

# Lecture

## Course Overview

### EE 565: Position, Navigation and Timing

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In collaboration with  
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## 1 Course Outline

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- Required Textbook: [Principles of GNSS, Inertial, and Multisensor Integrated Navigation Systems](#), Second Edition, Paul D. Groves, 2013.
- Recommended Software: MATLAB or Octave
- Lectures: Tues and Thu 11:00-12:15 Workman 117
- Instructor: Aly El-Osery and Kevin Wedeward

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## 2 Grading

### Grading

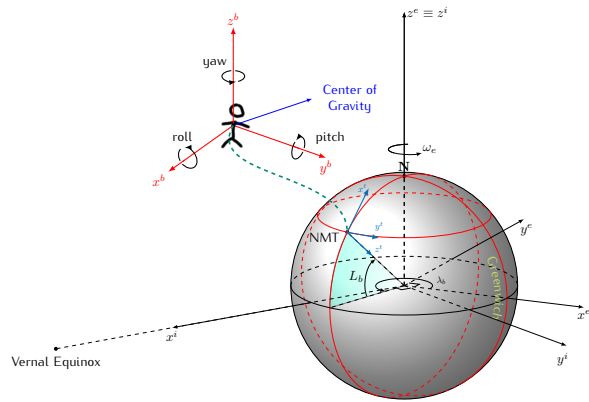
- Homework assignment: 30%
- Midterm: 20%
- Two mini-projects: 10% each
- Final project: 10%
- Presentation/Paper: 10%
- Class participation: 10%

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## 3 Course Description

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This course will cover the basics of terrestrial location and navigation with an emphasis on practical exposure to technology.



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**Part I: Navigation Mathematics**

- Introduction to navigation
  - Coordinate frames
  - Kinematics
  - Earth surface and gravity
  - Frame transformation
- } Ch. 2

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**Part II: Navigation Sensors and INS Mechanization**

- Accelerometers
  - Gyroscopes
  - Error Characteristics
  - Inertial navigation equations
- } Ch. 4 & 5

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**Part III: INS/GPS Integration**

- GPS
  - Kalman filtering
  - Integration architecture
  - System Model
  - Measurement model
- Ch. 8  
Ch. 3  
} Ch. 14-16

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