

GEOLOGY 515-001
METHODS OF SEDIMENTOLOGY (Fall 2009)

Instructor	Office	Phone	E-Mail
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Office Hours: MW 9 a.m.–noon & 1–2 p.m., F 9–11 a.m., or by appointment.

Web Resources: <http://people.uncw.edu/thayer/gly515/>

Required: 1) Bound laboratory notebook with page numbers, and 2) hand lens.

General: This is a laboratory course designed to introduce techniques used in the study of sediments and sedimentary rocks. Course reference books are listed below; most are on overnight reserve in Randall Library. Weekly laboratory handouts will list specific pages and supplemental journal articles to read. Assigned readings **must** be completed before class.

Attendance: Class and laboratory attendance is compulsory. Call or e-mail if you cannot attend class because of illness or family emergency.

Notebook: You are required to keep a course notebook in which you document all course work. This includes class notes, outside readings, trips to the library, meetings with instructor, laboratory experiments, etc.—that is, everything connected with the course. You must include dates and times for all activities. Use permanent ink. The notebook will be kept current and should be neat, legible, and well organized. The notebook will serve as proof that you are doing the required course work. I will collect the notebooks without prior notice and audit them carefully.

Grading: Laboratory notebook, 10%; Class Participation, 10%; Laboratory Reports, 80%. Laboratory reports will be graded on technical merit, style (organization, grammar and spelling), and neatness. All laboratory reports **must** be turned in by the designated time and date. Late reports will not be accepted, and a grade of zero will be given for that laboratory exercise. **Blatant disregard for laboratory safety rules will result in immediate dismissal and course failure.**

Academic Honor Code: The University's Honor Code is enforced in this class. If you are not familiar with the code complete details are in the current Student Handbook.

Sedimentology Laboratory (DL-218) Rules and Safety:

1. The laboratory shall be kept locked when not in use. **Do not** allow unauthorized people in the laboratory.
2. A key for DL-218 will be assigned to you by the Earth Sciences secretary. **The key must be returned by 3 December, 2009 in order to receive a grade for this course.**
3. **Know location and use of safety equipment: fire extinguisher, eye wash, shower, and fire blanket.**
4. **Call campus police (911) in case of emergency or serious injury.**
5. **All accidents**, no matter how minor, **must** be reported immediately to your instructor or Dr. Leonard, Department Chair.
6. **Do not** use chemicals, supplies, or equipment without instructor's training or approval.
7. **Always** wear safety glasses when using chemicals, hazardous materials, or any piece of dangerous equipment.
8. **Always** wear rubber gloves, full face shield, and apron when using strong acids and bases.
9. **Always** wear safety glasses and gloves when working with weak acids, bases, or other hazardous materials.
10. **Always** wear safety gloves when using drying ovens or hot plates.
11. **Use** fume hoods for working with acids, bases, or toxic chemicals.
12. **Do not** leave chemicals, apparatus, samples, or anything else laying about the laboratory.
13. **Wash, dry, and store** all glassware after you have completed an assignment.
14. Return all equipment and apparatus to its proper place when finished.
15. **Do not** exceed 100°F when using drying ovens. **Do not** put flammable materials in drying ovens.
16. Turn off all electrical equipment when finished.
17. **No food or drinks allowed.**

Reference Books in Randall Library

- Carver, R.E., ed., 1971, *Procedures in Sedimentary Petrology*: New York, Wiley-Interscience, 653 p. [Reserve]
- Collinson, J.D. and Thompson, D.B., 1989, *Sedimentary structures, 2nd ed.*: Boston, Unwin Hyman, 207 p. [Reserve]
- Griffiths, J.C., 1967, *Scientific Method in Analysis of Sediments*: New York, McGraw-Hill Book Co., p. 43-108. [Reserve]
- Hutchison, C.S., 1974, *Laboratory Handbook of Petrographic Techniques*: New York, N.Y., Wiley-Interscience, 527 p. [Reserve]
- Krumbein, W.C., and Pettijohn, F.J., 1938, *Manual of Sedimentary Petrography*: New York, N.Y., Appleton-Century Crofts, Inc., 549 p. [Reserve]
- Kummel, B., ed., 1965, *Handbook of Paleontological Techniques*: San Francisco, CA, W. H. Freeman, 852 p. [Reserve]
- LeRoy, L.W., LeRoy, D.O., and Raese, J.W., 1977, *Subsurface Geology, Petroleum, Mining, Construction*, 4th ed.: Golden, CO, Colorado School of Mines, 941 p. [Reserve]
- Lewis, D.W., 1984, *Practical Sedimentology*: New York, Van Nostrand Reinhold, 229 p. [Reserve]
- Lewis, D.W., and McConchie, D., 1994, *Analytical Sedimentology*: New York, Chapman & Hall, 197 p. [Reserve]

- Lindholm, R.C., 1987, *A Practical Approach to Sedimentology*: Boston, Allen & Unwin, 276 p. [Reserve]
- Lucchi, F.R., 1995, *Sedimentographica: photographic atlas of sedimentary structures, 2nd ed.*: New York, Columbia University Press, 255 p. [Reserve]
- Pettijohn, F.J. and Potter, P.E., 1964, *Atlas and glossary of primary sedimentary structures*: Berlin, New York, Springer-Verlag, 370 p. [Reserve]
- Reineck, H.-E. and Singh, I.B., 1973, *Depositional sedimentary environments with reference to terrigenous clastics*: Berlin, New York, Springer-Verlag, 439 p. [Reserve]
- Tucker, M., ed., 1988, *Techniques in Sedimentology*: Oxford, Blackwell Scientific Publications, 394 p. [Reserve]

Journals

Computers and Geosciences
 Geological Society of America Bulletin
 Geology
 Journal of Geology
 Journal of Sedimentary Petrology
 Marine Geology
 Sedimentary Geology
 Sedimentology

Tentative Schedule

Week	Topic
21-Aug	Introduction and laboratory safety
28-Aug	Grain Shape and Form
04-Sep	Sieve Analysis of Sand and Gravel
11-Sep	Field trip to Hammocks Beach State Park (Bear Island)
18-Sep	Field trip to Fort Fisher and Snow's Cut
25-Sep	Directional Sedimentary Structures & Paleocurrents
02-Oct	Texas Gravel Problem
09-Oct	Wet Sieve Analysis
16-Oct	Graphical and Mathematical Analysis of Size Distribution Data
23-Oct	Graphical and Mathematical Analysis of Size Distribution Data
30-Nov	Size Analysis of Sandstone and Conglomerate
6-Nov	Insoluble Residue Analysis
13-Nov	Pipette Analysis of Silt and Clay
27-Nov	Thanksgiving Break