Instructor: Don Barber

Office: Rm 132 PSB     Ph: 526-5110     Email: dbarber@brynmawr.edu

Lecture: MWF 11 - 12 noon, PSB Rm 259;
Lab: Wed 1 - 4 pm, in one of these places: PSB Rm 200 (check there first),
Geology Computer Lab, or Sed./Enviro. Geochem. Lab (PSB Rm 136).

Synopsis: Stratigraphy and the study of sedimentary deposits are fundamental disciplines in geology. This course starts with an introduction to sedimentology, including how earth materials become sediments and the processes responsible for erosion, transport and deposition. Next we discuss depositional environments and the characteristic sedimentary facies produced therein. This information provides a basis for interpreting stratigraphic sequences. We spend time observing the depositional patterns in modern environments, and inferring ancient environments based on observations of sedimentary sequences. We also discuss a variety of field and laboratory methods used by sedimentary geologists.

Goal: At the end of this course, when you look at sediments, sedimentary rocks or a stratigraphic sequence, you should be able to see a story. You should have acquired enough terms and concepts to frame this story as a detailed hypothesis describing the environments that produced the sedimentary sequence, and you should know which additional sedimentary analyses might be conducted to test or refine the hypothesis.


Note: This is a comprehensive and detailed textbook. Some of it is beyond the scope of our undergraduate class. Don't expect us to whiz through the whole thing.

Grades:

Two in-class, one-hour exams (each worth 20%): 40%

Lab work (exercises (includes homework, quizzes, & fieldwork) 35%

Research paper and in-class presentation 25%

Total 100%

Exams: Two one-hour midterm tests are given. Tests typically include a number of short answer or definition questions, plus a few longer-answer questions where course material must be brought together. Brief quantitative problem-solving also appears on tests.

Lab: The three-hour lab meets once a week. Lab provides a hands-on approach to the analysis of sediments, sedimentary rocks, stratigraphic sequences, and depositional processes and environments. Labwork typically includes hand sample description and identification, sediment analysis in the lab, field measurements and computer analyses of data. We will go outside for lab several times this semester. Be prepared for bad weather; we’ll usually go out regardless.

Homework exercises are included in the lab grade. Homework often involves spreadsheet (e.g., Excel) calculations. If graphs are called for they must be clear and neatly labeled.
Paper: A short paper is required on some facet of sedimentology, stratigraphy, sedimentary processes or depositional environments, or a closely related field of (e.g., geomorphology, palaeoecology or geoarchaeology). The paper can be either a literature review or a report on independent analyses done in lab/field/computer during the semester. Potential topics and projects will be suggested if necessary, but you’re free to choose your own topic.

The text of your paper must be double-spaced and no more than six pages, not including figures and references. A minimum of two figures and five references must accompany the paper; 4-6 figures and 8-10 references are probably more appropriate. You are required to format the paper in accord with the Journal of Sedimentary Research (see issues of JSR in Collier library), including JSR format for in-text citations and the bibliography. All pages must be numbered on bottom. Use header to put your name on each page.

A 10-minute, well-illustrated oral report on your paper topic will scheduled for the week of November 28th (wk after Thanksgiving Break).

Paper deadlines: A rough abstract or outline of the paper including a list of potential references is due Friday, October 21st. A complete first draft is due on November 11th. I will constructively critique your draft and return it for revision. The final version is due Friday, December 2nd.

Field Trip: Students in this class are expected and very strongly encouraged to come on the geology department trip to San Salvador (Bahamas) over Fall Break. I will need to know immediately if you CANNOT come on this trip. The Geology department, through the Watson Fund, will pay the majority of trip expenses. Your costs will probably be ~ $200, although at this point the amount is only estimated.