

Course Change Request

New Course Proposal

Date Submitted: 10/02/19 2:26 pm

Viewing: **GEOL 504 : Sedimentary Geology**

Last edit: 10/02/19 5:11 pm

Changes proposed by: ggilleau

Are you completing this form on someone else's behalf?

In Workflow

1. **AOES Chair**
2. **SC Curriculum Committee**
3. SC Associate Dean
4. Assoc Provost-Graduate
5. Registrar-Courses
6. Banner

Approval Path

1. 10/02/19 4:43 pm
Jim Kinter (ikinter):
Approved for AOES Chair
2. 10/02/19 5:06 pm
Stacey Verardo (sverardo):
Approved for SC Curriculum Committee
3. 10/02/19 5:11 pm
Jennifer Bazaz Gettys (jbazaz):
Rollback to SC Curriculum Committee for SC Associate Dean

No

Effective Term: Fall 2020

Subject Code: GEOL - Geology

Course Number:
504

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Sedimentary Geology

Banner Title: Sedimentary Geology

Will section titles vary by semester? No

Credits: 4

Schedule Type: Lecture w/Lab

Hours of Lecture or Seminar per week: 2.5

Hours of Lab or Studio per week: 2.75

Repeatable: May be only taken once for credit, limited to 3 attempts (N3) **Max Allowable Credits:** 4

Default Grade Mode: Graduate Regular

Recommended Prerequisite(s):
None

Recommended Corequisite(s):
None

Required Prerequisite(s) / Corequisite(s) (Updates only):
GEOL 101, GEOL 102, and GEOL 302

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog

Description:

Introduces sedimentation, sedimentary petrology, facies analysis, and stratigraphy. Notes: May include field trips.

Justification:

GEOL 304 is a core course in our geology degree programs, but it has recently arisen among the faculty that there is a need for a graduate cross-list for this course, which we are proposing as GEOL 504. Some of our incoming graduate students have undergraduate backgrounds in biology, so it would be useful for them to have a graduate-level sedimentology course. This request is being made at the urging of Associate Chair Mark Uhen.

Does this course cover material which crosses into another department? No

Learning Outcomes:

- Understand how the physical, chemical, and biological characteristics of sedimentary rocks reveal important information about Earth history
- Understand the origin of sedimentary grains and how they are transported by fluids
- Be able to identify sedimentary structures and interpret depositional environments
- Be able to identify both siliciclastic and carbonate rocks in hand sample and thin section
- Understand the concepts of stratigraphy and basin analysis
- Develop proficient skills in geologic field methods

Attach Syllabus

[GEOL 304-504 Syllabus.pdf](#)

Additional Attachments

Staffing:

Dr. Geoff Gilleaudeau

Relationship to Existing Programs:

Elective credit for the M.S. in Earth System Science and Ph.D. in Environmental Science and Policy

Relationship to Existing Courses:

Graduate cross-list for GEOL 304

**Additional
Comments:**

**Reviewer
Comments**

Jennifer Bazaz Gettys (jbazaz) (10/02/19 5:11 pm): Rollback: COSCC review required.

GEOL 304/504: SEDIMENTARY GEOLOGY
Fall 2019 Syllabus

Professor: Dr. Geoff Gilleaudeau
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: Tuesdays 2 to 4pm 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 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



Grading Scheme for GEOL 304:

Your final course grade will consist of:

- 20%: Mid-term exam 1**
- 20%: Mid-term exam 2**
- 20%: Final exam**
- 30%: Laboratory component of the course**
- 10%: Field trip assignment**

*There are 11 labs scheduled for the semester. ONE lab grade will be dropped, so that your final lab grade will consist of your 10 best labs.

*There is one required weekend field trip to Corridor H in West Virginia (scheduled for October 19th and 20th), which will form the basis for a field trip assignment.

Grading Scheme for GEOL 504:

Your final course grade will consist of:

- 15%: Mid-term exam 1**
- 15%: Mid-term exam 2**
- 15%: Final exam**
- 15%: Term paper on an aspect of Appalachian Basin stratigraphy**
- 30%: Laboratory component of the course**
- 10%: Field trip assignment**

*Same policies apply with regards to labs and field trips.

Note for both GEOL 304 and 504:

All exams will be OPEN NOTE. This means you cannot have the textbook or your entire notebook with you for the exam; rather, you will be allowed to bring FIVE PIECES OF PAPER with you to the exam containing information of your choosing. This will encourage you to summarize information and re-write your notes before the exam, which will hopefully lead to greater retention of the material than normal cramming for an exam.

Final Grading Scale:

97 to 100% = A+	73 to 76% = C
93 to 96% = A	70 to 72% = C-
90 to 92% = A-	67 to 69% = D+
87 to 89% = B+	63 to 66% = D
83 to 86% = B	60 to 62% = D-
80 to 82% = B-	Less than 60% = F
77 to 79% = C+	

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	
Wed	16-Dec	FINAL EXAM (currently scheduled for 7:30-10:15am)	

Academic Integrity

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.

Disability Accommodations

Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474

Privacy

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.