Statics (Vector Mechanics) 4 Credits
Administrative Details

Section	Hour	Room	Instructor	Office	Phone
03	8	Olin 205	Chambers	D107	office: 812-877-8904
04	9	Olin 205	Chambers	D107	
05	8	Olin 101	Olson	E101	office: 812-877-8324
06	9	Olin 101	Olson	E101	
07	8	Olin 103	Fine	D103	office: 812-877-8353
08	9	Olin 103	Fine	D103	
09	8	Olin 201	Stamper	D102	office: 812-877-8956
10	9	Olin 201	Stamper	D102	

Text: ***Statics and Mechanics of Materials, 2nd Edition,*** **Riley, Sturges, and Morris.**
Note – this book will be used again for EM203 your junior year

Course Objectives: Upon completing this course, students will be able to:

- Analyze a static structure or system of particles to determine the forces and moments which are acting external and internal to the bodies
- Understand, use, and mathematically manipulate vectors
- Understand definitions of stress and strain
- Understand elastic behavior of materials (Hooke's Law)
- Distinguish between applied stress and material strength to apply factors of safety
- Determine centroids

Student Evaluation:

A grade will be given to evaluate how well the student has assimilated the course material. The total grade for the quarter will be dependent upon homework, exams, and a project.

Grade Distribution:

Homework.....10%
Exam I 15%
Exam II.....15%
Exam III 15%
Project 15%
Final Exam 30%

Grading criteria 90 + → A
80-90 → B
70-80 → C
60-70 → D
< 60 → F

Exams:

Each exam will be a 50 minute exam. Students must have a passing exam average, including the final exam, to pass the class with passing defined as a D or higher. Make-up exams are not given, should you miss an exam and have made prior agreement with your instructor, your final exam grade will count for you missed exam.

Final Exam:

Four hours will be allotted for the cumulative final exam. All students are expected to take the final exam at its scheduled time in the scheduled location

How to Succeed:

Desire and motivation is the key to success. You are all bright enough to do well in this class. The students who do the best are mentally active in class, keep up-to-date with homework assignments, and take advantage of available help from upperclassmen, peers, and faculty.

Students who fail typically fall behind on or don't do assignments, rely on files for homework, or skip class.

Homework

Format: Problem solution formats serve two purposes

1. First, they help you organize you thoughts to better solve the problem
2. Second, they are forms of communication

An organized approach, such as the on you will use in this class, helps an engineer approach and handle problems of all levels of complexity. Recognize that the solution method is not as linear as it appears, and iteration is often needed. Consequently, what you submit should be a final version of the scratch work it took you to get there.

Cover Sheet:

The cover sheet should contain

1. Your Name and CM Number
2. The Course Name, Number, and Section
3. Date Due
4 Vertical List of Assigned Problems

Header:

Each problem should start on anew page of green engineering paper. The header of each page should contain the following information:

1. Course Number and Section Number
2. Problem Number
3. Student Name and CM Number
4. Problem Number
5. Assignment Page Number and Total Number of Pages

Problem Statement:

The goal here is to define the problem. In an engineering analysis course, the problem statement in the book may be that definition. In design courses or after graduation, a significant portion of the problem solution is the problem statement. The problem statement should contain two subheadings: Given and Find. You may photocopy or scan the problem and figure from the text and paste the information under the appropriate heading.

Assumptions and Known Quantities:

List all of your assumptions and knowns

Unknowns/Equations Table:

List the unknowns and independent equations to help determine when you have sufficient equations to solve for the unknowns.

Identify System or Systems:

In words and/or pictures, clearly identify the system or systems you will be analyzing. For many problems in Statics, this means that you must draw a Free Body Diagram. Your coordinate system should be clearly labeled.

Identify Appropriate Principles, Laws, and Constraints:

State in word what principle you are using (e.g. Conservation of Momentum, Conservation of Energy, Static Equilibrium). This will help determine the useful equations or other mathematical relationships between knowns and unknowns.

Problem Solution:

Logically and neatly apply the appropriate principles and laws to determine the desired answer. Often you will find it useful to solve the problem in symbolic form first and then substitute in the numbers at the end. Final answers must be boxed. If a computer algebra system is used, include the printout.

Check Your Answer:

Does your result seem reasonable – the world after graduation doesn't give partial credit for wrong answers!

Words of Warning:

It is very important to your grade to not miss turning in homework assignments. Each homework assignment will be approximately 1/10 of 1% of your total quarter grade. In addition, the homework reinforces the concepts from lecture. If you get behind on your homework you will rapidly become lost.