Syllabus and Preparation for 2013 Online “Marine Geology”

During the 2013 “Marine Geology” class, students will be required to read course material, complete two exams, present once and write one library research paper. Here is how it works:

All study material is presented on pdf files that are provided online. No textbook is needed, but students are encouraged to use as much of the literature as possible.

Groups of 1-3 students are assigned to a theme by random number draw. Students find their group, assigned theme, and date of presentation within the text underneath (pp. 3-4). Within that theme, they are being presented by the instructor with several publications and have the duty to use these as a basis for further independent research. Students are to read these papers and, using “Google Scholar” find at least three more. Then, they are to collaboratively produce:

- Laboratory paper to be handed in to instructor
- Powerpoint presentation to be handed in (details of date given below)

In the “live class”, all students must give a presentation. This is not possible online. However, the ppt and research paper must nonetheless be produced. Ideally, students will find a way to present to each other, or present online. Length of presentation should be 10 minutes.

All study materials exist on Blackboard as named folders (i.e. Folder “Study_Material_Sedimentology”, etc.). Find yours (it corresponds to titles on p. 2 & 3 of this memo) and begin working on it.

In most cases, groups of 2-3 people will work together on one question complex. This will teach collaborative skills and will lessen the workload on the individual. The PPT presentation and research paper will be a group-effort – therefore, do not let your peers down!

Note: groups presenting early in the semester can, if they negotiate with the instructor, submit their written part of the report later in the semester. The amount of material varies among the groups, the more material is given, the less additional material students need to find.

Presentation and research paper amount to 20% of your grade!

The goal of the exercise:
- Students themselves will markedly increase the quality of the course by helping the instructor incorporate newest research findings. Instructor guides students by providing them with several papers. These are by no means exhaustive and students are strongly advised to find more material.
- Students will learn to write a coherent report. The production of the report is in content and length comparable to a thesis proposal and will thus confer important skills.
- Students will practice live-presentation. Structure and quality of talks will be evaluated. Students should give this class presentation the same weight as they would to a conference talk. Evaluation criteria will be strict, formal, and comparable to a thesis defense. Thus important practice will be gained.
Length of presentation 10 minutes

All members of the group should speak. The following will be evaluated:

1) Structure of talk
   a. How does the presented problem complex fit within the flow of the class
   b. Introduction of problem complex
   c. Objectives of author why study was performed
   d. Opportunity student sees what can be learned

2) Understanding of problem complex
   a. What type of data is used?
   b. What type of method is used?
   c. Do results of model explain/solve the objective?
   d. Are the results coherent with, or contradictory to, what was presented in class?

3) Understanding of technical aspect
   a. Can student explain the techniques/equations?
   b. Can student explain the steps of research execution?

4) Quality of student presentation
   a. Flow of presentation
   b. Quality of preparedness (can think of and can answer questions)
   c. Clear slides/whiteboard presentation

Length of research paper: ~max. 10 pages with all figures

The research paper is to be handed in, ideally on the same day as the talk (unless something else is mutually agreed to). All group members must be identified as authors. The following will be evaluated:

1) Structure of paper
   a. Introduction consisting of three paragraphs
   b. Presentation of the tested hypothesis
   c. Presentation of methods used
2) Quality of the presentation
   a. Are the graphics clear (avoid scans - whenever possible redigitize)
   b. Is the language clear and without errors (avoid colloquialisms)
   c. Is the formal presentation clear
   d. Is the scientific content correct?
   e. Was the literature correctly interpreted
   f. Are citations used and referenced correctly?
   g. Is plagiarism evident?
Marine Geology (Section OD2)

OCOR 5604 (OD2)
Office Hours: ADD
Class Times

Dr. Bernhard Riegl
briegl@nova.edu
Wednesday 6:30 - 9:30 pm

Lecture Topics – Section 2 (Riegl)

Module 1:

The Earth:
  • Planetary origins
  • The make-up of the earth
    ▪ crust, mantle and core
    ▪ lithosphere, asthenosphere, mesosphere
  • The hypsometric curve
  • Terminology of the principal features
    ▪ Continental margin
    ▪ Continental shelf
    ▪ Continental slope
    ▪ Oceanic ridges
    ▪ Fracture zones
    ▪ Deep sea basins

Module 2:

Rocks and the
Geomorphology of the oceans:
  • Igneous rocks
  • Metamorphic rocks
  • Sedimentary rocks

Module 3:

Startigraphy:
  • Chronostratigraphy
  • Lithostratigraphy
  • Tephrochronology
  • Biostratigraphy
• Geochronology

Module 4:
Plate tectonics 1:
• Seafloor spreading
  ▪ history
  ▪ proof of concept
  ▪ magnetostratigraphy
Plate tectonics 2:
• Plate interactions
• transform faults
• seismicity

Module 5:
Island chains:
• Hawaii-Emperor chain
• Canary Islands
• Samoa

Module 6:
Margins:
• continental and oceanic
  ▪ convergent
    ▪ accretionary prism
    ▪ forearc
    ▪ backarc
  ▪ magma
• divergent
• transform
  ▪ leaky transforms
Module 7:

Shelf sedimentary processes:
- carbonate versus siliciclastic
  - estuaries
  - lagoons
  - deltas
  - beaches
  - barriers
  - continental shelf processes

Module 8:

Oceanic sedimentation
- biogenic
- carbonate sedimentation
  - lysocline
  - carbonate critical depth
- silica sedimentation
- autigenic

Module 9:

Deep sea sediments
- terrigeneous
- biogenic
- chemogenic
- volcanogenic
- polygenic
Module 10:

History of the oceans
- Pacific
- Atlantic

Each module has at its end 10 review questions. These are for your own self-testing, I will grade them, and I require you to send the answers in. So at the end of the semester, I will need 10 sets of homework questions answered and sent to me (this will be 10 points of your grade). Also, please take part in the online discussions. There will be two exams, a mid-term and a final, each will account for 90 points (100% answered correctly=90 points) of your grade (+ add the 20 points for your homeworks/ppt/research paper). We will, among ourselves decide on a testing period. During that period, you will have online access to the questions (multiple choice) and be able to take the test, which will be auto-graded (so I have no influence over it). The system will allow you a certain amount of time to complete the test after you logged in (about 1.5 minutes per question – this to avoid you leafing through your books)– so make sure you don’t log in without being able to finish the test since that will earn you an incomplete (and half your grade). The grading key is as follows:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
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<tbody>
<tr>
<td>200-191</td>
<td>A</td>
</tr>
<tr>
<td>190-181</td>
<td>A-</td>
</tr>
<tr>
<td>180-171</td>
<td>B</td>
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<tr>
<td>170-161</td>
<td>B-</td>
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<td>160-151</td>
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<td>150-141</td>
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<td>140-131</td>
<td>D</td>
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<td>130-121</td>
<td>D-</td>
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<td>120 and below</td>
<td>F</td>
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To get 100% you have to:
- submit all 10 sets of homework (10% of the final grade)
- participate in online discussions
- have 100% of the midterm right (45% of final grade)
- have 100% of the final right (45% of the final grade)

So, even if you have all questions right on both exams, unless you do all homeworks, you cannot get an A. Please take notice.