

**University of Maryland at College Park
Geography Department
GEOG 345: Introduction to climatology**

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General information about the course

This course introduces geographic patterns of climate and their variability in space and time. It explores mechanisms driving climatic patterns with a particular emphasis on the energy budget and atmospheric interactions with other components of the Earth system. The course builds the understanding of fundamental processes occurring in the atmosphere and the impacts of climate on biophysical and human environments.

There are no specific prerequisites for the course. However, the students should be aware that this is a rigorous upper level physical science course.

Course materials

Required textbook: Rohli, R.V. and Vega, A.J. (2008). ***Climatology***. Jones and Barlett Publishers, Sudbury, MA USA. ISBN-13:978-0-7637-3828-0
<http://physicalscience.jbpub.com/book/climatology/index.cfm>

Additional textbook: Ahrens, C. D. (2009) ***Meteorology Today: An Introduction to Weather, Climate, and the Environment***, (9th ed.), Brooks/Cole, Thomson Learning Inc. 2007 and 2003 editions are fine too.

Other Reading Materials:

US Climate Change Science Program (<http://www.climatescience.gov/>)

Our Changing Planet FY2009 (OCP)

<http://www.usgcrp.gov/usgcrp/Library/ocp2009/>

Intergovernmental Panel on Climate Change (<http://www.ipcc.ch/>)

Fourth Assessment Report, Working Group 1 (IPCC WG1)

<http://www.ipcc.ch/ipccreports/ar4-wg1.htm>

Fourth Assessment Report, Working Group 2 (IPCC WG2)

<http://www.ipcc.ch/ipccreports/ar4-wg2.htm>

Fourth Assessment Report, Working Group 3 (IPCC WG3)

<http://www.ipcc.ch/ipccreports/ar4-wg3.htm>

Course communication

The main course communication will be carried out through the **Blackboard** within the University of Maryland Enterprise Learning Management System (ELMS; <https://elms.umd.edu>). All students enrolled in the course have access to the system. In addition to communications, **Blackboard** will be used by the instructor and the TA to post assignments and grades and by the students to submit their assignments.

Provisional outline of topics covered in the course and exams

Please, note that modifications may be introduced to the schedule as the semester progresses. Updated schedules will be made available to all students via **Blackboard** as soon as possible.

Class	Date	Topic	Reading	Due Date
1	Tue 1-Sep	Course overview and Introduction to climatology	Ch.1	
Part I. The Atmosphere				
2	Thu 3-Sep	Atmospheric composition and structure	Ch. 2	
Part II. Climatological Processes				
3	Tue 8-Sep	External climatic drivers	Ch 3	
4	Thu 10-Sep	Internal climatic drivers	Ch 4	Assnmt 1
5	Tue 15-Sep	Radiation, energy, and heat transfer	Ch 5, +	
6	Thu 17-Sep	Atmospheric temperature	Ch 5, +	
7	Tue 22-Sep	Atmospheric moisture and energy	Ch 5, +	Assnmt 2
8	Thu 24-Sep	Hydrological cycle	Ch 6	
9	Tue 29-Sep	General Atmospheric Circulation: part 1	Ch 7	
10	Thu 1-Oct	General Atmospheric Circulation: part 2, review	Ch 7	Assnmt 3
11	Tue 6-Oct	<i>First mid-term exam</i>		
Part III. Atmospheric dynamics and weather				
12	Thu 8-Oct	Atmospheric pressure and boundary layer dynamics	lecture	
13	Tue 13-Oct	Wind systems and oceanic circulation	lecture	Assnmt 4
14	Thu 15-Oct	Air masses, fronts, and mid-latitude cyclones	ch 8, +	
15	Tue 20-Oct	Thunderstorms, tornadoes and hurricanes	lecture	Assnmt 5
Part IV. Regional climate				
16	Thu 22-Oct	Climate classification	Ch 8	
17	Tue 27-Oct	Climates of Northern Hemisphere: Part 1	Ch 9	Assnmt 6
18	Thu 29-Oct	Climates of Northern Hemisphere: Part 2	Ch 9	
19	Tue 3-Nov	Climates of Southern Hemisphere: Part 1	Ch 10	Assnmt 7
20	Thu 5-Nov	Climates of Southern Hemisphere: Part 2	Ch 10	
21	Tue 10-Nov	<i>Second mid-term exam</i>		
Part V. Climate change and variability				
22	Thu 12-Nov	History and drivers of climatic change and variability	Ch 11	Assnmt 8
23	Tue 17-Nov	Anthropogenic drivers of climate change: Part 1	Ch 12	
24	Thu 19-Nov	Anthropogenic drivers of climate change: Part 2	Ch 12	
Part VI. Applied climatology				
25	Tue 24-Nov	Data, methods and tools: record, satellites,	Ch 14	Assnmt 9
26	Thu 26-Nov	<i>Thanksgiving break</i>		
27	Tue 1-Dec	Climate modeling	Ch 13, +	
28	Thu 3-Dec	Climate and the physical/biological environments	Ch 14, +	Assnmt 10

29	Tue	8-Dec	Climate and the cultural environments	Ch 14, +	
30	Thu	10-Dec	Future of climatology, review	Ch 15	extra credit
31	Tue	15-Dec	<i>Final exam</i>		

Homework expectations

The course includes 10 homework assignments worth 20% of the course grade. The assignments are due no later than 10:55 am on the due date. The assignments are to be submitted via **Blackboard**. The system will not accept late assignments. A special exception can be granted to a student who notifies the instructor about the special circumstances and receives the instructor's permission at least 3 working days before the due date. Any student who fails to submit homework assignments by due date will receive zero points for the assignment.

Mid terms and final exams

The course includes 3 non-cumulative exams: 2 mid terms (each worth 25% of the total grade) and 1 final (worth 30% of the total grade) exam. Although the exams are non-cumulative, understanding of the principles acquired in earlier parts of the course will be necessary to answer exam questions in the later parts of the course. All exams will be "closed book" and will present a combination of test styles with an emphasis on problem solving. On exam day, students are strongly advised to come to class at least 5 min early. The exam will start promptly at 11 am. All students (including students who are late to class) must complete the exam by 12:15 pm.

Exam make up policy

Students unable to take the test should notify the instructor at least 3 working days before the scheduled exam date to schedule a make up date. The make up exam must be taken within a week of the scheduled exam date. Failure to take the make up exam or schedule a make up date will result in a zero on the exam.

Extra credit assignment

An optional extra credit assignment (worth 10% of the grade) will be offered to all students in the course. The assignment will be defined and posted after the second mid term exam. Students, interested in completing an extra credit assignment, should notify the instructor and receive her approval to continue with the selected project.

Grade determination

The total grade in the course will be comprised of the grades for mid term exams (25% for the first and 25% for the second exams), the final exam (30%), 10 assignments (20% - 2% of the total grade per each assignment), and the optional extra credit (10%). The general guidelines for letter grades will be as follows:

97 ≤ "A+" ≤ 110, 93 ≤ "A" < 97, 90 ≤ "A-" < 93, 87 ≤ "B+" < 90, 83 ≤ "B" < 87, 80 ≤ "B-" < 83, 77 ≤ "C+" < 80, 73 ≤ "C" < 77, 70 ≤ "C-" < 73, 67 ≤ "D+" < 70, 63 ≤ "D" < 67, 60 ≤ "D-" < 63, 60 < "F".

Minor adjustments may be introduced to the general scheme to allow for students grade distribution.

Expectations of students in the class

Class attendance is not required. However, students should be aware that a large portion of the material covered in the class is not available in the assigned textbook and will be presented in lectures only. Students are strongly recommended to take careful notes during the lectures.

Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to demonstrate civility with one another, the teaching assistant, or the instructor will be subject to referral to the Office of Student Conduct or to the University Campus Police. You are expected to adhere to the Code of Student Conduct.

In this class, students will be allowed to use their personal computers or other means of technology to take class notes.

Academic integrity

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

Honor pledge must be included in every assignment and exam submitted by the students: *"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/paper/examination."*

Students with disabilities

Every effort will be made to accommodate students who are registered with the Disability Support Service (DSS) Office and who provide the instructor with a University of Maryland DSS Accommodation form which has been updated for the Fall 2008 semester. This form must be presented to the instructor no later than October 1, 2009. The instructor will not be able to accommodate students who are not registered with DSS or who provide the instructor with documentation which has not been reviewed and approved by UM's DSS Office after October 1, 2009.

Medical excuses

Campus Senate policy requires students who are absent due to illness/injury to furnish documentary support to the instructor. Students must contact the instructor by email or by phone prior to class time in which the student will indicate he/she has an illness/injury. The student must present written documentation verifying his/her illness/injury on the first day of class that he/she returns to class. The student will not be allowed to turn in missed assignments or make up exams if he/she has not provided this documentation. In addition, if it is found that the student has falsified the documentation provided, he/she will be referred to the University's Student Conduct Office.

Religious observance

By September 14, 2009, students must provide the instructor, in writing, a request for a make up exam for a specific exam date on this syllabus that students are unable to make

due to a specific religious observance (specify) on a specific date. Please refer to the Online Catalog Policy on Religious Observance. Please remember that accommodations are NOT made for travel to and from the religious observance.

Fall 2009 important dates

Mon	Aug 31, 2009	First Day of the First Semester
Mon	Sep 7, 2009	Labor Day, Campus Closed
Mon	Sep 14, 2009	Last day of Schedule Adjustment
Tue	Oct 6, 2009	<i>First mid term exam</i>
Thu	Oct 8, 2009 by 9 P.M.	Early Warning grades due
Tue	Nov 9, 2009	Last Day to Drop one course with "W"
Tue	Nov 10, 2009	<i>Second mid term exam</i>
Thu	Nov 26 - Sun Nov. 29, 2009	Thanksgiving break
Fri	Dec 11, 2009	Last day of Fall classes
Tue	Dec 15, 2009	<i>Final Exam</i>
Sat	Dec. 19- Sun Dec. 20, 2009	Main and College Fall Commencement