Meeting time and location: Lecture: TuTh, 9:30-10:45 AM, AHC5 357

Course description:
This course focuses on the physical processes that govern Earth’s Climate. We will begin with an introduction of the global energy balance and the interactions between incoming solar radiation and the earth’s atmosphere and surface followed by a description of the basic structures and general circulation of the atmosphere and ocean circulations. Finally we will consider climate variations on many time-scales.

Required Text:

Prerequisites: PHY 2054 or PHY 2049

Instructor: Dr. Robert Burgman
Office: AHC5-362.
Phone: 305-348-6395.
Email: rburgman@fiu.edu.
Office Hours: TuTh 10:45-12:45 pm, or by appointment

On-line version of this syllabus at:
http://faculty.fiu.edu/~rburgman/courses/met3102/met3102.html
Objectives and Learning Outcomes

The objective of this course is to introduce the students to the processes that maintain Earth’s climate based on physical principles. Topics include the global energy balance, general circulation of the atmosphere, general circulation of the oceans, the cryosphere, the hydrologic cycle, regional to global scale climate variability such as El Niño, causes for climate change, climate feedback mechanisms, and climate modeling. Upon completion of this course, students should be able to explain the fundamental scientific concepts underlying our understanding of our climate system. More specifically, students will understand the basic energy and water balances in the climate system and be able to explain their roles in climate change and the impact of climate on living organisms and the human environment.

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<thead>
<tr>
<th>Performance Measures</th>
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<tbody>
<tr>
<td>Participation</td>
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<tr>
<td>Assignment/quizzes</td>
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<tr>
<td>Exam 1</td>
<td>30%</td>
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<td>Final Exam</td>
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<td>Total</td>
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Grading Scale

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<th>Score</th>
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<tr>
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<td>89-80</td>
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<td>79-70</td>
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<td>69-60</td>
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Schedule (Subject to change)

Week 1 Introduction to the Climate System
Week 2 The Global Energy Balance
Week 3 Atmospheric Radiative Transfer and Climate
Week 4 The Energy Balance of the Surface
Week 5 The Hydrologic Cycle
Week 6-7 Atmospheric General Circulation and Climate
Week 8 The Ocean General Circulation and Climate
Week 9 History and Evolution of Earth’s Climate
Week 10-11 Climate Sensitivity and Feedback Mechanisms
Week 12 Global Climate Models
Week 13-14 Natural Climate Change
Week 15-16 Anthropogenic Climate Change

Attendance: Required.
Students who participate in University-sanctioned events (athletic events, debates, performances, etc.) must inform me in advance of any event that will conflict with class time, and they must make up any work they missed.

Make-up homework and examinations:
You are required to be present for exams on the days exams are scheduled. In extraordinary circumstances I will reschedule an exam for an individual, but only if I am notified in advance of the exam. I will also accommodate legitimate, verifiable cases of illness and emergencies (and religious holidays).

Submission of assignments after assigned dates will result in reduction of 5 percentage points (or the letter grade equivalent) for each day late.

Important Links:
University drop dates / calendar
University's Code of Academic Integrity
University policies on sexual harassment and religious holidays
Information on services for students with disabilities

*Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and to honestly demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.*

I retain the right to modify the course syllabus for any reason throughout the semester provided that:
fair and adequate notice is given to enrolled students either by e-mail, in writing, or through online publishing; modifications to the syllabus are not arbitrary or capricious; and students are not unfairly disadvantaged by mid-semester changes to grading standards, attendance standards, or performance measures.

I would like to acknowledge P. Zhu, H. Willoughby, D. Hartmann, Z. Yang, J. Yu, S. Rutledge, D Straus, and B Mapes for help with developing class lectures.