SYLLABUS FOR STRAT/SED (GEOL 153) FALL 2015

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office hours by appt

Course Description: This course is an introduction to the processes controlling the transportation and deposition of sediment, the sedimentary structures produced by those processes, depositional environments, the stratigraphic correlation of rock units and the basic principles of basin analysis. Labs are designed to provide basic instruction in the skills of sedimentary rock description and measurement as well as some exposure to field techniques in the study of modern environments (rivers and beaches). Most labs are field trips and are scheduled for one and a half days between Friday afternoon to late Saturday night (if someone in the class has a Friday afternoon lab we will reschedule field trips to Saturday-Sunday). Your ability to attend all of these field trips is required for the course.

Course Goals: At the end of this course you will be able to:

• Demonstrate your ability to collect, record and represent field data from both modern depositional environments and sedimentary rock sequences
• Synthesize a variety of different types of data (compositional, textural, stratigraphic) to the interpretation of sequences of sedimentary rocks.
• Communicate the results of field and laboratory analyses in well written, organized reports that use professionally appropriate terminology, citation format and style

Ancillary course goal: demonstrate an ability to read and interpret professional geology literature.

Available via the web is a pdf of the out of print book, “Petrology of Sedimentary Rocks” by Robert Folk (http://www.lib.utexas.edu/geo/folkready/folkprefrev.html). You will need to refer to this periodically throughout the semester. I recommend downloading it.
You must also have a “write in the rain” field notebook, a hand lens, your Silva compass and sleeping bag/pad. We will survey the class to see who has tents.

Additional cost: please anticipate $5-10 for each of 2 weekend field trips to cover a contribution towards food.

Assessment: course grade will be based on two exams (30 pts each), homework (10%) and labs (including field trips), 30%. The two weekend overnight and two Saturday field trips are REQUIRED. “The best geologist is the one that’s seen the most rocks” and since the Burlington area does not have a wide diversity of sedimentary rock types we will look at rocks and depositional environments elsewhere within a day’s drive of UVM. If the weather is atrocious for these field trip dates we will have to reschedule. At this point in time the weekend field trips will involve camping and you’ll need a sleeping bag/pad and tent. If you don’t own these items you have ample time to find folks you can borrow them from. We will do group cooking of dinner (i.e. spaghetti), breakfast (oatmeal and cereal) and lunch.
# Lecture Schedule

**Reading assignments will be posted on the course Blackboard site.**

<table>
<thead>
<tr>
<th>WEEK</th>
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| Week 1 (8/31-9/4) | Origin of sediment: the basics of weathering  
No lab 8/31 |
| Labor Day 9/7 | no class |
| Week 2 (9/9 & 9/11) | Provenance and composition of siliciclastics |
| Week 3 (9/14 - 9/18) | Composition of siliciclastics and plate tectonics  
Lab: 9/14 Sedimentary rock description |
| Week 4 (9/21 -9/25) | Rudimentary hydraulics; flow regime and bedforms;  
Lab 9/21 describing sedimentary structures |
| Week 5 (9/28 -10/2) | basics of waves; stokes law  
Lab 9/28: field trip: cross channel profile and bedforms |
| Week 6 (10/5 -10/9) | Siliciclastic environments: terrestrial, marginal marine and marine  
*FIELD TRIP* 10/3-4: nw MA: Triassic-Jurassic  
No lab 10/5 |
| Week 7 (10/12-16) | environments, continued  
**EXAM 1: 10/12**  
10/12: no lab  
*FIELD TRIP* 10/17-18 Duxbury, MA modern shoreline |
| Week 8 (10/19 -23) | environments, continued  
10/19: no lab  
*FIELD TRIP* 10/24: Altona Fm, NY |
| Week 9 (10/26- 10/30) | Composition of carbonates: the carbonate factory  
10/26: no lab  
*FIELD TRIP* 10/31: to Crown Point, NY: carbonate strat |
| Weeks 10 & 11 (11/2 - 11/13) | Principles of stratigraphy  
No lab 11/2  
Lab 11/9: physical correlation techniques |
| Week 12 (11/16- 11/20) | Sequence stratigraphy and sea level change  
Lab 11/16 Identifying sequences |
11/23-27 Thanksgiving Break

Week 14 (11/30-12/4)) Sequence Stratigraphy, continued
Lab 11/30: sequence stratigraphy example
Lab 12/7: sequence stratigraphy problem

FINAL EXAM DATE: Dec 11, 1:30 pm