Syllabus for Satellite Communications and Navigation Systems
ECE 6390 – Summer 2015

Class Description:

Course	Title	Cr Hrs	Instructor	Days	Time	Location
ECE-6390	Satellite Communications	3	Greg Durgin	MWF	12:00 pm to 1:45 pm	Weber SST III 1

ECE 6390 Satellite Communications and Radiolocation
A first-principles discovery of how satellite and radiolocation systems are designed and deployed. Topics include orbital mechanics, propagation, digital transmission, global positioning system, and other radiolocation issues. Course is taught from first principles and will allow the student to analyze any physical-layer wireless systems.

Instructor: Gregory D. Durgin
Office: 507 Van Leer
Office Hours: TBD
E-mail: durgin@ece.gatech.edu
Office Phone: (404) 894-2951
Class Web Page: http://www.propagation.gatech.edu/ECE6390

Textbook: *Satellite Communications,* 2nd edition, Pratt, Bostian, and Allnutt. Wiley, 2003. ISBN-13: 978-0471370079.
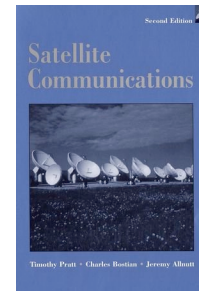
Prerequisites: Graduate standing and some background in electromagnetics (ECE 3025 and/or 3065) and basic signal processing (ECE 2025). Elective work in antennas and digital communications is often helpful.

Grading:

10% Homework – Expect several homework assignments over the course of the semester. **Late homework is not accepted**.

65% Midterm Quizzes (3) – There will be 3 in-class quizzes, each testing material covered since the previous midterm quiz. The top two quiz scores counts 25% of the final grade and the lowest quiz score counts 15%.

25% Final Project – A final project will be assigned midway through the course. The project is due exam week. **Late projects are not accepted**

Quiz Dates: Quizzes will be administered on the days listed on the course website. Any change to this schedule will be announced with at least one week's notice.

Computer Usage: The web will be used extensively in this class to disseminate homework assignments, lecture materials, and class announcements.

Some homework assignments may involve the use of Matlab^{tm} software. Most students should have access to this software through a university computer lab or their own personal computing packages. If not, please inform the instructor.

Tentative Lecture Topics:

I.	Orbital Mechanics	VI.	Satellite Modulation
II.	Spacecraft Systems	VII.	Channel Impairments
III.	Noise and Propagation	VIII.	Global Positioning System
IV.	Atmospheric Effects	IX.	Future Navigation Systems
V.	Antenna Design	X.	Special Topics

Look online for a more detailed listing of course topics from previous sections.

Honor Code: The Honor Code applies to every aspect of this class, with only one noteworthy exception: student discussion of concepts and techniques for solving homework problems is permitted and even encouraged outside the classroom. However, *all submitted work must be original*.