



NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

Course Syllabus

Course Information

<i>Course Number/Section</i>	EES 785-03
<i>Course Title</i>	Tropical Meteorology
<i>Term</i>	Spring 2011
<i>Days & Times</i>	Session I: W 10:00 – 10:50 (presentations/group discussion) 302 Gibbs (First Meeting: 112 Marteena) Session II: W 11:00 – 11:50 (lectures) 302 Gibbs (First Meeting: 112 Marteena) Session III: W 12:20 – 1:10 (lectures) 302 Gibbs (First Meeting: 112 Marteena)

Professor Contact Information

<i>Professor</i>	Dr. Yuh-Lang Lin
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<i>Other Phone</i>	
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<i>Office Location</i>	302H Gibbs Hall
<i>Office Hours</i>	R 4:45 – 5:45 pm or by appointment
<i>Other Information</i>	MesoLab website: http://www.ncat.edu/~ylin or http://mesolab.us

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Atmospheric Dynamics/Dynamic Meteorology or equivalent

Course Description

This course is a reading-based, special topic course which surveys the basic concepts, theories, and dynamics of tropical circulations, tropical convection, tropical wave dynamics, tropical cyclones, and tropical climate. The tropical circulations will cover trade winds, ITCZ, Hadley circulation, Walker circulation, and teleconnection. In tropical convection, precipitating cloud systems and heating profiles in tropical region will be discussed. The tropical wave dynamics will cover equatorial Rossby waves, Rossby-Gravity waves and Kelvin waves, easterly waves, and African easterly waves. In tropical cyclones, the general characteristics of tropical cyclones, tropical cyclogenesis, movement, and intensity will be discussed. In tropical climate, tropical monsoons, Madden Julian Oscillation, ENSO, QBO, and decadal variability will be discussed.

Student Learning Objectives/Outcomes

- Objective:** Use analytical thinking skills to evaluate information critically
- Outcome:** Students will demonstrate the ability to answer conceptual questions on examination questions.
- Objective:** Effectively relate basic ideas and concepts to more sophisticated atmospheric systems in tropics.
- Outcome:** Students will demonstrate the ability to employ critical thinking in answering short questions as well as solving problems on examinations.

Objective: Use a wide range of disparate information and knowledge to draw references and summarize various concepts, theories and observational evidence in the literature.

Outcome: Student will demonstrate the ability to absorb various concepts, theories and observations in assigned references and summarize and present them to the class.

Required Textbooks and Materials

Required Texts

No textbooks are required.

Required Materials

None

Suggested Course Materials

Suggested Readings/Texts

(1) Tropical Meteorology

- Laing, A., and J.-L. Evans, 2009: "Introduction to Tropical Meteorology" (A free book on COMET, UCAR; Ch. 3, 6;
https://www.meted.ucar.edu/loginForm.php?urlPath=tropical/textbook&go_back_to=http%253A%252F%252Fwww.meted.ucar.edu%252Ftropical%252Ftextbook%252F#)

(2) Tropical Dynamics

- Holton, J., 2004: "Intro. to Dynamical Meteorology" (Academic Press), Ch. 11
- Emanuel, K. A., 2005: "Tropical Meteorology" (An MIT OpenCourseWare free book: search for "MIT OpenCourseWare" => "Tropical Meteorology"
<http://ocw.mit.edu/OcwWeb/Earth--Atmospheric--and-Planetary-Sciences/12-811Spring-2005/CourseHome/index.htm>)

(3) Tropical Climate

- Laing, A., and J.-L. Evans, 2009: "Introduction to Tropical Meteorology" (COMET, UCAR; free book but only Ch. 5, 6, and 10 are available)
- Hastenrath, S., 1988: Climate and Circulation of the Tropics (Reidel, 455pp.)
- Riehl, H., 1979: Climate and Weather in the Tropics (Academic Press)

(4) Tropical Cyclones

- Lin, Y.-L., 2007: "Mesoscale Dynamics" (Cambridge U. Press), Ch. 9.
- Laing, A., and J.-L. Evans, 2009: "Introduction to Tropical Meteorology" (COMET, UCAR; Ch. 10)
- Anthes, 1982: "Tropical Cyclones – Their Evolution, Structure and Effects" (AMS)

Suggested Materials

None

Assignments & Academic Calendar

Topics, Reading Assignments, Due Dates, Exam Dates (optional: withdrawal dates, holidays, etc.)

Presentation Schedule

Date	Pres. #	Presentation Title	Remarks
1/12	1	Tropical Observations	
1/19	2	Tropical Climatology	
1/26	3	TC Genesis	
2/2	4	TC Intensification	
2/9	5	TC Evolution and Dissipation	

Excused absences will comply with the following university policy on make up work:
“Sickness (verification needed); death of relative (immediate family); participation in an approved university related activity; acting in the capacity of a university representative (band, choir, sports, related travel, etc.); extraordinary circumstances including court appearances, family emergency~ at the discretion of the professor, etc. require a signed statement.
NOTE: “Other reasons for class absences are not acceptable.”

Classroom Citizenship

Normal classroom decorum is expected.

Technical Support

If you experience any problems with your A&T account you may call Aggie Tech Support (formerly Help Desk) at 336.334.7195.

Field Trip Policies / Off-Campus Instruction and Course Activities

Not applicable

Student Affairs website: <http://www.ncat.edu/~staffair/>;

Student Handbook: <http://www.ncat.edu/~deanofst/Handbook.htm>;

Student Travel Procedures and Student Travel Activity Waiver

<http://businessfinance.ncat.edu/policies%20and%20procedures%20index.htm>

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address: Student Travel Procedures and Student Travel Activity Waiver

<http://businessfinance.ncat.edu/policies%20and%20procedures%20index.htm>.

Additional information is available from the office of Student Affairs, please check the website at <http://www.ncat.edu/~staffair/>.

Below is a description of any travel and/or risk-related activity associated with this course.

Other Policies (e.g., copyright guidelines, confidentiality, etc.)

Student Handbook: <http://www.ncat.edu/~deanofst/Handbook.htm>

Family Educational Rights and Privacy Act

http://www.ncat.edu/~registra/ferpa_info/index.htm

Student Conduct & Discipline

North Carolina A&T State University has rules and regulations that govern student conduct and discipline meant to ensure the orderly and efficient conduct of the educational enterprise. It is the responsibility of each student to be knowledgeable about these rules and regulations. Please consult the undergraduate

http://www.ncat.edu/~acdaffrs/Bulletin_2008-2010/2008-2010_Undergraduate_Bulletin.pdf

and graduate bulletins: 2008-2010 Graduate Catalog.doc

<http://www.ncat.edu/~gradsch/cstudents.html> and student handbook

<http://www.ncat.edu/~deanofst/Handbook.htm> for detailed information about specific policies such as academic dishonesty, cell phones, change of grade, disability services, disruptive behavior, general class attendance, grade appeal, incomplete grades, make up work, student grievance procedures, withdrawal, etc.

These descriptions and timelines are subject to change at the discretion of the Professor.

01.27.09 – Submitted to Faculty Senate by LEW