Syllabus and Preparation for 2014 “Marine Geology”

During the 2014 “Marine Geology” class, students will be required to attend classes, attend one field trip, complete two exams, present once and write one library research paper. Here is how it works:

All course material is posted online, pdfs to the lectures can be downloaded, study material is also posted online. No textbook is needed.

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 given to class (details of date given below)

All study materials exist on Blackboard as named folders (i.e. Folder “Study_Material_Sedimentology”, etc.). 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 presented 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!

Note: If you want to change your presentation date (i.e. presentation group), negotiate directly with a student assigned to your target date. Since I assigned you by random number, I will not interfere any further. So, if you can’t change and don’t present, you will get zero points.

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 20-30 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 plagiarization evident?

**Marine Geology (Section OD2)**

OCOR 5604 (OD2)                        Dr. Bernhard Riegl,  
Office Hours: ADD                biegl@nova.edu
Class Times                        to be determined
Session 1. The Earth/ Planetary origins/The make-up of the earth/ The hypsometric curve/Terminology of the principal features (Continental margin, Continental shelf, Continental slope, Oceanic ridges, Fracture zones, Deep sea basins
No student presentation

Session 2. Rocks on the land and in the sea
Student presentation: LIP-plates

Session 3. Stratigraphy/Case studies of rocks revealing Earth History
Student presentation: Arc-spreading-vents

Session 4. Plate Tectonics/Seafloor Spreading/Plate Interactions/Implications of plate tectonics for organismal evolution
Student presentation: Hotspots

Session 5. Island Chains/Oceanic Hotspots/Controversies surrounding hotspots
No student presentation

Session 6. EXAM/ Short intro shelf sedimentary processes
Student presentation: Earthquakes, Coastal Processes

Field trip: Regional Marine Geology – Florida Keys /Geology of Florida

Session 7. Shelf sedimentary processes: Carbonates /Reefs and ooids, carbonate processes
Student presentation: Sedimentology

Session 8. Continental Margins/Shelf sedimentary processes-Carbonate vs. Siliciclastic
Student presentation: Methods-Acoustic

Session 9. Oceanic sedimentation and deep sea sediments/ Uses of deep sea cores for climate reconstruction(3)Historical Geology/ reconstructions of Earth History (3)
Student presentation: Stratigraphy – Cores, Climate Change

Session 10. Climate change, climate cycles/Historical and future climate change (3)
Exam review session
Student presentation: Ocean Acidification

Session 11. EXAM

Grade Breakdown (Section 2 Riegl)
<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field trip and attendance:</td>
<td>10 Points</td>
</tr>
<tr>
<td>Exams</td>
<td>Total of 70 points</td>
</tr>
<tr>
<td>Examination 1</td>
<td>35 points</td>
</tr>
<tr>
<td>Examination 2</td>
<td>35 points</td>
</tr>
<tr>
<td>Library Paper</td>
<td>Total of 20 points</td>
</tr>
<tr>
<td>Lib. Res. Paper</td>
<td>10 points</td>
</tr>
<tr>
<td>Lib. Paper Talk</td>
<td>10 points</td>
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