Syllabus for Earth System Science

Course ID: EESC 1000

Course Description: An introduction to Earth and the processes that shape our planet.

- Topics include: minerals and rocks; weathering and erosion; plate tectonics; volcanism and earthquakes; deserts and glaciers; deep time; and changes in climate.
- Course fulfills the *Physical World Sector* and the *Quantitative Data Analysis* College Requirements.

Course Level: Introductory

Instructor

Prof. Dr. Reto Gieré giere@sas.upenn.edu

Teaching Assistants

Jonas Toupal toupal@sas.upenn.edu
Jaydee Edwards jaydeee@sas.upenn.edu
Mica Ninni ninni@sas.upenn.edu
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Class Meetings

- Attendance of all meetings, both lectures and recitations, is mandatory!
- According to Penn policy, wearing a mask that covers both mouth and nose is optional. This policy, however, may change during the semester.
- Schedule:
  - **Lecture** (200 students max.)

			Classroom
001 LEC	Mon & Wed	10:15-11:45 am	DRL A1

  - **Recitations** (25 students per recitation max.)

			Classroom	TA
201 REC	Mon	1:45-2:45 pm	Hayden 358	Jaydee Edwards
202 REC	Tue	1:45-2:45 pm	Hayden 358	Jonas Toupal
203 REC	Tue	3:30-4:30 pm	Hayden 358	Jonas Toupal
204 REC	Wed	8:30-9:30 am	Hayden 358	Cooper Yerby
205 REC	Wed	1:45-2:45 pm	Hayden 358	Cooper Yerby
206 REC	Thu	3:30-4:30 pm	Hayden 358	Jaydee Edwards
207 REC	Fri	8:30-9:30 am	Hayden 358	Mica Ninni
208 REC	Fri	12:00-1:00 pm	Hayden 358	Mica Ninni

Textbook

No textbook is required. However, I will use the following textbook as a base for our lecture:

EARTH – Portrait of a Planet, 7th edition, by Stephen Marshak

Out-of-class Activities

In case you would like to learn more about the Earth and to deepen your understanding of the materials covered in class, you can read the relevant chapters in the textbook, as detailed on the Canvas course site.

Essential Course Policies

- Laptop or tablet, with **MsExcel *installed***, is required for all recitations. **No Google sheets!**
- Detailed schedule of topics, relevant textbook chapters, and exam dates are posted on the Canvas course site.
- Any student may consult with Student Financial Services to find out what support they are eligible to receive to cover course costs or other items that ensure their health, safety, and secure learning environment.
- The Department of Earth and Environmental Science (EES) embraces human diversity and intends equity and inclusion in our community and our classrooms. We expect instructors, staff, and students to respect our diversity. We encourage you to contact our Climate, Diversity, Equity and Inclusion (CDEI) Committee EES-CDEIC@groups.sas.upenn.edu if you need support or have suggestions for how our CDEI efforts in EES can improve.

Exams

- All exams are in person and of the multiple-choice type. Students are not allowed to ask any clarifying questions during the entire duration of the examination.
- For the exams, you will be tested on everything that is on the slides and we discussed in class.
- The well-written book serves as *additional* source of information to deepen your understanding, if you are inclined to do so. Terms or topics introduced in the book, but not discussed in class, will *not* be tested.
- Those students who require **special accommodations** for the tests and the final exams must book their accommodated tests and exams through the Weingarten Learning Resources Center (https://wlrc.vpul.upenn.edu/) *at least one week in advance* of every exam to guarantee a testing desk at the Center.

Grading Policy

- Tests 1, 2, and 3 during semester; lowest score (or a missed test, for whatever reason) will not count. No make-up tests can be scheduled during the semester. The two remaining tests count as 20% each.
- Final Exam: 36%
- Recitations: 24%

The Department of Earth and Environmental Science embraces human diversity and intends equity and inclusion in our community and our classrooms. We expect instructors, staff, and students to respect our diversity. We encourage you to contact our Climate, Diversity, Equity and Inclusion (CDEI) Committee EES-CDEIC@groups.sas.upenn.edu if you need support or have suggestions for how our CDEI efforts in EES can improve.

EESC 1000 Schedule

Lecture Topic	Recitations
Introduction	**No Recitations**
Cosmology and the Birth of Earth	Recitation #1 - Solar System 1 & 2 (Graded)
Journey to the Center of the Earth	
Drifting Continents and Spreading Seas	Recitation #2 - Plate Tectonics (Graded)
Plate Tectonics	
Minerals	Q&A / Exam Review
Rock Cycle, Magma, and Igneous Rocks	
Test 1	**No Recitations**
Sediments, Soils, and Sedimentary Rocks	
Fall Break	
Metamorphic Rocks	Recitation #3 - Minerals and Rocks
Volcanic Eruptions	
Earthquakes (Lecture by Jonas Toupal)	Recitation #4 - Earthquakes (Graded)
Test 2	
Crustal Deformation and Mountain Building	Recitation #5 - Geologic Time Scale 1 (Lecture)
Deep Time	
Biography of the Earth	Recitation #6 - Geologic Time Scale 2 (Graded)
Energy Resources	
Mineral Resources	Q&A / Exam Review
Mass Movements	
Streams and Floods	Recitation #7 - Geological Record (Graded)
Test 3	
Oceans and Coasts	**No Recitations**
No Class	
Thanksgiving Break	
Groundwater	Recitation #8 - Rates of Change (Graded)
Atmosphere and Climate	
Deserts	Q&A / Exam Review
Glaciers and Ice Ages	
Global Change	**No Recitations**
Comprehensive Final	