives – historical, economic, political, social, and cultural. In addition, Environmental Science includes:

- Comprehensive, editable test banks for each chapter.
- Only RUB 220.84/month.

Environmental Science: A study of interrelationships. STUDY. Flashcards. Learn. the ecocentric view that a new spiritual sense of oneness with the Earth is the essential starting point for a more healthy relationship with the environment. Environmental pragmatism. Approach that focuses on policy rather than ethics. Environmental aesthetics. The study of how to appreciate the beauty in the natural world. Animal rights/welfare. Asserts that humans have a strong moral obligation to nonhuman animals. Development approach. environmental approach that Assumes that the human race is and should be master of nature and that the Earth and its resources exist solely for our benefit Environmental science is an interdisciplinary academic field that integrates physical, biological and information sciences (including ecology, biology, physics, chemistry, plant science, zoology, mineralogy, oceanography, limnology, soil science, geology and physical geography, and atmospheric science) to the study of the environment, and the solution of environmental problems. Environmental science emerged from the fields of natural history and medicine during the Enlightenment. Today it provides an