

# PHYSICS 387 – STATICS

## Syllabus FALL 2008

**INSTRUCTOR** Dr. Eduardo Sánchez Velasco.

### OFFICE

Magruder Hall 3170

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Note: Do not use the phone or e-mail for grade related questions.

### OFFICE HOURS

Monday, Wednesday, Friday : 11:30 a.m. – 12:30 p.m.

Tuesday: 11:30 a.m. – 12:30 p.m. and 1:30 p.m. – 2:30 p.m.

These are my official office hours, but frequently I am in my office at other times; you should feel free to stop in at any time, or to make an appointment, if this is more convenient.

### CLASS HOURS:

Wednesday, and Friday: 2:30 p.m. – 3:20 p.m. in Magruder Hall 1099.

Tuesday: 12:30 p.m. – 1:20 p.m. and 3:00 p.m. – 3:50 p.m. in Magruder Hall 1099.

### CATALOG DESCRIPTION:

Engineering statics. Resultant of force systems, centroids, equilibrium, stresses in structures, friction, moments of inertia, products of inertia. Prerequisite: PHYS 195. Co-requisite: MATH 264. *3 hours.*

### TEXT AND MATERIALS:

The required text for this course is:

- R. C. Hibbeler, *Engineering Mechanics, Statics*. Eleventh edition. Prentice Hall.

In addition, students must have a scientific calculator of their choice with the capability of solving systems of linear equations and computing numerical integrals. Students are expected to be proficient in the use of the calculator, and should bring it to all the classes.

### ACADEMIC DISHONESTY

Academic dishonesty of any form will not be tolerated in this class. Anyone caught cheating on a test, homework or quiz will automatically receive a grade of zero on that test, homework or quiz. Further disciplinary action consistent with University policy will be considered, including failing the course. Homework, exams and quizzes, unless instructed otherwise, must be done individually. For more information about the University policy on academic dishonesty, consult the appropriate sections of the Student Conduct Code (see the code at <http://saffairs.truman.edu/studentconductcode.asp>).

### STUDENTS WITH DISABILITIES

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Services office (x4478) as soon as possible.

## EXAMS:

There will be four closed book exams in this class. The tentative exam dates are listed at the end of this syllabus. All exams, including the final (exam #4), will be on the material covered since the preceding test. That is, they are not “comprehensive”. However, you may have to use as background for one exam material covered in previous exams. In addition to these exams, there may be occasional quizzes. All exams and quizzes must be done individually.

## HOMEWORK POLICY:

There will be several homework assignments during the course. Unless otherwise indicated, **homework should be done individually**. I will consider academic dishonesty homework done in group or copied from any unauthorized source. You must turn in your homework assignments **in person** at the **beginning** of the class session in which they are due, unless you have a valid reason not to attend the class. Homework handed in after the class has started will be considered late homework. **No late homework will be admitted without a valid excuse.**

## MISSING A TEST:

Students are expected to attend all class sessions and exams. If you have a valid conflict that does not allow you to take an exam or quiz, **contact me as soon as possible**, preferably before the event takes place. In any case you should see me **in person** as soon as possible. Missing a test or quiz requires a valid excuse, otherwise a grade of zero will be assigned. I reserve the right to determine what is, and is not, a valid excuse. As a rule only extreme situations, such as serious medical problems, will be considered valid excuses. Field trips and sport events are not usually considered valid excuses unless previously arranged personally with me. In general, having other exams in the same day is not a valid excuse. Adjustments to make up missed exams, homework, or quizzes, if any, will be made at my discretion, and only in very rare situations.

It is your responsibility to be on time for all classes. You are also responsible for showing on time to exams and quizzes. Alarm clock malfunctions and similar events are NOT considered valid excuses for being late or absent. If you are late to a class, you will not be able to turn in your homework or take a quiz, which usually are done at the beginning of the class. Being late to an exam or quiz may disqualify you from taking that exam or quiz. The exact date of a quiz will be announced in a previous class; it is your responsibility to know that date. If you miss a class, make sure to ask if a quiz was announced in it. “I did not know there was a quiz today” is NOT a valid excuse for missing a quiz. The same applies to changes of date or time of a exam, date of due homework, or the content of the exams.

## GRADING POLICY:

The grade for this class will be obtained from 4 tests, and from homework assignments and occasional quizzes. Each exam will count 17.5% towards the final grade, and the remaining 30% will come from the homework assignments and quizzes. Unless stated otherwise each quiz will count the same as a regular problem in a homework set.

Homework and quizzes	30%
Exam #1	17.5%
Exam #2	17.5%
Exam #3	17.5%
Exam #4	17.5%
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Total :	100%

The minimum guaranteed grading scale is as follows:

Final Percentage	Final Letter Grade
90 to 100	A
80 to 90	B
70 to 80	C
60 to 70	D
below 60	F

Final letter grades are normally assigned according to the table above. However, depending on class performance, or to reward class participation, at the end of the semester I may curve grades upward. If this curving is done and, for example, I add 1% to the final grade, a person with a final percentage of 79% may receive a B as a final letter grade, even though the above table indicates that a C would normally be assigned. However, **curving is not guaranteed, and you should not count on it**. I will never curve downward. As a rule, only the grades in the above table (A, B, C, D or F) will be given. Any other grade, like incomplete (IC), will be given at my discretion, and only under **very unusual and extreme circumstances**, like a serious medical problem. Poor performance will not qualify you for a grade other than A, B, C, D, or F.

#### TENTATIVE COURSE OUTLINE:

Some of the topics I intend to cover in the lectures, in their approximate order, are indicated below.

- Introduction and vectors (Chs. 1,2)
- Vectors and forces (Ch. 2)
- Equilibrium. Free body diagram (Ch. 3)
- System of forces and moments (Ch. 4)
- Objects in equilibrium (Ch. 5)
- Objects in equilibrium. Rigid bodies and structures (Chs. 5,6)
- Structures in equilibrium. Trusses. (Ch. 6)
- Structures in equilibrium. Frames and machines (Ch. 6)
- Internal forces (Ch. 7)
- Distributed forces (Ch. 7)
- Centroids and centers of mass (Ch. 9)
- The Pappus-Guldinus theorem (Ch. 9)
- Moments and products of inertia (Ch. 10)
- Friction (Ch. 8)
- Virtual work and stability (Ch. 11)

Note that this is only a tentative schedule. I may change it to adapt to the needs of the class as we go along. The purpose of the class is for you to learn, not to follow a rigid class schedule. Your feedback in this matter will be very helpful. Please let me know if you think I am going too fast or too slow, or if there are topics in which you would like a more detailed explanation.

#### TENTATIVE EXAM DATES:

Exam #1: Wednesday, September 17 in class.

Exam #2: Wednesday, October 15 in class.

Exam #3: Friday, November 7 in class.

Exam #4: Thursday, December 11, 1:30 p.m. – 3:20 p.m. (Finals week).

☞ NOTE: Exam #4 starts at 1:30 p.m. and **not** at any of the regular class meeting times.

☞ This schedule may change during the semester. Updated versions of this syllabus will be posted on line at <http://www2.truman.edu/~velasco>