STRATIGRAPHY (GLY 431)
SPRING 2012

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Class: Lecture: Tuesday and Thursday, 9:30-10:45 am, DL-105
Laboratory: Thursday 2:00-4:50 PM, DL-105.

Office Hours: Tuesday and Thursday, 8:30-9:30 am, 10:45-11:30 am, Tuesday 1:00-3:30 pm; Other times by appointment

Lecture Textbook: Principles of Sedimentology and Stratigraphy by Sam Boggs, Jr., Prentice-Hall, Englewood Cliffs, NJ, 5rd Edition, 2012, 585 p.

Readings Notebook A notebook with **Stratigraphy Readings** has been placed in the bookcase in DL 105 with a series of papers to be read during the semester. These readings are coordinated with the lecture schedule below. The notebook MUST not be removed from the lab. If you want to copy a paper, you may remove it, copy it, but you must replace the original immediately. Additional readings may be assigned during the semester. Some of the listed readings are in pdf format and are at (http://people.uncw.edu/harrisw/Index.htm); they are indicated on the List of Readings.

Laboratory Text: **None required – Handouts are given for all exercises**

Objectives and Learning Outcomes: Stratigraphy is senior-level course and assumes that you have background in paleontology, petrology, historical geology, structural geology, and field methods. However, complete comprehension of many stratigraphic principles and procedures requires knowledge of other areas of geology as well as some geophysics. The primary objective of GLY 431 is to familiarize you with the main techniques and methods that are used by a stratigrapher in research, academia, or industry. Techniques and methods of stratigraphy are varied and not all of them can be introduced in a semester-long course. Therefore, this course will concentrate on those methods that have practical application to the study of layered rocks particularly as they apply to field-related problems. Specific objectives include introduction to methods of data collection, data analysis, and data interpretation. Data interpretation includes methods of data illustration and data representation. In order to illustrate this methodology, field-related geologic problems are used during the laboratory. You should find that stratigraphy draws upon all areas of geology you have studied and should force you to integrate what you have learned in other courses. Consequently, it is extremely important to be prepared for class. Read the assigned readings before each class and keep up with them during the semester so that you can ask question in class.

Attendance Policy: All classes are important, thus class attendance is mandatory to ensure total awareness of each subject area. You will be allowed **THREE** excused cuts from lecture during the semester; for each unexcused absent I will deduct 2 points from your final grade. If you miss class because of an emergency, injury, sickness or other approved problem, I will gladly help you with the missed material an consider excusing the absence. There are no unexcused absences permitted from the laboratory. If you miss laboratory, you better have a note from *Jefe Grande (GOD)*.

I start class promptly at 9:30 AM; you should be here ready to take copius notes at the beginning of class. I am not happy with people who come to class late disrupting me and those who are deeply involved in the process of learning. In addition, I don't look favorably upon students who leave class early, unless they have discussed it with me before class. Remember, pay attention in class, ask questions and become engaged in the topic. If you plan on becoming a practicing geologist you will find that concepts learned in this class will enhance your ability to compete and also pass professional licensure (ASBOG exam).

Student Behavior: The University of North Carolina Wilmington Code of Student Life states that students who "Conduct himself/herself in a manner that significantly interferes with the teaching, learning or operations of the university" are disruptive and subject to disciplinary action. This includes the use of cell phones, text messaging, excessive talking, getting up and leaving the class during lecture. **Turn off your phones**; if one rings you will be asked to leave the class and prepare a written apology to be read to the class and me at the beginning of the next class period. In addition, searching the web, using your phone for texting or reading/sending email during class will not tolerated.

Academic Honor Code: The University's Honor Code is enforced in this class and laboratory. Plagiarism is a specific violation of the Honor Code and in this class includes cheating on exams and turning in work that is not your own. In the laboratory I encourage you to work in groups as you can learn from others, and once employed in the profession you will work as part of a team, but remember the work you complete and submit must be your own. If you are not familiar with the Code, complete details are in the current UNCW Code of Student Life or at (http://www.uncw.edu/policies/documents/03_100FINALHONORCODE_Aug2009.pdf)

Violence and Harassment: "UNCW practices a zero-tolerance policy for violence and harassment of any kind." For emergencies contact UNCW CARE at 962-2273, Campus Police at 962-3184, or Wilmington Police at 911. For University or community resources visit http://www.uncw.edu/wrc/crisis.htm."

Students with disabilities. Students with diagnosed disabilities should contact the Office of Disability Services (962-7555). Please give me a copy of the letter you receive from the Office of Disability Services detailing class accommodations you may need. If you require accommodation for test-taking please make sure I have the referral letter no less than three days before the test. (http://www.uncw.edu/stuaff/disability/)

Religious Observance Policy. In accordance with NC SL 2010-211, you are entitled to two excused absences for religious observances **per academic year**. You must inform me in writing the first week of class if you will be missing any classes due to religious observance and using one of the two permissible absences for the academic year. In addition, please inform the Registrar the first week of class who will then confirm your intentions to miss class with the impacted course instructors. Any absence for religious purposes will be considered unexcused unless you submit the request in writing the first week to either me and the Registrar.

The UNCW Statement on Diversity in the University Community. As an institution of higher learning, the University of North Carolina Wilmington represents a rich diversity of human beings among its faculty, staff, and students and is committed to maintaining a campus environment that values that diversity. Accordingly, the university supports policies, curricula, and co-curricular activities that encourage understanding of and appreciation for all members of its community and will not tolerate any harassment or disrespect for persons because of race, gender, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, political affiliation, marital status, or relationship to other university constituents.

Method of Evaluation: Three examinations will be given, including the final exam. Each examination will count 20% of your final grade as will the laboratory (20%). The other 20% will be determined from a final class presentation (15%) and class participation (5%). Examinations in this course reflect

regurgitation of some facts given in lecture and the readings, and application of the concepts presented in class and the laboratory. In addition, class examinations include the thoughtful integration of material presented in class with other areas of geology. Remember to **THINK**. **There will be no makeup examinations or extra credit given in this class. If you miss an exam you will be assigned a grade of zero.**

Grade Scale: 100-93 = A, 92.9-90 = A-, 89.9-87.5 = B+, 87.4-82.5 = B, 82.4-80 = B-, 79.9-77.5 = C+, 77.4-72.5 = C, 2.4-70 = C-, 69.9-67.5 = D+, 67.4-62.5 = D, 62.4-60 = D-, <60 = F.

Supplies: You are not required to purchase any special supplies for this class; however, you will find it useful to have a field book, rock hammer, hand lens, and perhaps a pair of hiking/field boots for use on field trips. An engineers scale, an eraser, and a set of colored pencils will be useful for lab work.

E-Mail: All UNCW students have university E-mail accounts and the accounts are the official means of communication in this class. Class information will be shared with you through this account. I would like each of you to E-mail me greetings by Wednesday, January 18. Your e-mail must come from your university account; I will not respond to outside e-mail accounts.

Paper: Each student will prepare a presentation on some aspect of either spatial or temporal stratigraphy that I approve. The 10 minute presentation will be presented to the entire class during the last laboratory period. A suggested outline will be distributed at a later date to help with organization of the presentation and the dates various components are required for my review. Remember to start your preparation early; waiting to the last minute will only result in a poor presentation and a lower grade.

TENTATIVE SCHEDULE

Date	Topic	Reading* (Textbook is indicated)
Jan. 12 (R)	Introduction, Course Organization, Philosophy	Reading[1], Schoch, p. 1-7, 21-26 Reading[2], Chamberlin, p. 754-759
Jan. 17 (T)	The Stratigraphic Database - Field Study, Equipment, and Basic procedures at Outcrops	Reading[3], Compton, p 1- 47
Jan. 19 (R)	Physical Properties of Sedimentary Rocks	Boggs, p. 43-98
Jan. 24 (T)	Physical Properties of Sedimentary Rocks	Boggs, p. 43-98
Jan. 26 (R)	The Stratigraphic Database – Subsurface Study Subsurface Data Types – Well Cuttings	Reading[4], Baars, p. 1-3 Reading[5-1], Scott, p. 43-72
Jan. 31 (T)	Subsurface Data Types - Cores	Reading[5-2], Self-Trail, p. 33-42
Feb. 2 (R)	Subsurface Data Types - Petrophysical Logs	Reading[6], Doverton, p. 3-61
Feb. 7 (T)	Subsurface Data Types - Petrophysical Logs cont.	Reading[6], Doverton, p. 3-61
Feb. 9 (R)	Seismic Data Gathering Techniques	Reading[7], Bayli et al., 70 p.

Feb. 14 (T)	**FIRST EXAM**	
Feb. 16 (R)	Seismic Stratigraphy	Boggs, p. 365-380 Reading[8], Emery & Myers, p. 45-51
Feb. 21 (T)	Sequence Boundaries, Characteristics and Signifcance	Reading[9], Vail et al., p. 99-116
Feb. 23 (R)	Principles of Sequence Stratigraphy, An Overview The Basic Model	Reading[10], Catuneanu p. 1-15 Reading[11], Miall, p. 58-69 Boggs, p. 380-389
Feb. 28 (T)	Intrasequence Surfaces and Systems Tracts, Characteristics	Reading[12], Loutit et al., p. 183-213
Mar. 1 (R)	Clastic Facies and Depositional Sequences	Reading[13], Posamentier et al., p. 109-154
	Carbonate Facies and Depositional Sequences	Reading[14], Sarg, p. 155-181
Mar. 6 (T)	Changing Sea-Levels, Global Cycles	Reading[15] , Haq et al., p. 1156-1167 Reading[16],Technical Comments, p.596-602
Mar. 8 (R)	Introduction to the North American Stratigraphic Code and the International Stratigraphic Guide	Boggs, p. 495-507, Stop at Part II, Articles Reading[17],Salvador, (p. 1-11)
	Lithostratigraphic and Lithodemic Units	Boggs, p. 337-354, Boggs, p. 507-520
March 10-18	**Spring Break**	
Mar. 20 (T)	Lithostratigraphic and Lithodemic Units cont.	Boggs, p. 337-354 Boggs, p. 507-520
	Lithostratigraphic Correlation	Boggs, p. 354-364
Mar. 22 (R)	**SECOND EXAM**	
Mar. 27 (T)	Biostratigraphy and Biostratigraphic Units	Boggs, p. 406-424 Boggs, p. 521-523
Mar. 29 (R)	Biostratigraphic Correlation	Boggs, p. 424-433 Reading[18], Zeller, p. 631-636
Apr. 3 (T)	Magnetostratigraphy	Boggs, p. 389-405 Boggs, p. 520-521
Apr. 5 (R)	Chronostratigraphy	Boggs, p. 434-462 Boggs, p. 527-533

Apr. 10 (T)	Radiometric Dating	Reading[19], Schoch, p. 258-279
Apr. 12 (R)	Radiometric Dating cont.	Reading[19], Schoch, p. 258-279
Apr. 17 (T)	Geologic Time Scales	Reserve[20], Gradstein et al., p. 3-46
Apr. 19 (R)	Chemical Stratigraphy	Reserve[21], Elderfield, p. 71-90 Reserve[22], McArthur, p. 331-358
Apr. 24 (T)	Chemical Stratigraphy cont.	Reserve[21], Elderfield, p. 71-90 Reserve[22], McArthur, p. 331-358
Apr. 26 (R)	Putting it All Together to Understand Basin History	Reserve [23], DeMan et al.

Last Day of Classes – April 30

FINAL EXAM: May 8, 8:00 AM-11:00 AM, DL-105