



## PALEOCLIMATOLOGY

GEO 332 001

BIO 417 003

GEO 532 001

Fall 2022

**Instructor:** Dr. Stacey Verardo  
[sverardo@gmu.edu](mailto:sverardo@gmu.edu)

**Class hours:** Tuesdays and Thursdays, 9:00–10:15am

**Office Hour:** Thursdays, Noon -1pm

**Goals and Objectives:** This course will explore the natural evolution of Earth's climate with the goal of providing a baseline for understanding present climate variability and future trends through increased knowledge of the physical, chemical, and biological processes that influence climate over the long-term.

**Text:** Earth's Climate, Past and Future, Ruddiman, 2011 3<sup>rd</sup> ed

### **To be successful in this (and any) class**

- 1) Keep up with the textbook readings. Do NOT binge study the night before the exams!
- 2) Attend EACH class.
- 3) Rewrite/retype your notes after EACH class. If something needs clarification, contact me!
- 4) Each hour in class should equal out to about an hour studying away from the classroom

### **General information and Laboratory Policies:**

- You MUST abide by the University COVID policy <https://www2.gmu.edu/safe-return-campus> This means Mason will require all students, faculty, and staff to get a COVID-19 vaccine to work, study, and live on campus when fall semester as well as using of masks in public spaces.

### **LECTURES**

<u>Dates</u>	<u>Lecture Topic</u>	<u>Chapters</u>
August 23	Overview of Climate Science	1
August 25	Earth's Climate System Today	2
August 30	Climate Archives	3
September 1	Carbon Dioxide and Phosphorous	

September 6	CO <sub>2</sub> and Long-Term Climate	4
September 8	Plate Tectonics and Climate	5
September 13	Greenhouse Earth	6
September 15	Icehouse Earth	7
September 20	Review	
September 22	<b>EXAM 1</b>	
September 27	Astronomical Control of Solar Radiation	8
September 29	Insolation Control of Monsoons	9
October 4	Insolation Control of Ice Sheets	10
October 6	Orbital Scale Changes in CO <sub>2</sub> and CH <sub>4</sub>	11
October 11	<b>NO CLASS -COLUMBUS DAY BREAK</b>	
October 13	Orbital Scale Interactions	12
October 18	Last Glacial Maxima	13
October 20	Climate During and the last Deglaciation	14
October 25	Review	
October 27	<b>EXAM 2</b>	
November 1	Millennial Oscillations in Climate	15
November 3	Atlantic Conveyor Circulation	
November 8	Humans and Preindustrial Climate	16
November 10	Climate Change over past 1000yrs	17
November 15	Climate since 1850	18
November 17	Causes of Warming over last 125yrs	19/20
November 22	presentations -undergraduate	
November 24	<b>NO CLASS -THANKSGIVING BREAK</b>	
November 29	presentations -graduate	
December 1	Review	
December 8	<b>FINAL EXAM 7:30-10:00am NOTE different start time!!</b>	

In addition, there will be readings from current material

### **COURSE INFORMATION**

This is a three (3) credit course.

#### **Grading:**

- Exams will be ONLINE. They will be held during the regularly scheduled class time.
- Three equally weighted exams. Make up exams will NOT be given.
- The undergraduate and graduate exams will NOT be the same. All exams will emphasize material presented in the lectures and textbook readings.
- Exams are closed book.
  
- For the graduate level students (GEOL 532) –EACH of you will work on ONE 20-minute presentation (~30 slides) relating to of one of the text chapters, OR a related topic.
- Presentation topic is due by Thursday, September 9, 2021

Attendance at all scheduled lecture classes is required to achieve the requisite level of knowledge in this course.

## **GMU POLICY GUIDELINES**

Integrity: GMU has an Honor Code with guidelines regarding academic integrity; please see <http://oai.gmu.edu> for more information.

Disability: If you are a student with a disability and you need academic accommodations, please see me and also contact the Office of Disability Services (ODS) <http://ods.gmu.edu>. All academic accommodations must be arranged through the ODS. You will need to contact this office prior to any special accommodation.

Diversity: Diversity is a core value at GMU; please see <http://ctfe.gmu.edu/professional-development/mason-diversity-statement> for more information.

Privacy: Students must use their MasonLive email account to receive important University information, including messages related to this class. Please see <http://masonlive.gmu.edu> for more information.