THE WORLD OCEAN

GLY 304 (CRN 12279) 3 credit hours Fall 2012 Dept. of Geography & Geology

MW 9:05-11:05 PM, Roark 1 Final Exam: Monday, Dec. 12, 8 AM

# Dr. Walter S. Borowski Roark, Room 7 w.borowski@eku.edu

Please use ***email*** to contact me! I am very willing to meet with students! Please utilize me as a resource!

**Course Description:**  Investigation of the geologic, physical, biogeochemical, and biologic processes that occur

within the oceans of the world. The course emphasizes the connections between these processes, and

how those connections interact with our planet’s life. [Gen. Ed. IVB or VII (NS)].

**Text:** Duxbury, Duxbury, & Sverdrup, Fundamentals of Oceanography (any edition).

**Course Structure:** Although the course is listed with a separate lab, we will really have an integrated class

period with both lab and lecture interwoven with one another. This means that class periods may be partially or almost wholly composed of exercises, which makes the next statements below all the more important. Don’t worry, we will take breaks at opportune moments to refresh ourselves!

**Attendance & Participation:** I expect perfect attendance from everyone because most material on exams

and quizzes will be based on class material and discussion. We will have daily, **graded** exercises in class and lab as an incentive for attendance. Missed class = zero on exercise – no exceptions! However, missing less than 3 classes and thus 2 in-class assignments will result in no penalty. Perfect attendance results in **extra credit**!

Please, please, please feel free to ask questions or explore concepts in class. This makes for a dynamic atmosphere of learning!

**Grades:**  A 100-90% B 89-80% C 79-70% D 69-60% F <60%

Exams: 65% (4 exams, equal weight) Classwork, Exercises, & Homework: 35%

In order to be absolutely fair to all, my policy is not to round up grades at course’s end even if the

final course percentage is very, very close to the next grade level. So please, please attend every class,

do every assignment on time, and do your best on every exam.

**Exams:** There will be 3 exams during the semester and a final exam (see schedule). All exams will be of equal

weight and cumulative to some extent; the final exam is *definitely* cumulative. Students will be able to

drop the score of one of the non-final exams, ***provided they have a score of 80% on classwork and***

***homework assignments FOR THE ENTIRE SEMESTER***. ***Note that students will not be assured of***

***dropping any exam until scores at the end of the semester are finalized. Therefore, students should attend every class and should strive for the best score on EVERY exam.*** Students must take ALL

exams.

**Classwork, Exercises, and Exams:** Again**, *every*** class contains classwork in the form of exercises. We also

will have multiple homework assignments given throughout the semester. Many homework assignments are given on-line and are capped-off by an on-line quiz.

**The *Math You Need Assignments (TMYN)*:** This course uses a series of tutorials and quizzes that are being

used in universities across the nation to help students deepen their understanding of mathematics and learn how to apply math. These assignments earn students points without penalty provided students

complete the on-line assignments and quizzes. Students earn bonus points for correct answers, so it is important to take the assignments seriously. These exercises are worth ~5% of the total course grade. The exercises are designed to help students in learning course content, so being studious about the exercises should also improve course grades.

**Field Trip:** We will take a **MANDATORY** field trip to Wilgreen Lake on **Saturday,** **6 October**, when we

will make field measurements. These data are exactly analogous to those collected in oceanography, so this field trip is ***required*** with no “make-up” possibilities. A field trip is a unique experience that cannot

be replicated in class – that’s why we take field trips! I am giving you this date far in advance so you can make prior arrangements to attend. [P.S., it’s FUN!]

**Student Progress:** Students will able to chart their own progress in course, as all graded materials will be

returned promptly. The instructor can also advise students on their approximate progress with a grade

*estimate*. Students will be notified of their official midterm grade and their final grade through

established University procedures.

**Blackboard:** Class syllabus, notes, and other materials will be available on BLACKBOARD, accessible at:

http://www.learn.eku.edu/. To be fully prepared for class you ***must*** print out these materials before coming to class. Use the provided *PowerPoint* notes as a template for your notes; I suggest (with the exception of photos) that you print out 2-4 slides per page of paper. Keep your notes in a 3-ring binder.

Alternatively, you may bring a laptop to class and take notes directly on the electronic templates.

**My Policies:** Missed exams cannot be made-up without a valid excuse (medical or family emergency) ***certified***

***by the University***. If the excuse is acceptable, make-ups must occur within 1 week of the scheduled event. Make-up exams are largely composed of ***essay questions***.

**Midterm Grades** are due into the Registrar on **October 14**; last day to withdraw from a full-semester class is

**October 28**.

**Official email:** An official EKU e-mail address is established for each registered student, each faculty member,

and each staff member. All course-related communications sent via e-mail will be sent to this EKU e-

mail address. Moreover, the university has designated e-mail as an official communication medium,

therefore students are expected to monitor their university e-mail for course-related communiqués at

regular intervals.

**University Policies:** Refer to the University Handbook for Students for University policies. Use of tobacco

products is prohibited by law in the classroom.

**Disability Statement:** If you are registered with the Office of Services for Individuals with Disabilities, please

obtain your accommodation letters from the OSID and present them to the course instructor to discuss any academic accommodations you need.  If you believe you need accommodation and are not registered with the OSID, please contact the Office in the Student Services Building Room 361 by email at [disserv@eku.edu](mailto:disserv@eku.edu) or by telephone at (859) 622-2933 V/TDD. Upon individual request, this syllabus can be made available in an alternative format.

**Academic Integrity:** Students are advised that EKU’s Academic Integrity policy will be strictly enforced in

this course. The Academic Integrity policy is available at [www.academicintegrity.eku.edu](http://www.academicintegrity.eku.edu/).  Questions

regarding this policy may be directed to the Office of Academic Integrity.

## Our QEP Theme: EKU will develop informed, critical and creative thinkers who communicate effectively.

## STUDENT LEARNING OUTCOMES

1. Students will able to ascertain and differentiate rates of earth processes in the context of geologic time in order

to understand and appreciate their effects on oceanic and Earth systems, and their inhabitants.

2. Students will be able to explain and infer earth processes and characteristics of plate tectonic settings in order

to infer and predict processes, events, and consequences to the Earth and its life.

3. Students will able to explain and infer the behavior of interconnected Earth systems in order to understand and

appreciate their effects on climate and life on Earth, including humans.

**General Education Goals Satisfied by this Course (Gen Ed IVB, VII, 15, 16)**

2. Use appropriate methods of critical thinking and quantitative reasoning to examine issues and to identify

solutions.

5. Analyze the fundamental natural processes of the world and interactions of humans and their environment.

7. Distinguish methods that underlie the search for knowledge in the arts, humanities, natural sciences, history,

and social and behavioral sciences.

8. Integrate knowledge that will deepen student understanding of, and inform students of their own choices

about, issues of personal and public importance.

This course will introduce students to the fundamental concepts and processes of the geologic discipline, and teach students how to apply these basic principles to issues of personal and societal interest. In this course, students will learn:

a) how scientists collect data about the natural world;

b) how geologic data are analyzed and interpreted; and

c) how to draw conclusions from data to evaluate geologic impacts on personal and societal issues, in

this case, on the influences of a world ocean system on the planet’s resources and climate and how our interaction with the ocean can influence the natural processes occurring on Earth.

Critical thinking skills are essential in this course and are needed to:

1. apply general principles of science to specific problems,
2. frame a geologic question and learn what data to gather,
3. organize and interpret data in a variety of forms, and
4. relate numerical and graphical representations to physical reality.

## GROUND RULES FOR THE INSTRUCTOR AND STUDENTS

## Your Expectations

## To experience an organized, rigorous course that *challenges* you and prepares you for future academic endeavors and the working world.

* To be treated fairly with respect to others in the class, especially in grading.
* For the instructor to adhere to the ground rules in the syllabus.
* To reach me during ***regular working hours*** for help and feedback.
* To have work graded and handed back within a reasonable time period.
* Course requirements that offer you an opportunity to pass the course, and excel.
* To be treated as an adult in a respectful, courteous manner.

### My Expectations

* That you will act as adults:
  + Please be courteous and considerate to your fellow classmates and to me.
  + Come to class daily, arriving a few minutes before class starts so you can be settled and ready to start.
  + Please come to class curious and prepared to be actively engaged.
  + Do the outside work.
  + Turn work in on time that is done ***neatly***, despite outside, difficult circumstances.
  + Take exams on schedule, despite outside, difficult circumstances.
  + Realize that your performance in the course is dependent on ***your*** actions, attitude, effort, etc.
  + ***Effective*** work = results.
* Please accept the rules and guidelines in the syllabus.
* Please accept my experience in the working world and realize that my expectations are similar to those of an employer.
* That you will fairly and constructively help me improve the course and my teaching methods with adult, thoughtful feedback on course evaluations.

## COURSE OUTLINE (subject to change)

**Week** **Subjects** **Chapter(s)**

Aug 20 Introduction to the World Ocean and the Earth 1, 2

Aug 27 The Seafloor – Bathymetry 2, 3

Plate Tectonics 3, 4

*TSUNAMIS* – *What causes them? How are they related to the geologic process?*

Sept 3 ***No Class September 3 Labor Day***

Plate Tectonics 3, 4

Sept 10 Plate Tectonics 3, 4

Ocean sediments 4

Sept 17 Ocean sediments, Review for Exam 1 4

**EXAM 1 September 19**

##### 

Sept 24 *WATER:* *A MOST CURIOUS SUBSTANCE!* 5

Seawater properties & composition

Oct 1 *HURRICANES – How do they form? How are they linked to the atmosphere & ocean?*

Atmospheric circulation 6

Oct 8 Ocean structure 7

Oct 15 Ocean structure 7

**EXAM 2 October 17**

Oct 22 Deep ocean currents 7

*CLIMATE AND THE DEPTHS OF THE OCEAN – How are they connected?*

Surface currents : SAILING THE WORLD OCEAN 7

***October 28 Last day to withdraw***

Oct 29 Surface currents: Consequences 7

*ROGUE WAVES – from whence do they come?*

Waves 8

***No Class Nov. 5-6 Fall Break***

Nov 5 Waves 8

Tides

Nov 12 Tides: *How is marine life integrated with tidal movements?* 8

**EXAM 3 November 14**

Nov 19 Coasts: *How can humans co-exist with coastal processes?* 9

***No Class Nov. 21-23 Thanksgiving Break***

Nov 26 Coasts 9

*Why do whales migrate?*

Marine productivity 10

Dec 3 Marine productivity

Critters; Clean-up & review 11, 12

# *Dec 6 OUR LAST CLASS!*

**Final Exam: Monday, Dec. 12, 2011, 8 AM**