



## NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

### Course Syllabus

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#### Course Information

<i>Course Number/Section</i>	PHYS 740
<i>Course Title</i>	Graduate Seminar
<i>Term</i>	Spring 2011
<i>Days &amp; Times</i>	10:00 – 10:50 W 302 Gibbs (First Meeting: 112 Marteena)

#### Professor Contact Information

<i>Professor</i>	Dr. Yuh-Lang Lin
<i>Office Phone</i>	(336) 285-2127
<i>Email Address</i>	<a href="mailto:ylin@ncat.edu">ylin@ncat.edu</a>
<i>Office Location</i>	302H Gibbs Hall
<i>Office Hours</i>	5:00-6:00TR, 4:00 – 6:00 W, or by appointment

*Other Information* MesoLab website: <http://www.ncat.edu/~ylin>  
or <http://mesolab.us>

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

Undergraduate Atmospheric Dynamics, Fluid Dynamics or equivalent (solid calculus, PDE and physics backgrounds)

#### Course Description

This course will focus on numerical modeling of hurricanes or several storms affecting the US continent, and other weather phenomena. Students are required to pursue research on a subtopic and make presentations of the results. In particular, the use of the Weather Research and Forecast (WRF) model in simulating hurricanes and other weather phenomena will be emphasized in the research. In order to facilitate the scientific research and discussions, NOAA ISET Center PIs who are working on hurricane modeling are invited to attend and participate in the class.

#### Student Learning Objectives/Outcomes

- Objective:** Use analytical thinking skills to evaluate information critically
- Outcome:** Students will demonstrate the ability to answer conceptual questions raised during their presentations.
- Objective:** Effectively relate basic ideas and concepts to more sophisticated atmospheric systems in tropics.
- Outcome:** Students will demonstrate the ability to summarize their research and present it to the class effectively and participate in discussions.

#### Required Textbooks and Materials

*Required Texts*

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:

[https://www.meted.ucar.edu/loginForm.php?urlPath=tropical/textbook&go\\_back\\_to=http%253A%252F%252Fwww.meted.ucar.edu%252Ftropical%252Ftextbook%252F#](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 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)

(3) 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>)

(4) 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)

**Assignments & Academic Calendar**

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

• *Presentation Schedule*

Date	Pres./ Lec. #	Presentation Title	Presenters	Host (Tentative)
1/12	1	Introduction	Dr. Lin	Dr. Lin
1/19	2	Student presentations Faculty presentation	TBA	Dr. Lin
1/26	3	Student presentations Faculty presentation	TBA	Dr. Tang; Dr. Lin
2/2	4	Student presentations Faculty presentation	TBA	Dr. Lin
2/9	5	Student presentations Faculty presentation	TBA	Dr. Kyei; Dr. Lin
2/16	6	Student presentations Faculty presentation	TBA	Dr. Lin
2/23	7	Student presentations Faculty presentation	TBA	Dr. Liu; Dr. Lin
3/2	8	Student presentations Faculty presentation	TBA	Dr. Lin
3/7-3/11		Spring Break		
3/16	9	Student presentations Faculty presentation	TBA	Dr. Rastigejev; Dr. Lin
3/23	10	Student presentations Faculty presentation	TBA	Dr. Lin
3/30	11	Student presentations Faculty presentation	TBA	Dr. Roop; Dr. Lin
4/6	12	Student presentations Faculty presentation	TBA	Dr. Lin

4/13	13	Student presentations Faculty presentation	TBA	Dr. Zhang; Dr. Lin
4/20	14	Student presentations Faculty presentation	TBA	Dr. Lin
4/27	15	Student presentations Dr. Rotunno's Seminar	TBA	Dr. Lin
5/2-6		Final Exam Week		

- New students may present research results from previous school or review journal papers (see your advisor for guidance.)

### **Grading Policy**

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|----------------------------------|-----|
| (1) Attendance                   | 20% |
| (2) Participation in discussions | 30% |
| (3) Presentations                | 50% |
- (presentation material has to be submitted within a week of presentation)

### **Course Policies**

#### *Make-up exams*

Not applicable

#### *Extra Credit*

No Extra Credit

#### *Late Work*

Not applicable

#### *Special Assignments*

Not applicable

### *Academic Integrity*

Enrollment in the class means that you agree to abide by the expectations of North Carolina A&T State University about academic integrity. For specific information refer to your Student Handbook. Also, refer to the most current Undergraduate Bulletin for the academic dishonesty policy. The North Carolina A&T State University's Academic Honor Code will be enforced.

Your responsibilities in the area of honor include, but are not limited to, avoidance of cheating, plagiarism and improper or illegal use of technology. Your presentations, assignments, and quizzes are expected to be your own work. Any questions about these should be directed to the professor. It is permissible to request assistance from a librarian when doing database research as long as the selection and organization of the research for the presentation is in your own work.

### *Class Attendance*

The College of Arts and Sciences requires students to be on time for class and to attend class on a regular basis. If the student has unexcused absences, is late for class or leaves class early, the student's grade may be lowered.

(See attendance policy set forth by the instructor in the course syllabus.)

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](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](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.***

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01.27.09 – Submitted to Faculty Senate by LEW