

Preliminary Syllabus for GEOV 222 (Paleoclimatology), 2017

Time:

14:15-16:00 Monday, Sem. 2 (RFB)

10:15-12:00 Friday, Aud 4 (RFB)

Books (**these are set**)

1) Ruddiman, W.F. **Earth's Climate, past and future (3rd edition)**, W.H. Freeman, New York (2nd edition; 1st edition also ok if you have them already)

2) Thomas M. Cronin, **Paleoclimates** Columbia Univ. Press

Additional (useful but not required): **Paleoclimate** (Princeton Primers in Climate) by Michael L. Bender

General evolution of course topics

Part I: Framework of Climate Science—Climate system background

Part II: Tectonic scale climate changes—Long timescales & big changes

Part III: Orbital scale climate changes—Recent global climate swings

Part IV: Deglacial and abrupt climate changes—Sudden climate warmings

Part V: Holocene/Historical/Future climate changes—Natural and Anthropogenic change

- 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.

Academic integrity:

Scientific activities require high standards of personal and academic integrity by students and faculty alike. As academics each of us bears the responsibility to conduct our scholarly and research activities with integrity and intellectual honesty. The open exchange of ideas and sharing necessary for research and the advancement of knowledge require mutual trust that ideas, opinions, data, and insights will be respected, acknowledged and properly credited. In addition, as scientists it is our responsibility to objectively and honestly report all of our information (observations/data/work), its source, and its uncertainties.

This means that as students you are responsible for the full citation of others' ideas in all of your work and you must be honest in your course and exam work. Always submit your own work and not that of another student or other source material (book, papers, online materials) without proper citation. Finally, data must always be handled and reported honestly; fabrication, falsification, omissions, or misrepresentation of results are serious forms of misconduct.

For more information about academic integrity guidelines at UiB please see:

<http://www.uib.no/en/quality-in-studies/77866/useful-information-students-and-staff>

<http://www.uib.no/en/education/49058/use-sources-written-work-university-bergen#>

Grading

60% of your grade is based on your final exam

40% of your grade is based on coursework through the semester (20% from labs and class work and 20% from seminar participation/discussion).

Plan for GEOL 222 PRELIMINARY	
Foreleses av: Ulysses Ninnemann	
Uke 34	INTRODUCTOIN to course
Uke 35	Framework of climate science and "paleoclimate"
	Climate system components
Uke 36	Tertiery cooling
	Tertiery cooling project
Uke 37	BLAG and CO2 hypotheses & tectonics
	55 myr Cooling data exploration (understand 18-0)
Uke 38	Orbital theory of ice ages lecture
	Long term carbon cycling model
Uke 39	Last Glacial Maximum climate lecture
	Deglacial climate lab
Uke 40	Ice cores, CO2, and glacial cycles
	CO2 continued and (Lab)
Uke 41	(Abrupt) Millennial scale climate (lecture)
	Student run seminar on origin of NH Glaciation
Uke 42	(Holocene climate (lecture)
	Student run seminar on origin of NH Glaciation pt 2
Uke 43	Modes of climate variability (ENSO & NAO)
	Student run seminar on Abrupt climate change
Uke 44	Recent warming & natural trends
	ENSO & NAO (lab)
Uke 45	Student run seminar on future climate change
	Plenum discussion of future challenges
Uke 46	TBD
	Independent review (study for exam!)
Uke 47	<i>REVIEW SESSION PRE-EXAM</i>