

# Geology 315: Sedimentary Petrology

*Spring 2011 (1 Credit)*

**Instructor:** Eric Hiatt

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**Office hours:** 10:30-11:30 am M,W,F; 1:50-2:50 pm M, and by appointment or chance.

**Schedule:** Tuesdays 1:50-5:10 PM, Harrington Hall 313.

## Important Dates:

**Last day to drop without Late Drop Appeal: March 16.**

**Spring Break: March 20-27.**

**Last day of classes: May 13.**

**Graduation: May 14.**

<b>Grades:</b>	
Lab exercises, quizzes and participation	50%
Laboratory Notebooks	50%

**Grade scale:** 93% and up = A; 90-92 = A-; 87-89 = B+; 83-86 = B; 80-82 = B-; 77-79 = C+; 73-76 = C; 69-72 = C-; 66-68 = D+; 63-65 = D; 60-62 = D-; <60% = F

**Equipment required:** Hand lens and laboratory notebook.

**Required text:** Tucker, M.E., 2001, Sedimentary Petrology (third edition), Blackwell Science, Oxford, 262 p., ISBN: 0632057351.

**Course Objectives:** The purpose of this course is to give you a broad understanding of how sedimentary rocks form and how they evolve as they undergo burial. This starts with understanding sediment composition and how this can be used to infer source area characteristics. We will study how, beginning soon after deposition, sediments become lithified. This includes both chemical and physical transformations that lead to major changes in the original petrophysical (porosity and permeability) characteristics of sediments and sedimentary rocks as lithification and diagenesis occur.

**Course Format:** Each class period will consist of approximately 30 minutes of introductory lecture, demonstration, and discussion, and about three hours of laboratory time. The laboratories will involve study of sediment samples, rocks hand samples, and microscope slides. You should keep a lab notebook in which you can take notes and include sketches of the macroscopic and microscopic observations that you make. You will be required to hand in your notebook at the end of the semester.

**Attendance:** Attendance is required. Please feel free to ask questions at any time, including during lecture; however, **disruptive behavior, including talking during lecture & text messaging, is not**

**acceptable** and **will result in a lower course grade**. If you have a valid excuse and must miss an exam, contact me **BEFORE** the exam date. If you have a valid excuse, you may take a makeup exam.

**Special Accommodations:** Reasonable accommodations will be made for students with disabilities. Please contact Disability Services (424-3100 (voice) or 424-1319 (TTY)) or visit their web site at <http://www.uwosh.edu/dean/disabilities.htm> for the University's accommodation request form and documentation requirements. Information related to an individual's accommodation request will be kept confidential.

**Academic Integrity:** The Wisconsin Administrative Code states: "Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others academic endeavors." (§ UWS 14.01) Plagiarism and other forms of academic misconduct are serious offenses with severe penalties. See the [University of Wisconsin Oshkosh Student Discipline Code](#) for definitions of academic misconduct and details about procedures, sanctions, and other relevant information. Specific questions about the provisions in the Student Discipline Code should be directed to the Dean of Students Office. If you do not understand this statement, please see me as soon as possible.

## Geology 315 Schedule:

Date:	Topic and reading:
Feb. 1	Introduction to weathering, geochemical cycles, and the origin of sedimentary rocks (*ch. 1).
Feb. 8	Carbonate grains: mineralogy and origin (*ch. 4).
Feb. 15	Carbonate grains in thin section; carbonate diagenesis (*ch. 4).
Feb. 22	Carbonate diagenesis: meteoric settings (*ch. 4).
March 1	Carbonate diagenesis: burial settings (*ch. 4).
March 8	Carbonate geochemistry and paragenesis (*ch. 4).
March 15	Chemical and biochemical sedimentary rocks: chert (*ch. 9); phosphorite (*ch. 7); evaporites (*ch. 5).
March 22	<b>Spring Break March 20-27.</b>
March 29	Introduction to clastic sediments and rocks (*ch. 2).
April 5	Sand and sandstones: framework grains; classification (*ch. 2).
April 12	Clastic rock diagenesis I: Authigenic minerals (*ch. 2).
April 19	Clastic rock diagenesis II: Diagenetic minerals (*ch. 2).
April 26	Mudrocks; clay mineralogy; classification (*ch. 3); Introduction to X-ray diffraction.
May 3	Quantitative analysis of sedimentary rocks.
May 10	Interpreting siliciclastic sedimentary rocks: diagenesis and paragenesis. Course wrap-up.

\* Refers to chapters in: Tucker, M.E., 2001, Sedimentary Petrology (third edition), Blackwell Science, Oxford, 262 p., ISBN: 0632057351.

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## Suggested Readings

*(On 3 day reserve; Request at Polk Library Circulation Desk)*

- Scoffin, T.P., 1987, An introduction to carbonate sediments and rocks: Chapman & Hall, New York, 274 p.
- Pettijohn, F.J., Potter, P.E., and Siever, R., 1987, Sand and sandstone: Springer-Verlag, Berlin QE471 .P457 1987.
- Scholle, Peter A. and Schluger, Paul R., (eds.), 1979, Aspects of diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication 26. QE471 .A73.
- Tucker, Maurice E., 2001, Sedimentary petrology: an introduction to the origin of sedimentary rocks: Blackwell Science, London. QE471 .T827 2001.
- Walker, Roger G. and James, Noel P., (eds.), 1992, Facies models: response to sea level change: Geological Association of Canada. QE651 .F26 1992.

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