TAM 210/211 Staff Team

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Course websites

MAIN PAGE - https://courses.engr.illinois.edu/tam210/index.html

TAM 210/11: Statics

Welcome to the official course website for TAM 210/11 at UIUC this Fall 2018.

NOTE: This page is always under construction!! Feel free to peruse, wander, and learn a bit about what's coming up this Fall, but dates/times/assignments etc. are subject to change. If you have any questions, feel free to drop us a line at the discussion forum on Piazza (see link below).

As well as the pages on this website, this course uses:

- Online homework via PrairieLearn
- Discussion forum on Piazza
- Gradebook on Compass
- Computerized Testing Facility exam reservation
- Computerized Testing Facility instructions
ALL communication in the course will be via piazza

- Open discussion of questions from class: if there’s something you don’t understand, chances are other people don’t, and someone else may have the answer.
- Regularly checked by instructors, TAs and CAs.

Course Communications

Piazza: https://piazza.com/class/jl5otqlzrwn2s3

Hi everyone -

As part of the TAM sequence, we are strongly encouraging students to become comfortable using Matlab to solve mechanics problems. However, we know that some students enter the TAM sequence with limited exposure to using Matlab for engineering (or none at all), so we have arranged an informal clinic/office hour for Matlab this Friday (1/22) in 1001 MEL between 9am and 5pm. TAs from all three TAM 2XX courses will be there throughout this time period to answer questions and help you become acquainted with using Matlab.

If you have other questions about Matlab (e.g., downloading from WebStore), you can always post them on Piazza as well!
Grade distribution

**Grading:** As noted under [Policies](#) (Gradebook), all assessment scores are stored on Compass2g. Note that we are only using this website for grade reporting. The total score for the course is computed with the following weights:

**TAM 210/211**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrairieLearn homework</td>
<td>10%</td>
</tr>
<tr>
<td>Written assignments</td>
<td>15%</td>
</tr>
<tr>
<td>Discussion group activity</td>
<td>10%</td>
</tr>
<tr>
<td>CBTF quizzes</td>
<td>40%</td>
</tr>
<tr>
<td>Written exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Final grades:** The total score $s$ corresponds to final grades as follows.

- $97\% \leq s < 100\%$  
  A+
- $92\% \leq s < 97\%$  
  A
- $89\% \leq s < 92\%$  
  A-
- $86\% \leq s < 89\%$  
  B+
- $82\% \leq s < 86\%$  
  B
- $79\% \leq s < 82\%$  
  B-
- $76\% \leq s < 79\%$  
  C+
- $72\% \leq s < 76\%$  
  C
- $69\% \leq s < 72\%$  
  C-
- $66\% \leq s < 69\%$  
  D+
- $59\% \leq s < 66\%$  
  D
- $55\% \leq s < 59\%$  
  D-
- $s < 55\%$  
  F
Grade distribution

**Grades:** on Compass2g

- Any errors in grade reporting on Compass **must be reported within 2 weeks** of the due date or by the last day of class, whichever is earlier.
- Missing grade for discussion section or a written assignment, contact one of the TAs in your section (personally or via Piazza).
- Missing grade from online homework, an exam, or i>clicker, contact the instructor (via Piazza).
Discussion group activity – 10%

• Work in groups of 3-4 students

• Goals:
  • Gain experience in team-work
  • Apply engineering concepts learned in lecture to real-world problems or hands-on activities

• Be prompt: if you are more than 5 minutes late, you will receive a 0 😞

• You need to attend the discussion in which you are registered, otherwise, your assignment will not be graded
Online Homework (PL) – 10%

- Instant feedback
- Infinite number of attempts
- First required HW is due this Friday August 31

PrairieLearn
An online system for problem-driven learning.

University of Illinois login  Google login
Written Assignments – 15%

- Student will submit an individual written report using compass
- Goal:
  - Practice the communication of engineering concepts in writing
  - The reports will be graded based on approximately:
    - 40% presentation, neatness, correct use of symbols, quality of drawings and diagrams, and clarity of explanation
    - 60%: Correct interpretation of the problem and correct final answers.
Quizzes — 40%

- Helps you assess your understanding of the material in real time
- No personal calculators
- Sign up for a quiz time online
- Concept Inventory: Pre-test
  *Wed-Sat (8/29-8/31)*
Written Exam – 25%

- Location – CBTF
- Time – TBD (12th week)

Conflict exams will be scheduled for students with legitimate (documented) scheduled conflicts. These are usually on the same day but earlier than the regular exam. You should contact the instructor via Piazza to schedule a conflict exam no later than one week prior to the exam date.
Support for Students

- Piazza (everyday, reasonable working hours)
- Office hours (429 Grainger) – TBD
- MATLAB clinic
  - Wednesday, August 29
    - 5:00 PM - 6:30 PM
    - 6:30 PM - 8:00 PM
  - Thursday, August 30
    - 5:00 PM - 6:30 PM
    - 6:30 PM - 8:00 PM
  - Friday, August 31
    - 5:00 PM - 6:30 PM
- Homework 0 – vector math (use MATLAB/Mathematica/Octave)
- Course website has a Matlab help document
Paths to Success

• Lots of opportunities for points, don’t lose the little ones

• A tenant of this class to be successful is:

  PRACTICE, PRACTICE, PRACTICE

As of 2011, Yo-Yo Ma had practiced approximately 50,000 hours (according to Malcom Gladwell)

“I’m not out there sweating for three hours every day just to find out what it feels like to sweat.”

“I’ve Missed More than 9,000 Shots in My Career”

Make the most from all the resources...

- We don’t have many hours together – Attend!
- Use technology - bring your tablets, laptops, etc.
- Russian technology - Bring paper and pencil/pen
- Participate (in lecture, discussion session, Piazza)
  - Ask questions
  - Be prepared to answer questions
  - “I don’t know” is ok too!
Chapter 1: General Principles
What is “statics”? 

Science
  - Life
  - Physical
  - Social
  - More!

Astronomy
  - Relativity

Physics
  - Mechanics

Chemistry
  - Thermo

More!
Mechanics

Mechanics is a branch of the physical sciences that is concerned with the state of rest or motion of bodies that are subjected to the action of forces.
Statics in Life

- Burj Khalifa, Dubai, U.A.E., 2008
- Freedom Tower, New York City, 2016
- Taipei 101, Taipei, Taiwan, 2004
- Shanghai World Finance Center, 2007
- Petronas Towers, Kuala Lumpur, Malaysia, 1998
- Sears Tower, Chicago, 1974
- Jin Mao Tower, Shanghai, 1999
- World Trade Center, New York City, 1972
- Two International Finance Center, Hong Kong, 2003
- Empire State Building, New York City, 1931

- More than 2,000 ft. Eventual height is secret
- 1,776 ft. Plans call for windmills to provide 20% of the building's power
- 1,670 ft. The world's tallest building today
- 1,614 ft. It will have the highest outdoor observation deck in the world
- 1,483 ft. The towers have 32,000 windows and are each 88 stories high
- 1,450 ft. The tallest building in the U.S. (spires count; antennas do not)
- 1,381 ft. Contains the world's highest hotel rooms
- 1,368 ft. and 1,362 ft. Destroyed on Sept. 11, 2001
- 1,362 ft. One of the few buildings in the world with double-decker elevators
- 1,250 ft. Currently the world's ninth tallest building (it was the tallest for 41 years)
Newton’s laws of motion

**First law:**
Particle at rest (or moving in a straight line with constant velocity) stays that way unless another force comes in.

**Second law:** a particle acted upon by an unbalanced force $F$ experiences an acceleration $a$ that is proportional to the particle mass $m$:

$$F = ma$$

**Third law:** the mutual forces of action and reaction between two particles are **equal**, **opposite** and **collinear**.

$F_1$, $F_2$, $F_3$, $F$, $v$, $a$