

# GEOV 222 Paleoclimatology , 2014

Time:

10:15-12:00 Monday, Aud 2

14:15-16:00 Thursday, Aud 3 (RFB:3)

## Books

1) Ruddiman, W.F. **Earth's Climate, past and future**

W.H. Freeman, New York (2nd edition)

2) Thomas M. Cronin, **Paleoclimates**

Columbia Univ. Press

Additional (useful but not required): *Climate and the Oceans*  
(Princeton Primers in Climate) Geoffrey K. Vallis

Part I: Framework of Climate Science—Background (Ch:1-3\*)

Part II: Tectonic scale climate changes—(Ch: 4-7\*)

Part III: Orbital scale climate changes (Ch:10-12\*)

Discussion of current debates

Part IV: Deglacial and abrupt climate changes (Ch:13-14\*)

Part V: Holocene/Historical/Future climate changes (Ch: 16-20\*)

*(\* refers to chapters in the Ruddiman book find corresponding chapters by topic in the Cronin book for additional insights)*

- Paleoclimatology is a complex and rapidly developing field. There are often a variety of hypotheses argued to explain a given observation so it is most useful for you to begin reading the background information early so that you have a fundamental understanding of the components of the climate system and can begin to think critically about the hypotheses discussed in the class.

- A wide variety of past and current research "case studies" will be covered and discussed to cast light on the operation of the global climate system.

**Plan for GEOL 222**

Foreleses av: Ulysses Ninnemann

Uke	dag	tid	tema
Uke 35	1	10-12	Framework of climate science and "paleoclimate"
	2	14-16	Climate system components
Uke 36	1	10-12	Tertiary cooling
	2	14-16	Tertiary cooling project
Uke 37	1	10-12	BLAG and CO2 hypotheses & tectonics
	2	14-16	More cooling lecture and Cooling project
Uke 38	1	10-12	Orbital theory of ice ages seminar organization
	2	14-16	Orbital Theory lecture
Uke 39	1	10-12	Orbital Theory problems
	2	14-16	<a href="#">Student run seminar on Orbital theory of climate</a>
Uke 40	1	10-12	Ice cores, CO2, and glacial cycles
	2	14-16	CO2 continued and (Lab)
Uke 41	1	10-12	Ice sheets, Climate, and system response times
	2	14-16	<a href="#">Student run seminar on CO2 and glac. cycles</a>
Uke 42	1	10-12	The world at the Last Glacial Maximum
	2	14-16	Deglaciation project (Lab)
Uke 43	1	10-12	Millennial scale climate change
	2	14-16	Millennial scale climate change & (Lab)
Uke 44	1	10-12	Ocean circulation and abrupt climate change
	2	14-16	<a href="#">Student run seminar on Abrupt climate change</a>
Uke 45	1	10-12	Holocene climate change
	2	14-16	Holocene climate change & (Lab)
Uke 46	1	10-12	Past 1000 years natural vs. anthropogenic influences
	2	14-16	El Nino and NAO (Lab)
Uke 47	1	10-12	El Nino and NAO
	2	14-16	Future projections <a href="#">Student presentations</a>
Uke 48		TBD	Review and summary

**G222 Grading and Homework**

60% for the final exam

40% for coursework

- 20% for Homework/Labs (due 8 days after you receive them—i.e. the following Friday). **Everyone** must **hand in their own** although you can work together on the problems.
- 20% for seminar work, we will have 4 seminars discussing scientific papers. Each seminar is 5%. The papers will be presented by students (in groups of 2-4) but everyone must read the papers. You must read the paper, attend the seminar, and either present or hand in a short summary (you will receive a handout on this) to receive the credit.