GEOS3421/5441 COURSE INFORMATION AND POLICIES

Course Title and Description – Stratigraphy & Sedimentology (Undergraduate)/Facies & Stratigraphic Analysis (Graduate). The course meets for six hours per week, half of which will be lab meetings. This is an upper division course for geoscience majors, which will address the basic principles of deposition and stratigraphy of sedimentary rocks. Lectures will be held in room 154 of the COBA Building on the UTA Campus, and the reciprocal distance-teaching lab at UTD. Labs will be taught at both UTA and UTD in the respective sedimentology lab rooms of each respective campus.

Instructor - Dr. John M. Holbrook has a B.S. degree from University of Kentucky, an M.S. degree from University of New Mexico, and a Ph.D. from Indiana University, all in geology. His specialties include sedimentology, sequence stratigraphy, sedimentation and tectonics, Quaternary geology and geomorphology.

Accessibility of Instructor - Dr. Holbrook's office is 201 Geosciences on the UTA campus. His office hours this semester are 12:00-12:30 and 4:30-5:30 on Tuesday and Thursday. Important conferences can be arranged at other times by appointment. Phone is 272-1202. E-mail is "holbrook@uta.edu."

Texts and Other Materials Required for Class - The lecture text is *Principles of Sedimentology and Stratigraphy*, 4th edition, by Sam Boggs, jr. Reading assignments in the text are designated by chapter in the course outline, and some additional reading is often suggested. The laboratory will follow the lecture. Some of the laboratory assignments will be field exercises. Students will need field clothing for the field exercises, including rugged boots and possibly rain wear, sample bags, day pack, small notebook, some of the lab gear, a rock hammer, and safety glasses.

Attendance - University policy will apply. Students are expected to attend all class meetings, to arrive at class on time, and not to leave class before dismissal.

Discipline - A student may be dropped from a course for any behavior that is disrupting the learning environment of the other students. Cheating and other forms of scholastic dishonesty will not be tolerated.

Grades and Grading - Determination of grades will include both objective (in sports, examples would include fastest time, highest jump, or best score) and subjective (in sports, gymnastic performance evaluation, strike zone calls, penalty assessments) elements. Possible scores are as follows:

Undergraduate		*Graduate*	
Lecture exams (5)	500 pts	Lecture exams (5)	500 pts
Laboratory assignments (6)	240 pts	Laboratory assignments (7)	240 pts
		Research project/paper (1)	160 pts

Make ups - Scores missed because of University-sanctioned events may be rescheduled. All other make ups are at the option of the instructor. The general policy is to assign a paper. Other options are at the discretion of the instructor.

Examinations - Lecture examinations will be open book, and will comprise essay questions. Lecture exams and labs will both require knowledge of skills and an understanding of process, rather than memorization of facts.

Field Exercises - At least one lab will require a Saturday field trip. Other field labs will be handled locally, during lab meetings. Field trips will be scheduled soon, and should occur late in the semester over weekend(s). More information will be given prior to the trip.

Note taking - Recording of lectures in lieu of attendance is permitted only with prior approval, which is only granted for extreme hardship cases. The instructor does not loan notes. Absent students must obtain notes from other students. It is a good idea to make arrangements for missed notes before an absence occurs. If a point is missed during a lecture, query the instructor; do not interfere with other students' note taking. It is not a good idea to attempt taking notes by highlighting in the textbook.

Studying - Students are urged to keep up with the reading assignments and appropriate study to avoid being snowed under trying to cram for exams. Being unprepared for class fosters a poor opinion of a student's ability by all concerned. For average students, most experts recommend at least two hours of study for each hour of class time. Exceptional students should do more. Also, in studying the text, pay particular attention to the illustrations. It is a good idea to practice sketching illustrations of key concepts until they can be accurately reproduced quickly and completely. This is an essential skill for all geology students. The provided example questions will prove extremely valuable. It is highly advised that these be treated as homework assignments in preparation for the tests.

Research Project/Paper – Students taking the course for graduate credit will be expected to do a project or a paper in addition to other materials. Whether this amounts to a paper or a project depends on the interests of the student and professor, and opportunities that may arise. Other appropriate and equivalent substitutions for a paper or project may be substituted at the discretion of the instructor. The paper or project or any substitution should be appropriate to the elevation of this course to graduate stature.

Questions - **PLEASE ASK APPROPRIATE QUESTIONS AT ANY TIME.**

Thank you for your study of this information. Good luck in this course!

GEOS3421/5441 COURSE OUTLINE

LECTURE TOPICS

Introduction; course policies; role of sedimentation and stratigraphy in geology

Section I: Petrology of Siliciclastic Rocks

1) Weathering and the origin of sediment (Chapter 1)
2) Sedimentary textures and properties (Chapter 3)
3) Petrography, and diagenesis of siliciclastic rocks (Chapter 5)

Section II: Petrology of Non-siliciclastic Rocks

1) Introduction to transport and precipitation of non-siliciclastic sediments
2) Deposition, diagenesis, and petrology of major non-siliciclastic rock groups (Limestone and Dolomite [Chapter 6]; Evaporites, chert, phosphates, and organic rocks [Chapter 7])

Section III: Fluid Mechanics and Sedimentary Structures

1) Basics of fluid mechanics and sediment transport (Chapter 2)
2) Sedimentary Structures (Chapter 4)

Section IV: Depositional Environments

1) Introduction to environmental interpretation
2) Continental environments (Chapter 8)
3) Marginal-marine environments (Chapter 9)
4) Marine environments (Chapter 10 and 11)

Section V: Facies and Stratigraphy.

1) Facies concepts (Chapter 12)
2) Computer modeling of sedimentary facies
3) Lithostratigraphy (Chapter 12)
4) Seismic, sequence, and magnetic stratigraphy (Chapter 13)
5) Biostratigraphy (Chapter 14)
6) Chronostratigraphy (Chapter 15)

Note: A lecture exam will be given at the end of each section of the course over the material within that section. There will be no final; however, bear in mind that the material is cumulative, and material covered in prior sections may be required in subsequent sections. The lecture schedule is not ridged, and certain subjects may take more or less time (depending on the interests and needs of the class).

LABORATORIES

1) Sedimentary textures (Week 2)
2) Petrology of siliciclastic rocks (Week 3 & 4)
3) Petrology of carbonate rocks (Week 5 & 6)
4) Sedimentary structures (Week 8 & 9)
5) Modern depositional environments (Field Exercise) (Week 10 & 11)
6) Ancient depositional environments and Stratigraphy (Field Exercise) (Week 12 & 13)