Lectures Tu Th 9:30-10:45 AM
Morrill 4N Room 161,
Spire # 33757

Lab Tuesdays 1:00 - 5:00 PM
Morrill 4N Room 161,
Spire# 33758
Or by arrangements

Instructor: Julie Brigham-Grette
Professor
Office: Room 247, Morrill 2
Phone: 413-545-4840
Email: Juliebg@geo.umass.edu

Office Hours: Mondays 1-3 PM
Thursdays 1:30-3 PM or
By appointment anytime!!

Required Textbooks (2):

- Doug Benn & David Evans, 1998, *Glaciers and Glaciation.* Arnold Press. 734 pages. Price: ~$65. Available UMass Text Book Annex – look for used ones. New edition will be out January 2010.
- David Evans & Doug Benn, 2004, A Practical Guide to the Study of Glacial Sediments, Arnold Press, 266 pgs. (supplemental lab materials)

Required Field Guide (1):

Field Conference Guide Book, June 2-4, 2000 "*New Drainage History for Glacial Lake Hitchcock*", 63rd Annual Friends of the Pleistocene Meeting. UMass Department Publication No. 73, 125 pages. Brigham-Grette, J. Editor, 2000. Available from JBG for $ 10

Suggested Purchase: three-ring binder for all of the handouts and lab materials I will give you over the semester -- a good way to stay organized. I will supply all lab materials.

Grading:

2 Hourly Pyramid exams	= 20% (10% each)
1 Final Take Home Exam	= 25% (comprehensive)
Labs/In-class Exercises	= 40% (No Lab Final)
Term Paper and Presentation	= 15%

Term papers are to be on any aspect related to glaciology, glacial geology or applied studies if glacigenic materials (i.e., landform genesis, mapping and field interpretation, stratigraphy, hydrogeologic studies, paleoclimate, civil engineering problems, etc). Especially if you are a graduate student, I suggest you do something relevant to your research that is problem-oriented, perhaps this could develop into a chapter of your thesis with the permission of your advisor. Literature review papers will be restricted to undergraduates, if possible. I strongly encourage creativity; work with maps, air photos, remote sensing, use and interpretation of real data from databanks like the NGDC (http://www.ngdc.noaa.gov/paleo/) or the National Snow and Ice Data Center (http://www-nsidc.colorado.edu/index.html). **Mandatory Paper outlines are due Oct. 29th.** Need help with your writing? Typed papers not longer than ~10 pages, double-spaced, submitted by Nov. 24th will be text edited *at no penalty* and returned for revision well ahead of the **Dec. 11th DEADLINE**. No late papers;

Get on it early! I will prod you if you need it; you can also prod me if I need it.

At the end of the semester during lab on Dec. 8th, everyone is expected to give a short 10-12 minute presentation on a term paper. This is an opportunity to practice your skills at presenting scientific material in a concise way. No matter where you go or what you do after UMass, when you apply for a job you will first be asked about your writing skills, communication skills and whether you can think independently. Now is the time to work on writing, speaking and *PowerPoint* skills among friends; the biggest factor is self-confidence! By December we will all be good friends; it should be fun and a good way to learn what everyone else has been working on.

****

IN-CLASS SCHEDULE

- NB: Readings listed here to the right are required and will be discussed in class. Note that in that in addition to these, a few journal readings may may be on Reserve in Room 254 **on the honor system**; a few references you'll have to dig out yourself. I will also send you PDFs on occasion.
- I expect everyone to come to class. If you must miss class or a lab due to illness, doctor appointment, or a family emergency, please let me me know by phone or email so that we can arrange arrange for you to get handouts, notes etc. Some Some labs are easy to make up; others are not.
- You must be prepared for "Sediment of the Week" – nearly every Thursday. You might get the black dot!!
- I am active at a national and international level in research related to the Quaternary sciences and I will bring this research into the classroom and share my excitement for what I do. On the other hand, I also need to travel at various times throughout the semester and will do my best to let you know in advance of any changes. The schedule below reflects my efforts to ensure you will enjoy the class. Please note that I will be at the GSA and AGU national meetings. I am in Granada Spain for the ACE meeting talking about Arctic/Antarctic connections during the first week of classes. Readings, assignments and guest lectures will fill in.

Date	Topic	Readings (pages in Benn and Evans)
T 8 Sept.	Introduction/Planning	Sub
Th 10	Great Movies	Sub
T 15 Sept.	Glacial systems, New England history	1-13;Ridge review 2003
Th 17 Sept	Milankovitch & isotopes in glacial history	1-13; 49-63; 90-93
T 22 Sept.	Ice properties; snow facies; thermal properties	66-74;95-96
Th 24 Sept.	ELAs and Glacier Mass Balance	74-90,
T 29 Sept.	Glacier Flow and Ice sheet Profiles	Chapter 4
Th 1 October	The Role of Water; fluvial systems	Chapter 3

T 6 Oct.	Subglacial erosion	178-210, JBG in Moscow
T h 8 Oct.	Entrainment and Transport	Chapter 6
T 13 Oct.	Monday Schedule - no class	
Th 15 Oct.	Facies and Glacial Tills	378-399; 404-411
T 20 Oct.	First Exam	JBG at GSA-Portland OR
Th 22 Oct.	Facies and Tills cont	422-506; JBG flying back
T 27 Oct.	Subglacial Sediment-Landform associations	Chapter 11
Th 29 Oct.	Erosional Landforms	Chapter 9 **(Paper outlines DUE)**
T 3 Nov	Erosional Landscapes	Chapter 9
Th 5 Nov	Moraines and Ice marginal associations	Chapter 11; Gustavson and Boothroyd, 1987
T 10 Nov.	Glacial Land Systems 1	Chapter 12
Th 12 Nov.	Glacial Land Systems 2	Chapter 12
T 17 Nov.	SECOND EXAM	JBG in Wash DC – Polar Research Board
Th 19 Nov.	Glaciolacustrine systems It fills the valleys ‘round here!	Chapter 8; Ridge and Larson, 1990
T 24 Nov.	Glaciomarine sediments	Chapter 8
Th 26 Nov	Thanksgiving Holiday	Enjoy!!!!!
T 1 Dec.	Offshore stratigraphy	Chapter 13; Oldale papers on New England
Th 3 Dec.	Glacio-isostasy	27-39
T 8 Dec.	Eustasy	27-39
Th 10 Dec.	Eolian sediments (Loess et al.)	Menzies Vol.2-Chapter 6
Fr 11 Dec.	**Final Papers due in my mailbox**	**Last day of classes**
14-18 Dec	Exam week – take home exam	JBG at AGU – San Francisco

<<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>>

LABORATORY SCHEDULE

Please be prepared for some flexibility in the schedule due to weather etc.

Week	Date (Tues)	Topic
1	8 Sept	No lab this week
2	15 Sept	**Field trip**: Intro to Glacial Landscapes and Surficial Maps Framework of N. Am. Glacial History, New England Glacial History
3	22 Sept	**Field Trip**: Field descriptions and standards
4	29 Sept	Topo vs. Surficial Maps – reading lines
5	6 Oct	Computer project: Ice Sheet Reconstructions
6	13 Oct	No class – Monday class schedule followed
7	20 Oct	**Field Trip:** Glacial Erosion and Tills (guest lead)
8	27 Oct	**Field Trip:** Glacial Deposition / fabrics
9	3 Nov	**Field Trip**: Lacustrine Deposition
10	10 Nov	Morphosequences, Landforms and Subsurface mapping (Stones?)
11	17 Nov	Aerial photos and glacial landscapes (guest lead)
12	24 Nov	Isostasy and Eustasy (why marine silt/clay blankets the coast)
13	1 Dec	MAPS and 3-dimensional mapping
14	8 Dec	Term Paper Presentations and Review

<<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>><<>>