

CLIMATE CHANGE: THE SCIENTIFIC BASIS (MACS/MCCC 5300)
Fall Term: August 26th - November 15th, 2013
Instructor: Dr. Heather W. Hill

Course Description

Understanding the physical basis of the climate system is necessary in order to make sound predictions about future climate variability and its potential impacts on society. This course, which is one of the two required courses for the Graduate Certificate in Marine and Coastal Climate Change, will examine climate change from the scientific side. Students will learn how the climate system works and the evidence that suggests climate is currently changing. Students will also understand how climate has changed throughout Earth's history, and how this information is used to predict the response of climate to both natural and anthropogenic forcing in the future. Emphasis will be placed on evidence of climate change in the marine and coastal environments.

Contact Information

E-mail: hhill@nova.edu (please use Blackboard e-mail for course-related issues)
Phone number: 231-499-5590.

Text Books

- 1) The Rough Guide to Climate Change, by Robert Henson, Rough Guides Ltd, London, 2008 (ISBN 13:9-781-85828-105-5)

- 2) Earth's Climate: Past and Future, 2nd Edition, by William Ruddiman, W.H. Freeman and Company, New York, 2008 (ISBN 13:978-0-7167-8490-6)

- 3) Access to the movies: Day After Tomorrow and An Inconvenient Truth

Course Structure

The course consists of a combination of weekly Discussion Forums, a mid-term exam, and a final exam. Readings for the course will be a combination of material from textbooks, relevant journal articles, and popular science papers. Your grades will be based on the following breakdown of requirements for the course:

Assessment	Number	Point value	Total points	% of grade
Discussion Forum	10	50	500	50
Mid-term exam	1	250	250	25
Final exam	1	250	250	25
Total			1000	100

Blackboard Discussions: You will be asked to post 3 discussions/week on Blackboard for the assigned weeks (see Course Timetable below). No postings are due for Week 6 or Week 12. The first posting will consist of a response to a question that I pose on Blackboard. The second two postings will be classmate responses. Initial posts are due on Sunday and classmate responses are due the following Wednesday. A guideline for discussion forum posts and a rubric detailing how you will be evaluated can be found on Blackboard.

Mid-term exam: The exam will cover material from Weeks 1-6 and is due at the end of Week 6. The exam will be open book.

Final exam: The exam will cover material from Weeks 7-12 and is due the last day of class. The exam is closed book and must be proctored.

Late Policy

Late work will receive a 10% point reduction for each day that the work is late unless prior arrangements have been made.

Course Timetable

Week #	Dates	Topic	Ass/Exam	DF Posting #1 Due Date	Classmate Response and Exam Due Date
Week 1	8/26-9/1	Climate change and the modern climate system	-----	9/1	9/4
Week 2	9/2-9/8	Past climate change introduction	-----	9/8	9/11
Week 3	9/9-9/15	Tectonic-scale climate change	-----	9/15	9/18
Week 4	9/16-9/22	Orbital and millennial-scale climate change	-----	9/22	9/25
Week 5	9/23-9/29	Historical climate variability	-----	9/29	10/2
Week 6	9/30-10/6	Recent climate warming	Mid-term Exam	-----	10/6
Week 7	10/7-10/13	Climate change evidence: marine/coastal env	-----	10/13	10/16
Week 8	10/14-10/20	Climate change evidence: marine/coastal env II	-----	10/20	10/23
Week 9	10/21-10/27	Climate change evidence: marine/coastal env III	-----	10/27	10/30
Week 10	10/28-11/3	Climate change debate	-----	11/3	11/6
Week 11	11/4-11/10	Climate change in film	-----	11/10	11/13
Week 12	11/11-11/15	Future climate predictions	Final Exam	-----	11/15