Florida Institute of Technology College of Engineering  
DEPARTMENT OF MARINE AND ENVIRONMENTAL SYSTEMS

Course: MET 4305/5305 Dynamic Meteorology I (3 credits)/FALL 2012

Instructor: Dr. Steven Lazarus

Location: 220 Crawford Science Tower

Class meets: T/R 8:00 - 9:15 a.m.

Office Hours: T/R 10:00-11:30 a.m. 207 Link (or by appointment)

Office phone: 394-2160

email: slazarus@fit.edu

Course Home Page: http://my.fit.edu/~slazarus/class1.html

Grading: MET4305: 2 exams/20% each, final 25%, homework 15%, class participation/quizzes 20%. MET5305: 2 exams/30% each, final 25%, homework/quizzes 15%, students will have ‘different’ (more difficult) exam questions. NOTE: For every 2 unexcused absences, your grade will be lowered by one letter.

Course description: Course material includes: Vector/calculus review, Taylor theorem and applications, Newton’s 2nd Law and the derivation of the fluid momentum equations, hydrostatic balance, hypsometric equation, spherical and natural coordinates, moving reference frames, scaling, Eularian/Lagrangian reference frames, 2-D flow types (geostrophic, cyclostrophic, gradient, inertial), thermal wind equation, circulation, introduction to vertical vorticity, Stokes theorem, and basic jet streak dynamics.

Prerequisites: The catalog lists OCN 2407, OCN 3430. However you should also have had MET 3401, MET 3402, the Calculus/Physics sequences and Differential Equations (MTH 2201).

CRN: 81008 (MET 4305)/81009 (MET 5305)

Textbooks: In addition to lecture notes, material will be drawn from a number of books with the primary text being: Holton, J. R., An Introduction to Dynamic Meteorology, 4th Edition. For related dynamics texts http://my.fit.edu/~slazarus/met4305/refs.html

Course Objectives: The 4305/5305 course is the first of a two part series designed, in part, to fulfill the requisites associated with a B.S. in meteorology. The overall goal of this class is to lay a foundation for understanding basic dynamic meteorology by introducing the student to the fundamentals of the Navier-Stokes equations (Holton Chapters 1-4).