GEOL 4200 PRINCIPLES OF STRATIGRAPHY 3 Cr.
Prerequisites: GEOL 1100, GEOL 1110, GEOL 2130
An introduction to the principles of stratigraphic analysis and correlation of sedimentary rocks. Provides an overview of depositional systems and stratigraphic successions in different tectonic domains. Includes practical exercises in the interpretation of depositional systems, construction of stratigraphic cross sections, construction of isopach and structural contour maps and interpretation of seismic reflection profiles. Two hours of lecture and two hours of laboratory per week with oral and written assignments. One afternoon field trip and a 4-5day field trip to the central/southern Appalachians are required. A field trip fee will be assessed to cover transportation and other field trip related costs.

Course Justification and Explanation
Stratigraphy is the study of layers of sediments and or rocks (strata), focused on their identification, description, and origin as they relate to the spatial and temporal extent of other strata. The familiar analogy is that the vertical arrangement of strata, similar to the chronological sequence of pages in a book, provides a record of the past, a story of earth events and geologic processes. Although this statement is most certainly true, stratigraphic analysis is much more, and a critically important component of a complete geologic education. Stratigraphic thinking allows geologists to more fully understand the fashion in which sediment accumulates, the locations it accumulates in, and the geographic extent of multiple accumulations through time. The importance of this knowledge is evident in a large number of investigate situations, for example: 1) petroleum geologists use this type of information to best decide the location to drill for oil-bearing strata; 2) structural and engineering geologists to assess the likelihood of landslides in landslide-prone areas; 3) paleoclimatologists to determine the record of past glacial events and probability of future climatic fluctuations, or 4) coastal geologists to determine the volume of sediment on the Louisiana shelf that is suitable for the renourishment of barrier island beaches. It is a fundamental geologic course that enhances critical thinking skills through micro and macro characterization of strata from observations, interpretations of the genesis of the strata, and visualization of the three-dimensional extent of strata. This course will focus on introducing the fundamentals of stratigraphic analysis through lectures, discussion, practical laboratory exercises, and field trips. Additionally students will be expected to read professional papers on key stratigraphic topics and present their understanding of state-of-the-art analytical tools and models through papers and oral presentations.

Expected Frequency of Course

Every 2 to 3 semesters.

SYLLABUS: GEOL 4096 Principles of Stratigraphy
Spring 2003

Instructor: Dr. Mark Kulp, Department of Geology and Geophysics
Meeting times: MWF 9-10, GP 1056
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Email: mkulp@uno.edu
Office Hours: Geology 1029: Monday 10-11 or by appointment

Textbooks:
Principles of Sedimentology and Stratigraphy: S. Boggs Jr. 3rd edition

Course Objectives:
Stratigraphy involves the temporal and spatial organization and classification of strata based on their properties. This course is designed to introduce you to the critical thinking skills and methods that stratigraphers use to evaluate facies, depositional systems, and stratigraphic relationships. I expect that you will leave this class with your senses "tuned" for depositional systems and stratigraphic relationships, thereby gaining a deeper understanding of the theoretical and practical importance of stratigraphy in deciphering Earth history, in addition to its practical applications in other fields of geologic investigation.

Course Evaluation
Grading: Total class grade: over 90% = "A", 80% = "B", 70% = "C, and 60% = "D".

Undergraduate Students:	Exam # 1	20%
	Abstract 1	10%
	Abstract 2	15%
	Assignments	15%
	Writing Assignments/Feedback writings/Quizzes	15%
	Final Exam (Monday 5/5 @ 7:30 am)	25%
Graduate. Students:	Exam #1	20%
	Abstract 1	10%
	Abstract 2	15%
	Assignments	15%
	Writing Assignments/Feedback writings/Quizzes	5%
	Final Project	10%
	Final Exam (Monday 5/5 @ 7:30 am)	25%

Extra Credit: None. Don't ask. Likewise, don't ask to makeup missed assignments, or labs due to unexcused absences.

Syllabus Details:
Exams: There will be a one-hour mid-term exam and a two-hour final exam. Exams will consist of short answers, essays, and/or problems for you to work. All material covered in the lecture and/or lab period is open for test questions. Final exam will be cumulative in coverage.

Abstracts: Throughout the semester you will be asked to read a variety of papers on different topics related to stratigraphy. For some of these you will then be asked to summarize the material and your understanding of the material through the writing of abstracts, as well as present the significance of the paper to the class.

Assignments:
Any assignment turned in after the specified due data (at the beginning of class) will be considered late, an assignment not handed in by the end of the day it is due will not be accepted without a valid University excuse. Assignments turned in late, will be graded **with a 20% penalty**. Make-ups will only be given for verifiable written excuses specifically recognized by the University (illness of the student, or of an immediate family member, death of an immediate family member, participation on trips related to certain University functions, major religious holidays). If you miss any classes, you must promptly contact me if you have any hope of making up material. Make-ups after one week has passed will be permitted only under extenuating circumstances.

Quizzes: Several in-class quizzes may be given. Although these will typically be announced ahead of time several unannounced quizzes may take place. Quizzes will be short, to be completed in less than 15 minutes. Quizzes will consist of short answer and/or essay questions.

Feedback Writings: Additionally, several times during the semester we will have a Feedback Writing assignment. This will consist of a 1-2 sentence answer to a question I pose. Normally the question will be "What was the coolest, most awe-inspiring thing you learned today?" or "What concept did you not understand yesterday?" The purpose is to open up lines of communication between us. This will give me an idea of how everyone is progressing and allow you to voice problems you might be having but are to shy too ask in class. The only way not to receive full credit for a Feedback Writing is by missing class without a valid excuse or not answering the question.

Graduate Students: In order to receive graduate credit for this course you will need to complete a final project. The final project will focus on developing a stratigraphic framework and interpretation for an assigned or chosen geographic location and stratigraphic interval. The purpose will be to utilize the skills and knowledge you develop from lectures and laboratory exercises to construct a detailed stratigraphic analysis. A paper will be submitted as part of the final project in addition to a presentation in front of the class.

Class Attendance: If you do not attend class you will miss assignments and possibly quizzes on a regular basis. Stratigraphy is a complicated, rigorous subject that I will attempt to portray to you in a sensible fashion. You will enjoy the course more (and in all probability get a much better grade) if you attend regularly.

Other not so trivial stuff:
Exam Conflict for University Approved Reasons: If you have an official conflict with one of the course examination dates for an officially sanctioned University reason, you may seek to take that exam at a different time or date. However, you must follow University guidelines in seeking such a rescheduling. Typically, this means seeking the change as early as possible, and in no instance less than 2 weeks before the examination date.

On Working Together and Plagiarism: You will be encouraged to study together for tests and quizzes and, in most cases, work together on homework assignments. I have found in the past that students who engage in such collaborative learning typically do better. Any work that is turned in for a grade, however, ***must be your own expression of your own understanding of the material***. Your ability to express yourself in writing is a key component of education and an essential goal of this college, and your writing can too easily be influenced by word choices of classmates. **DO NOT** copy directly from anyone else. **DO NOT** even look at what they have written. Ask questions and argue with a classmate about the significance of a downlapping stratigraphic boundary, but **DO NOT** ask to look at what a classmate has written on the subject. **DO NOT** copy sentences directly from a book or article. Do your own writing based on your understanding of the material. See me if you have questions regarding plagiarism. Suspicion of plagiarism will result in a private conversation with the instructor. Confirmation of plagiarism is subject to the minimum of failure for the class, as per University regulations.

GEOL 4096: SCHEDULE

Date		Lecture Topic	
Week 1	1/13	Intro/Observations/Interpretations	Ch. 8
Week 2	1/20	Alluvial Fan Deposition/ Fluvial Systems	Ch. 9
Week 3	1/27	Deltaic/Coastal Systems	Ch. 10
		Grad Student Project Outlines Due Wednesday 1/29	
Week 4	2/3	Eolian/Lacustrine/Glacial Systems	Ch. 9
		Abstract #1 Due Friday 2/7	
Week 5	2/10	Siliciclastic Shelf/Slope/Rise Systems	Ch. 11
Week 6	2/17	Carbonate/Evaporite Systems	Ch. 12
Week 7	2/24	Lithostratigraphy, Biostratigraphy	Ch. 13,17
Week 8	3/3	Mardi Gras Holidays	
Week 9	3/10	Mid-Term Exam on Friday 3/14, Strat.Resolution, Chronostratigraphy	Ch. 16,18
Week 10	3/17	Strat.Resolution, Chrono, Chemo, and Magnetostratigraphy	Ch. 16,18
Week 11	3/24	Tectonics and Sedimentation	Ch. 19
Week 12	3/31	Eustasy/Isostasy/Cycles	Ch.
		Abstract #2 Due Friday 4/4 and 5-minute Presentations	
Week 13	4/7	Sequence Stratigraphy I	Ch. 14,15
Week 14	4/14	Spring Break	
Week 15	4/21	Sequence Stratigraphy II	Ch. 15
Week 16	4/28	Basin Analysis: Eustasy, Subsidence and Backstripping	Ch. 19
		Grad Final Project and Presentations Due Wednesday 4/30	
Week 17	5/5	Final Exam!!! Be there or be square	