

## **Problem Solving in Building Mechanics: BCT597BM – 1 credit Syllabus, Spring 2017**

**Professor:** Dr. Peggi Clouston, Design Building Room 316, Tel. 545-1884, [clouston@umass.edu](mailto:clouston@umass.edu)

**Office hours:** Tuesdays 10-11am and Wednesdays 2-3pm or by appointment

**Course place & time:** Design Building Room 162, Fri. 10:10-11am

**Website:** <https://blogs.umass.edu/bct530-clouston/>

**Teaching Assistant:**

Rachel Koh ([rkoh@umass.edu](mailto:rkoh@umass.edu))

office hours: Fridays 11am-noon and Mondays 2-3pm in Design Building, Room 158

### **Course Description and Objectives**

*Problem Solving in Building Mechanics: BCT597BM* is a mandatory lab component of BCT530. Each week, students will work together during class time to get practice in solving mechanics-type questions. The questions are similar to those in the homework of BCT530 so that solving them – with friends and instructor guidance – will make it easier to complete the homework questions that are due the following Tuesday. The course starts with a review of the mathematical basics of algebra, trigonometry and vector physics and then closely follows the topics of BCT530.

Upon completion of the course, students will be able to:

1. analyze external and internal forces in statically determinate plane structures
2. calculate stresses and strains in axial members
3. determine bending and shear stresses in simple beams
4. be able to solve simple beam design equations

## Course Components

- **Problem solving:** Class will meet for 50 minute sessions on Friday mornings to work in groups to solve questions that are similar to the weekly homework questions.
- **Team projects:** There will be three team projects that will involve building and testing small structures.

## Grading and Evaluation

Attendance: 50% (**Attendance is mandatory for all classes!** see note below)

Lab questions: 50%

Extra-credit questions: 5 questions worth 1% each for up to 5% extra credit in the overall grade

### Lab questions

For 9 of the 12 weeks, questions from the text book will be assigned, as outlined on the course website. Working in teams, students will be required to answer one of the assigned questions within a 30 minute time period. Students will be told which question to answer when they arrive in class. The solution will be passed in for grading and will account for 50% of the grade. For the remaining 20 minutes of class, students will be required to grade a different assigned question, done by a different team, while having the correct solution in hand and following the grading rubric below. Once this is handed in, students can work on the extra-credit question (if there is one), or can work on homework that is due the following Tuesday.

### Grading rubric for Assigned lab questions

Grade (out of 4 maximum)	Description
4	Correct answer, correct approach and neat
3	Incorrect answer, correct approach and neat
2	Incorrect approach but neat
1	Incorrect approach and not neat

### Attendance is mandatory for all classes.

Absences will be recorded and each unexcused absence will reduce your grade by 5%. If extenuating circumstances develop (per university-accepted reasons) and an absence is unavoidable, then the circumstances must be discussed with Professor Clouston prior to the class that will be missed. **Students must arrive to class on time.**

Letter grades will be assigned as follows: A (>92), A- (90.0–91.9), B+ (87.0–89.9), B (83.0–86.9), B- (80.0–82.9), C+ (77.0–79.9), C (73.0–76.9), C- (70.0–72.9), D+ (67.0–69.9), D (60.0–66.9), F <60

## **Required Text – Bring your text to class!**

B.Onouye and K.Kane, *Statics and Strength of Materials for Architecture and Building Construction*. New Jersey, Prentice Hall, 4th ed., 2012 ISBN 978-0-13-507925-6

(NOTE: this book is available on CourseSmart for easy download:

[http://www.coursesmart.com/IR/3417679/9780132103244?\\_\\_hdy=6.8](http://www.coursesmart.com/IR/3417679/9780132103244?__hdy=6.8)

## **Grievance Procedure**

If you have an academic grievance, you may dispute it by submitting a written explanation together with the material in question to the Professor within two weeks of the occurrence of the grievance. If an agreeable solution can not be found, the University Grievance Procedure will be followed (found in the Undergraduate Rights and Responsibilities (at <http://www.umass.edu/ombuds/pdf/academicgrievanceproc.pdf>).

## **Special Needs**

All reasonable efforts will be made to meet the individual needs of the student. If you have a learning disability or need special accommodation please make an appointment with the Professor to discuss your needs. All discussions will be kept strictly confidential.

## **Academic Honesty**

The University Academic Honesty Policy applies. This policy can be found in the Undergraduate Rights and Responsibilities (at <http://www.umass.edu/ombuds/pdf/academicgrievanceproc.pdf>) and covers plagiarism, cheating, fabrication, and facilitating dishonesty. Original, handwritten assignments are required by each student.

## **Classroom Behavior**

As per building policy, it is not permitted to consume food in the classroom. Smoking is also prohibited. Students are strongly encouraged to turn all cell-phones off during class time. Any disruptive behavior will be sanctioned appropriately.