GLOBAL CLIMATE CHANGE
Spring Semester 2010
MWF 1:00-2:15 pm
Course Syllabus

"The further backward you can look, the further forward you are likely to see." – Winston Churchill

	Topics/Key Questions	**Homework**
Week 1 Jan 13,15	- *Is Earth warming?* - first impressions/in-class survey - course scope and expectations - graphing historic temperature data	*Assignment 1:* Complete T graph, compare state and global graphs and describe patterns that you see; define terms. *(due 1/20)*
18 Jan M	Bates – Martin Luther King Day	
Week 2 Jan 20, 22	- *How do we take Earth's temperature?* - take tree core - explain oral history assignment	*Assignment 2:* Oral history project (5 min. oral presentation, survey, and 1 page summary). *(due 2/1)*
Week 3 Jan 25, 27, 29	- *What other evidence suggests that Earth is warming?* - *Are patterns in the 150 year instrumental record typical of natural variations in Earth's climate?* - *How does time scale affect the climate change patterns we see?* - Beethoven and sampling intensity - proxies (tree core) - climate timeline - present and review Vostok ice core graph	*Assignment 3*: Graph tree ring data against ppt and T. In a paragraph, describe any patterns or correlations that you see. *(due 1/27)*
Week 4 Feb 1, 3	- *How do human perceptions of what is "normal" compare to scientific data?* - *What determines Earth's temperature and establishes its climate?* - oral history presentations/discussion - energy balance - natural greenhouse effect (Venus and Mars)	*Assignment 4:* Read *The Sixth Extinction;* answer discussion questions. *(due 2/10)*
Feb 5	Quebec	
Week 5 Feb 8, 10, 12	- *Why is Earth's climate so variable?* - big ideas/theories (Milankovitch, etc.) - *The Sixth Extinction* discussion - carbon and global recycling - atmosphere pie diagram	*Assignment 5:* Bring in 3 things to class that have carbon in them. *(due 2/10)*
15-19 Feb	February vacation	
Week 6 Feb 22, 24, 26	- *How are CO_2 concentrations changing?* - *How are atmospheric CO_2 and temperature correlated?* - *What is a theory?* - graph Keeling curve - ppm/milk jug analogy - sources, sinks, biological pump - watch "A Sea Change" - quiz review	*Assignment 6*: Complete Keeling curve and explain pattern that you see. *(due 2/24)* *Assignment 7:* Read *The Cold We Caused*; answer discussion questions *(due 3/1)* Quiz on Friday

Week 7 Mar 1, 3, 5	- *Why do we attribute recent global warming to human activities?* - *How fast is the human population growing?* - graph past and predicted global population growth - *The Cold We Caused* discussion - demographic transition - choose regions	*Assignment 8:* Read *"A New Population Bomb"* and answer discussion questions. *(due 3/5)* *Assignment 9*: Graph trends in population, GDP, energy consumption, production and emissions, literacy, infant mortality for your region. *(due 3/8)*
Week 8 Mar 8, 10, 12	- *How is population growth affecting climate change?* - student presentations (compare graphs and data) - demographic transition–3 scenarios - computer models/future scenarios - Copenhagen Diagnosis - region impacts and response project	*Assignment 10*: Read executive summary of Copenhagen Diagnosis. *(due 3/15)* *Assignment 11*: Research and summarize the projected impacts of A1/B1 emissions scenarios on your region and your country's COP15 position (3-5 page white paper and presentation to class). *(due 3/24)*
Week 9 Mar 15, 17	- J.K. Rowling Harvard commencement speech (social location) - impacts of climate change - carbon footprint quiz/home energy use challenge	*Assignment 12:* Read Desta's diary and one page description of your home economics/carbon footprint quiz questions. *(due 3/17)*
19 Mar F	Student-parent-teacher conferences	
Week 10 Mar 22, 24, 26	- *What is the correlation between energy use, GDP and HDI?* - compare U.S. and Ethiopia home economics - energy and climate - GDP and energy consumption; HDI - student presentations (Ralph attend) - Kaya's 4 factors	*Assignment 13:* Ethics ~ Who am I? essay *(due 3/29)* *Assignment 14:* Reading from Earth on Fire; answer discussion questions. *(due 3/29)*
Week 11 Mar 29, 30 Apr 2	- ethics and climate change – with Ralph Moore - Film: Taking Root (Accreditation Committee visiting)	
Week 12 Apr 5, 7, 9	- *What is the global political response to climate change?* - *How sharply should countries reduce CO_2 and other GHG emissions? In what time frame?* - Tragedy of the Commons exercise/discussion - UN/COP15 address - results of COP15 – adaptation vs. mitigation - energy resources and alternatives - solutions/wedge exercise	*Assignment 15:* Write 1 page summary of what happened in Tragedy of the Commons activity and how it relates to a "commons" resource today. *(due 4/7)* *Assignment 16:* Read *Hot, Flat and Crowded* (205 easy ways to be green). *(due 4/12)*
Week 13 Apr 12, 14, 16	- *How should reductions be distributed across industries and countries?* - *What are the ethical dilemmas presented by climate change scenarios as far as humankind is concerned as well as in relation to other species?* - other approaches - technology, regulation, global treaties, geoengineering - another look at ethics – Ralph Moore	*Assignment 17:* Read *The Geoengineering Option*; answer discussion questions. *(due 4/14)*

19-23 Apr	April vacation	
Week 14 Apr 25, 27, 29	- *How is Maine responding to climate change? (Maine's Energy Future)* - *What are the City of Rockland's energy costs?* - Natural Resources Council - Maine scenarios - Rockland Energy Emissions Project - meet with energy committee (Larry Pritchard) - pilot inventory methods/field work	*Assignment 18:* Rockland Energy Project (lighting research/data collection/ summary report) *(due 5/19)*
Week 15 May 3, 5, 7	- Rockland Energy Emissions project (Langley or Chris GIS) - CMP and LEDs - field work - attend hearing in Augusta on energy bill (tentative)	Rockland Energy Project
Week 16 May 10, 12, 14	- complete field work - data entry and mapping - prepare draft report	Rockland Energy Project
Week 17 May 17, 19, 21	- prepare final report and presentation - presentation to Rockland (3 students away on May 21)	Rockland Energy Project
Week 18 May 24, 26, 28	- *How would you characterize current American attitudes?* - *How does the media portray the issue of global climate change? (science vs. documents that are political in nature and have advocacy as a purpose)* - Rockland Project presentation to WS - American attitudes/what Americans know - Inconvenient Truth, The 11th Hour, or A Global Warning - student critiques/discussion	*Assignment 19*: Read and prepare 1 page critique of an article from mainstream media/blog. *(due 5/28)*
Week 19 May 31 Jun 2, 4	- 5/31 Memorial Day, no classes - student critiques/discussion - course evaluation - 6/4 last day of classes – Beech Hill walk	

Some Good Information Sources:
National Climate Data Center - www.ncdc.noaa.gov
United Nations Framework Convention on Climate Change - www.unfccc.int
Intergovernmental Panel on Climate Change – www. ipcc.ch
RealClimate – climate science blog from climate scientists
Science Daily – synopsis of current research articles as they are published
Climate Debate Daily