SYLLABUS
GEOSCIENCES 212, INTRO TO OCEANOGRAPHY
Summer Sessions

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GOALS: Our main goals for this class are to:
   (1) enhance your appreciation for the significance and beauty of the oceans
   (2) help you do well in this course
   (3) facilitate your success as a student at the University of Arizona

TEXT: No text, but you need to purchase a copy of the Physical Map of the World, which is available from the UA bookstore (for ~$16.99).

LECTURE OUTLINES: You are encouraged to bring a printed copy of the lecture outline with you to class every day. Outlines will be posted on the class web site (at D2L) by 3:00 on the afternoon prior to each lecture.

ATTENDANCE: I don’t take attendance, but you need to come to every class and take careful notes, as there is no book for the course and only outlines of lectures are on the web!

GRADE REPORTING: Grades will be available through D2L.

GRADED WORK: All graded papers will be returned to you in class. You have one week to make sure they were graded correctly -- bring to me if not!

EXAMS:
• Three 100-point exams will be given during the semester, and there will not be a cumulative final exam. You will need your Cat Card with you for each exam.
• Each exam covers only material since the previous exam.
• Exams will emphasize a general understanding of the topics, rather than an ability to memorize details. Slides, diagrams, and videos shown in class commonly are used during exams! Format will consist of about 40% written answers or drawing diagrams, and about 60% multiple-choice questions that are keyed to diagrams or real-world pictures.
• To help you prepare for the exams, review sheets will be available before each exam, and exams from a previous semester will be available on the class web site.
• If you will miss an exam, you can take a make-up exam after class the following Monday. No other make-up exams are available.

HOMEWORK: There will be five homework assignments during the semester. These assignments emphasize material that will be covered on the exams. Each will be worth 20 points. The homework will be based on information gathered from lecture, your world maps,
accompanying diagrams, and/or various web pages.

No late homework will be accepted. Grading problems must be discussed within one week after papers have been returned.

QUIZZES: There will be three quizzes during the semester. Each will be worth ten points, but we will drop your lowest score, so quizzes add up to 20 points. No make-up quizzes will be given (because the lowest one is dropped). Questions asked on the quizzes will be similar to questions on upcoming exams.

EXTRA CREDIT: There will be several opportunities to earn extra credit during the semester, as described below. You will be allowed to earn up to 20 total extra credit points, where each extra credit point counts the same as an exam or a homework point. Opportunities are as follows:

- **Help us get to know you** (5 points): Help me get to know you by giving us a mug shot and telling me a bit about your background and interests -- use the form on the web page. Please turn in paper copies of the form and attach a photo that shows your face (turn in during class on or before the first exam).

- **Research Proposal** (up to 10 points, only one!): Write a proposal to do a research project that would help you solve a problem or question dealing with some aspect of oceanography. You must base your proposal on a topic described in a magazine article or newspaper story. Magazines such as National Geographic commonly contain articles that related to oceanography. You should propose a realistic, scientific study that will contribute new and important information and thereby help solve a problem or answer a question. Describe your proposed project in a typed (double-space) paper (with figures if appropriate), and divide your proposal into the following sections (use these as headings):
  - Title of project and your name
  - Statement of Problem (~1/2 page)
  - Proposed Research (3 pages)
  - Significance of Research (~1/2 page -- how your work bears on problem)
  - Statement of personnel, facilities, and costs involved (1/2 page)
  - Reference List (list books, journals, or web sites from which you gathered information)

  Include a copy of the main article that you used.

  DO NOT write a standard report on your article -- you must propose something NEW!

  Proposals are due the day before Exam 3.

- **In-Class Presentations** (up to 10 points): This is an opportunity to earn extra credit points by presenting non-traditional oceanographic information to the class. Your presentation could be (1) a slide show in which you describe the oceanography or geology of some place that you have visited or lived, (2) a song (performed live!) with oceanographically oriented lyrics, (3) a multimedia depiction of a marine process, (4) a diagram that you have developed which describes a marine feature or process, etc. Almost anything goes!! Note that I need to approve your idea beforehand, your presentation must be scheduled at least one day in advance, and we will do only one presentation per class period.
• **Write a Letter to Your Congressman** (up to 10 points): Write a letter to your congressman that addresses some impact of our activities on the marine environment. Some examples are dams, climate change, sea level rise, otters, removal of mangroves, coral bleaching, whaling, seals, etc. Do web research to learn more. Write a 1 page letter (200-250 words) that will influence policy. The letter can be pro or con. This is a professional letter so use a spell-checker! Turn in paper copy of letter before the day of Exam 3, and include stamped envelope if you want me to send it.

**GRADING**: 440 points are possible from exams (300 points), homework (100 points), quizzes (20 points), and extra credit (20 points).

Grades are calculated by percent out of 420 points:

\[
\begin{align*}
A &= \geq 89.5\% = 376-440 \text{ points} \\
B &= 79.5\% \text{ to } 89.4\% = 334-375 \text{ points} \\
C &= 69.5\% \text{ to } 79.4\% = 292-333 \text{ points} \\
D &= 59.5\% \text{ to } 69.4\% = 250-291 \text{ points} \\
E &= <59.5\% = <250 \text{ points}
\end{align*}
\]

**CHEATING**: STUDENT GUIDELINES FOR INDIVIDUAL AND GROUP WORK
Department of Geosciences, University of Arizona

1. **Underlying Principle**: Unless specified in the assignment, all work and all words used to describe the results of an assignment must be the student’s own. No material, whether paragraphs, sentences or phrases may be copied from another student or from any external source. External material that is used, usually for a specific reason, must be accompanied by a citation of the source.

2. **Individual Assignments**: In some cases, students will be told that no conferring is allowed; if that is the case, students must not discuss their work with others, or show others their work. More often, Geosciences faculty will encourage discussion among students, because this facilitates learning. In such a case, any ideas and concepts may be discussed openly, but the student is still responsible for his/her own work turned in for grading. Identical paragraphs, sentences, phrases, or notations on a map/illustration can not be used by two or more students. The best way to avoid this is for students to discuss the assignment, but then separate from each other in order to produce the work to be turned in for grading, and not share electronic files using e-mail, flash drives or other methods.

3. **Group Assignments**: Geosciences faculty routinely give two kinds of group assignments. Category 1 is a group assignment where students work in parallel on the same material (for instance a mapping exercise), but then turn in individual work for grading. Discussion is encouraged, but it is essential that each student do the written or map work individually first, after which ideas may be exchanged and interpretations modified before the work is graded. Copying of another’s work is prohibited, and this can be avoided in the same way as for individual assignments. Category 2 is a group assignment where students work explicitly as
teams, perhaps with each member performing parts of a complex task (such as a geophysical or analytical experiment), and a combined product will be graded with equal scores for all members of the team. In this case, full discussion of the work, before any write-up takes place, is expected. The instructor will inform students whether a group assignment is Category 1 or 2.

4. Reporting of Cheating: All incidents of cheating or plagiarism, including facilitating of same, will be reported to the Dean of Students’ office and the College of Science. As well as the violations in take-home or field assignments detailed above, this will include any violations during quizzes and exams. The University’s procedure and forms give students an opportunity to explain to the instructor, and to comment upon (or rebut) any accusations in writing before the forms are turned in. But the forms can be turned in, reporting the cheating incident, even if the student fails to meet with the instructor or does not countersign the paperwork.

5. Expectation of Student Integrity: Instructors in the Department of Geosciences set a high standard for themselves as educators, and they expect that students, both in general education and majors’ classes, will do the same for their own education. Thus cheating and plagiarism will not be tolerated.

6. UA Code of Academic Integrity: This document is a statement of what students and faculty should expect within Department of Geosciences, or in general education courses offered by the Department. It does not replace the UA’s Code of Academic Integrity, which can be read in full at <http://deanofstudents.arizona.edu/codeofacademicintegrity>.

SUPPORT SERVICES AVAILABLE: Representatives from various support groups on campus (e.g., Academic Advising, DRC, Residence Life, Think Tank, CATS Academics) will be available to help if you have questions or need assistance.

ADDITIONAL HELP IN THIS COURSE: You are encouraged to seek assistance – send me an email so we can arrange a time to meet. If you are having any trouble, please come see me!

LEARNING/TESTING CHALLENGES: If you are in SALT or the DRC, or if you have learning/testing challenges, please let me know at the start of the semester. If at any time you are not doing as well in the class as you should be, please seek some advice!
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<tr>
<th>Lecture</th>
<th>Subject</th>
<th>HW in/out</th>
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<tbody>
<tr>
<td>1</td>
<td>Intro to Course &amp; Ocean Basins</td>
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<td>2</td>
<td>Spreading Centers &amp; Hot Spots</td>
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<td>3</td>
<td>Subduction Zones &amp; Volcanoes</td>
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<tr>
<td>4</td>
<td>Ocean History &amp; Sediment cycle</td>
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| 5       | Rivers, Wind, & Glaciers  
Sediments on the Sea Floor |           |
| 6       | Seawater Chemistry                                |           |
| 7       | Gases in Seawater                                 |           |
| 8       | Sunlight/Color/Temperature                        |           |
|         | **EXAM #1**                                       |           |
| 9       | Atmosphere                                        |           |
| 10      | Climate Patterns, Weather & Surface Currents      |           |
| 11      | Wind, Waves and Surfing                           |           |
| 12      | Coastal Currents                                  |           |
| 13      | Upwelling and Downwelling                         |           |
| 14      | El Nino & Hurricanes                              |           |
| 15      | Tsunami/Tides                                      |           |
|         | **EXAM #2**                                       |           |
| 16      | Intro to Marine Life, Evolution & Food Webs       |           |
| 17      | Kelp & Mangroves & Corals                         |           |
| 18      | Open Ocean, Whales & Dolphins                     |           |
| 19      | Deep Ocean & Hydrothermal Vents                   |           |
| 20      | Climate Change & Marine Pollution                 |           |
|         | **EXAM #3**                                       |           |