

GEOL 304: SEDIMENTARY GEOLOGY
Fall 2019 Syllabus

Professor: Dr. Geoff Gilleau
Lecture Meeting Time: Mondays and Wednesdays 9 to 10:15am
Lecture Meeting Place: Exploratory Hall Room 1005
Professor's Office: Exploratory Hall Room 3452
Office Hours: Thursdays 3 to 5pm or by appointment
Professor's Email: ggilleau@gmu.edu

Course Textbook: Principles of Sedimentology and Stratigraphy, Fifth Edition by Sam Boggs Jr.

Laboratory Instructor: Margot Nelson
Laboratory Meeting Time: Mondays 1:30-4:15pm
Laboratory Meeting Place: Exploratory Hall Room L505
Laboratory Instructor's Office: Exploratory Hall Room 3418
Laboratory Office Hours: Thursdays 1:30-3:30pm
Laboratory Instructor's Email: mnelso20@gmu.edu

Course Goals:

Sedimentary strata represent the pages of Earth's history book and, in this course, we will learn how to properly read that history from the scale of individual sedimentary grains to macrostratigraphic changes through large intervals of geologic time. Topics will include: weathering and the origin of sedimentary grains, sediment transport and fluid flow, sedimentary structures, siliciclastic and carbonate petrology and diagenesis, depositional environments and facies models, lithostratigraphy and biostratigraphy, as well as sequence stratigraphy and basin analysis. The overarching goal is to become proficient readers of Earth's vast, complex, yet critically important sedimentary record. This will be achieved through interactive lectures, labs, and field trips, with emphasis also placed on our local natural laboratory—the Appalachian Mountains.

“What clearer evidence could we have had of the different formation of these rocks, and of the long interval which separated their formation, had we actually seen them emerging from the bosom of the deep?...The mind seemed to grow giddy by looking so far into the abyss of time.”

— James Hutton

Semester Schedule:

Day	Date	Lecture Topic	Lab Topic
Mon	26-Aug	Introduction	No lab on first week
Wed	28-Aug	Weathering and soils	
Mon	2-Sep	No Class Labor Day	No Class Labor Day
Wed	4-Sep	Sediment transport and fluid flow	
Mon	9-Sep	Bedforms	Grain size
Wed	11-Sep	Grain size, shape, and texture	
Mon	16-Sep	Sedimentary structures	Sedimentary structures
Wed	18-Sep	Siliciclastic petrology	
Mon	23-Sep	Siliciclastic petrology and diagenesis	Siliciclastic hand samples
Wed	25-Sep	Exam review	
Mon	30-Sep	MIDTERM 1	Siliciclastic thin sections
Wed	2-Oct	Carbonate chemistry	
Mon	7-Oct	Carbonate petrology and diagenesis	Carbonate hand samples
Wed	9-Oct	Other chemical sediments	
Mon	14-Oct	No Class Fall Break	
Tues	15-Oct	Alluvial and fluvial environments	Field methods and stratigraphic columns
Wed	16-Oct	Appalachian geology	
Sat-Sun	19-Oct to 20-Oct	FIELD TRIP TO CORRIDOR H, WV	
Mon	21-Oct	Eolian and glacial environments	No lab (rest from field trip)
Wed	23-Oct	Coastal and marginal marine environments	
Mon	28-Oct	Shelf and slope environments	Carbonate thin sections
Wed	30-Oct	Carbonate environments	
Mon	4-Nov	Exam review	No lab (allow for exam study)
Wed	6-Nov	MIDTERM 2	
Mon	11-Nov	Lithostratigraphy and biostratigraphy	Facies and depositional environments
Wed	13-Nov	Chemostratigraphy	
Mon	18-Nov	Chronostratigraphy and the geologic time scale	Biostratigraphy and chemostratigraphy
Wed	20-Nov	Sequence stratigraphy	
Mon	25-Nov	Basin analysis	Well logging
Wed	27-Nov	No Class Thanksgiving	
Mon	2-Dec	Secular trends in the sedimentary record and Earth history	Sequence stratigraphy
Wed	4-Dec	Course wrap-up and exam review	
Mon	16-Dec	FINAL EXAM (currently scheduled for 7:30-10:15am)	

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The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. If you have any doubts about what constitutes plagiarism, please see me.

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Students must use their MasonLive email account to receive important University information, including communications related to this class. I will not respond to messages sent from or send messages to a non-Mason email address.