Syllabus

Updated February 22, 2000

T&AM 203, Spring 2000

Also see the *Course information* sheet and http://www.tam.cornell.edu/courses/tam203_s2000

Lecture Dates	Topics	Text Sections
Tu 1/25	Vector review, Intro. to Mechanics.	Preface, Chapters 1,2.
Th 1/27	Statics review	Chapters 3,4
Tu 2/1	1D Particle dynamics (x, v, a, E_{K})	5.1-2
Th 2/3	Mass, spring, dashpot: the harmonic oscillator	5.3-5
Tu 2/8	1D coupled motions (*e.g.*, two masses connected by springs)	5.6
Th 2/10	2D &3D dynamics of a particle: (*e.g.*, trajectories with friction)	5.7-8
Tu 2/15	Central force motions (angular momentum and energy methods)	5.9
Th 2/17	Coupled motions in 2D and 3D (*e.g.*, planetary systems)	5.10
Tu 2/22	1D constrained motion: ropes and pulleys	6.1
Th 2/24	2D forces in straight line motion (intro to rigid bodies)	6.2
Tues 2/29	— **Prelim 1**, Hollister B14, Covers all topics above, 7:30-9:00+ —	
Tu 2/29	3D forces in straight line motion	6.2
Th 3/2	Kinematics and dynamics of 2D circular motion	7.1, 7.2
Tu 3/7	Angular velocity of a 2D rigid body ($\vec{\mathbf{v}}_{\mathrm{B/A}} = \vec{\omega} \times \vec{\mathbf{r}}_{\mathrm{B/A}}$)	7.3
Th 3/9	Dynamics of 2D circular motion	7.4
Tu 3/14	Dynamics using the polar moment of inertia I	7.5, 7.6
Th 3/16	Angular velocity in 3D ($\vec{\mathbf{v}}_{\mathrm{B/A}} = \vec{\omega} \times \vec{\mathbf{r}}_{\mathrm{B/A}}$)	8.1
**********	**********Spring break**********	**********
Tue 3/28	— **Prelim 2:**, Hollister B14, Covers all topics above (comprehensive), 7:30-9:00+ —	
Tu 3/28	Dynamics of constant-axis rotation (*e.g.*, spherical pendulum)	8.2
Th 3/30	Moment of inertia matrix [**I**]	8.3
Tu 4/4	Mechanics using [**I**]	8.4
Th 4/6	Dynamic balance	8.5
Tu 4/11	Kinematics of general planar motion	9.1 (9.2)
Th 4/13	Dynamics of free 2D rigid bodies (*e.g.*, free flight of a solid)	9.3
Tu 4/18	Rolling and sliding	9.4
Th 4/20	Collisions (sticking or elastic frictionless spheres)	9.5
Tues 4/25	— **Prelim 3:**, Hollister Phillips 101, Covers all topics above (comprehensive), 7:30-9:00+ —	
Tu 4/25	Time varying base vectors	9.6
Th 4/27	Particles moving relative to machines	9.7
Tu 5/2	One-degree of freedom mechanisms	9.8
Th 5/4	Multi-degree-of-freedom mechanisms	9.9
??	— **Final exam:** comprehensive — (exam exception date not yet set)	

Please follow these homework directions to make sorting and grading easier. Homework is due on Tuesday before lecture. Solutions will be posted on the WWW on Tuesday night.

1. Staple all pages in the top left corner.
2. Write the following on the upper right hand corner of your homework (making appropriate substitutions):
3. *Yourfirstname Lastname*,
   TAM 203, Homework *n*, due: *due date*,
   Section: time,
   TA: *TAname*
4. At the top of your homework name any TAs, faculty, friends, relatives, enemies, texts or notes that helped you with the homework.
5. Define all signs and directions with sketches and/or words. Use correct units and vector notation. *Reasonable justification* should be given for all work. Draw a *free body diagram* or write the phrase 'FBD not relevant' for each mechanics problem.
6. If a problem seems ambiguous, clearly state the reasonable assumptions you use. Define all variables.
7. Box in your answers.