Geography 525: Seminar on Paleoclimate & Global Change

Fall 2017 Syllabus

Instructor: Dr. Anna Klene
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Class Time: T&H 2:00-3:20 pm, 217 Stone Hall
Office hrs: W 3-4:30 pm & by appt., 216 Stone Hall

Optional Texts: Earth's Climate: Past and Future, W. Ruddiman. Freeman & Co., NY. 2008.
Collapse: How Societies Choose to Fail or Succeed, Diamond**,** Penguin, Rev Ed 2011.
Climate Change: Biological and Human Aspects, J. Cowie, 2st Ed, Cambridge, 2012.

Moodle: Access the login page from UM's homepage. Enter your NetID and password. Readings & other materials will be posted there. Check this several times each week.

Objectives: By the end of this course, you should know the major controlling factors of climate through time, be familiar with reconstruction methods, appreciate the impacts of climate on previous civilizations, and evaluate our current understanding of future climate challenges.

Tentative Schedule

	Tuesday	**Thursday**
Week 1		Aug 31 – Introduction & Climate Review *R: 1 & 2*
Week 2	Sept 5 – Methods *R3: Archives, Data & Models*	7 – Planetary Evolution *R4 & SciNews Article*
Week 3	12 – Tectonic-Scale Chg & Snowball Earth Video & *R5& Hoffman & Schrag*	14 – Last 100 Million Years *R6 & 7*
Week 4	19 – Orbital-Scale (Milankovitch Cycles) *R8 & article*	21 – Glacial Responses *R9 & EPICA article & Cowie 4.6.1*
Week 5	26 – Last Glacial Maximum *R13 & Cowie 4.6.4 (first part)*	28 – Migration & DNA Analysis *Forster, Goebel, & news articles.*
Week 6	Oct 3 – Deglaciation *R14 & Strong & Hills paper*	5 – Ice Ages – *Broecker & Denton articles* ****Paper Topic Due****
Week 7	10 – The Anthropocene *R16 & Ruddiman, 2005 & Cowie 4.6.4b*	12 – Climate since 1000 *R17 & Thompson Pop. Press Articles*
Week 8	17 – MWP & LIA – *Zhang et al., Kerr, &* *Büntgen et al., Tan et al., & B1*	19 – Collapse: Past Societies *Prologue & Montana & Okonski & Rebuttal*
Week 9	24 – Mid-Holocene Dust Event *Linden Chps & Davis & Thompson & Oetzi*	26 – Collapse: Greenland Norse *Chp. 6, 7, & 8*
Week 10	Oct 31 – Year Without A Summer *Oppenheimer article*	Nov 2 – Drought in US – *& Cook et al. (only pg 93-116, 132)*
Week 11	7 – Climate since 1850 *R18 & 19*	9 – Future Climates *Cowie Chp 5.2.3 & 5.3 & IPCC*
Week 12	14 – Future impacts & unknowns *Cowie Chp 6.5*	*16* – Human Ecology & Climate Change *Cowie Chp 7*****Paper Outline Due****
Week 13	21 – Sustainability & Policy Cowie Chp 8.1 & 8.5	23 – ***Thanksgiving Holiday***
Week 14	28 – Climate Solutions Guest speaker?	30 – Climate Solutions Guest speaker?
Week 15	Dec 5 – Final Presentations?	7 – Final Presentations ****Papers Due Friday by 5pm****
Week 16	12 – AGU Conference Dec 11-15 **OR** Jamestown? *Stahle et al.*	Exams start Dec 14

Geography 525
Course Guidelines and Policy Statements

1. Course Outline - **KEEP** and use the attached outline to maintain continuity throughout the course.

2. Reading Assignments - The required reading assignments form the basis of class discussion in seminars. Typically at least one chapter and often 2 lengthy readings will be assigned for each class.

3. Student-led Discussions – Almost every day, one student will be assigned to provide a handout summarizing the main points of that reading and to lead a discussion of that piece. The handout and discussion leadership will be graded.

4. Term Paper – Each student will prepare a paper on some topic related to global change. It is recommended the topic be a potential thesis project or cover a subject that may be useful for future employment. The paper will be an ~ 8-10 page literature review. It is important not just summarize the literature, but also evaluate the different sources as it is an essential component of the scientific process.

5. Class Presentations – All students will give a presentation on their paper. This presentation (~ 12 min.) will review the student's topic, findings, and major conclusions. All of these presentations should be well planned, well illustrated, and given in a formal manner. Grading will reflect the presentation as well as the content.

6. Participation – A participation grade will be given for days with discussions and reflect how much the student contributed to the discussion. Completing the readings is expected prior to class. This is not an attendance grade however, so in the case of a family emergency, please see the instructor.

7. Academic Dishonesty - The university policy for cheating is clearly addressed on the website http://www.umt.edu/studentaffairs/sccacademicconduct.htm. Students cheating will be reported to the proper offices and receive a failing grade for the course.

8. Reasonable Accommodation - The university policy on students with disabilities is clearly addressed on the website http://www.umt.edu/dss/default.htm. Students who need assistance should contact the instructor immediately so that appropriate forms and procedures can be completed.

9. Final Course Grade – At the end of the course, the distribution will be examined and letter grades assigned at approximately: A=>90%, B=80-90%, C=70-80%, D=60-70%, etc. The "+/-" grading system will be used. ***There will be no extra credit of any kind***.

Grading:

Student-led Discussions	60 (30 pts × 2)
Video Review	10 (or delete? - discussions worth 35 ea.)
Participation	30
Paper Topic & Description	10
Paper Outline	10
Final Paper	60
Paper Presentation	20
Total	**200 pts.**

***** This syllabus may be modified as necessary during the course. Ask the instructor if you have any questions about when materials are due.**