

ATMO 656 Tropical Meteorology
Spring 2007
TR 12:45-2:00, O&M Room 1209

Instructor: Courtney Schumacher
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Office hours: I'm generally available in the afternoons.

Textbook: None. Handouts and/or pdf files will be made available throughout the semester. The pdf files will typically be located in /h/courtney/656-articles.

Course description:

This class will be a survey of tropical weather phenomena with an emphasis on the importance of convection across the scale spectrum. We will read and discuss some of the more important papers in the broad body of tropical meteorology, along with delving into current research topics. An objective of this class is to provide a solid understanding of the tropical literature along with the skills to critically read and clearly present the most relevant aspects of each work.

Exams and grades:

No exams. Grades will be based on classroom participation (20%), article presentations (40%), and a term paper and final presentation (40%).

Classroom participation:

We will discuss a different article each class. I'd like you to thoroughly read and think about each paper, but don't get bogged down in unimportant details or spend too much time on a section that is unclear, we can go over it in class. Everyone is expected to contribute to the daily discussions and should be able to answer the following questions about each article:

1. What is the question?
2. What is the approach?
3. What are the main insights coming out of the paper?
4. What are the weaknesses of the argument?
5. What did you not understand?
6. Where does the paper lead?
7. What questions would you ask the author(s)?

Article presentations:

The article presentations will consist of either one or two people leading the discussion of a chosen paper. Each person will be responsible for *four* article presentations (two individual and two paired) during the semester.

Term paper and final presentation:

The term paper should be 6-10 double-spaced pages (not including figures or references) and should address a *current* interest in tropical meteorology (i.e., something that is actively being researched and with which you will take us to the edge of current understanding).

Topic and sample reference list due by Thursday, March 22nd.

Rough drafts (optional) due by Tuesday, April 10th.

Final drafts due Thursday, April 19th.

Run possible topics by me before finalizing them. If you turn in a rough draft, I will comment on its style and content and will give it back later that week. Final drafts are due before your presentations so that I have time to read them.

The presentations will happen the last two days of class (Tuesday, April 24th and Thursday, April 26th). Each student will present the results of his or her paper. Presentations will be 20 minutes with an additional 5 minutes for questions. There will be 2-3 talks each day.

Accommodations:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room 126 of the Koldus Building. The phone number is 845-1637.

Copyright and Plagiarism Policy:

All materials used in this class are copyrighted. These materials include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted. As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, <http://student-rules.tamu.edu/>, under the section "Scholastic Dishonesty."

The Honor Code:

The Honor Code, based on the long-standing affirmation that An Aggie does not lie, cheat, or steal or tolerate those who do, is fundamental to the value of the A&M experience. Know the Code. Aggie Code of Honor "An Aggie does not lie, cheat, or steal or tolerate those who do."

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Tuesday		Thursday	
Jan 16	Classes cancelled	Jan 18	Friday class Background: Tropical climatology (Garstang Ch. 1)
Jan 23	Background: Surface and convective processes (Garstang Ch. 1)	Jan 25 <i>Courtney</i>	GATE: Zipser (1977), Houze and Betts (1981) Sections A-C
Jan 30 <i>Courtney</i>	MCSs and heating: Houze (1989)	Feb 1 <i>Larry</i>	Diabatic divergence: Mapes and Houze (1995)
Feb 6 <i>Courtney</i>	Momentum transport: Moncrieff and Klinker (1997)	Feb 8 <i>Wei+Larry</i>	Diurnal: Gray and Jacobson (1977)
Feb 13 <i>Courtney</i>	TOGA COARE: Chen et al. (1996)	Feb 15 <i>Sean</i>	Trimodal: Johnson et al. (1999)
Feb 20 <i>Sean</i>	TC concentric eyewalls: Willoughby et al. (1982)	Feb 22 <i>Katie</i>	TC boundary layer: Powell (1990B)
Feb 27 <i>Allison</i>	TC intensity: Holland (1997)	Mar 1 <i>Larry</i>	TC shear: Frank and Ritchie (1999)
Mar 6 <i>Katie+Larry</i>	TCs and climate change: Emanuel (2005) + replies, Webster et al. (2005) + replies, Landsea et al. (2006)	Mar 8 <i>Sean+Wei</i>	Synoptic: Reed and Recker (1971)
Mar 13	Spring break	Mar 15	Spring break
Mar 20 <i>Allison</i>	MJO: Madden and Julian (1994)	Mar 22 <i>Wei</i>	Heating: skim Gill (1980), read Hartmann et al. (1984) <i>Topic due</i>
Mar 27	No class	Mar 29 <i>Courtney</i>	Friday class Waves: Wheeler and Kiladis (1999)
Apr 3 <i>Courtney</i>	Convective quasi-equilibrium: Emanuel (1991)	Apr 5 <i>Katie+Allison</i>	ENSO ocean: Schopf and Suarez (1988)
Apr 10 <i>Katie</i>	ENSO atmosphere: Rasmusson and Wallace (1983), McPhaden (1999) <i>Optional rough draft due</i>	Apr 12 <i>Sean+Allison</i>	Monsoons: Krishnamurti and Bhalme (1976)
Apr 17 <i>Wei</i>	Cloud radiative forcing: Webster and Stephens (1980)	Apr 19 <i>Courtney</i>	Iris hypothesis: Lindzen et al. (2001) + Hartmann and Michelsen (2002) response <i>Final draft due</i>
Apr 24	<i>Final presentations</i>	Apr 26	<i>Final presentations</i>