

Class Syllabus

Mechanics, Phys522 - Spring 2013

Instructor: Professor Mick O'Shea
Office: Cardwell Hall 107; email: mjoshea@phys.ksu.edu
Office Hours: Tues. 3:15 – 4:00 p.m., Thurs 9:00 – 11:00 a.m., or by appointment.
Class times: Lecture Tues/Thurs., 11:30 a.m. - 12:45 p.m., Recit Wed. 11:30 a.m. – 12:20 p.m.
Text: Classical Mechanics, John R. Taylor

Course description: Principles of statistics and dynamics of systems of particles and rigid bodies. Topics include Newton's laws for one particle, non-inertial reference frames, central forces, system of particles, rigid body statics and motion in a plane and in three dimensions, Lagrangian mechanics and Hamilton's equations, oscillating systems and normal coordinates.

Course goal: Give students a strong foundation in problem solving in classical mechanics.

Course Website: K-State Online (log on and you will have access to the website if you are enrolled). Check this website regularly (once every two days) for important messages.

Preparing for lecture: I strongly recommend that you read the sections in the text to be covered in advance of the lecture. You will not understand all the detail in the sections prior to lecture, but you will be better prepared to gain insight into, and understanding of, the material in lecture.

Homework (HW): HW assignments are listed in the class schedule. HW points will be scaled to 200 pts. Feel free to work with other students on the HW assignments. When you come to write out the HW solution, do this by yourself. Note that a big part of this class and a major way you learn physics is by **problem solving**. If you miss class you will miss out on hints and examples of problem solving.

Missing class: Occasionally students will have a good reason for missing class. If you do miss *one* class you **DO NOT** need to contact the instructor to tell him you are missing class. You just need to consult the syllabus and read through the material covered in the text. If you do not understand any of this material **YOU DO** need to see the instructor.

Exams: There will be two in-class exams worth 100 points each (see "**Class Schedule**") and a final worth 200 pts. Exam problems will be based on lecture material (including problems worked in class) and HW. Also see "**Exam policy and advice-Fall2013.doc**" posted on the website.

1. Statement Regarding Academic Honesty

Kansas State University has an Honor System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The honor system website can be reached via the following URL: www.k-state.edu/honor. A component vital to the Honor System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

2. Statement Regarding Students with Disabilities

"Any student with a disability who needs a classroom accommodation, access to technology, assistance during an emergency evacuation, or other assistance in this course should contact Disability Support Services and/or the instructor. DSS serves students with a wide range of disabilities including, but not limited to, physical disabilities, sensory impairments, learning disabilities, attention deficit disorder,

depression, and anxiety ." For a student enrolled in courses on the Manhattan or Olathe campus, contact dss@k-state.edu; on Salina campus, contact Danielle Brown, dnbrown@k-state.edu; and for online courses, Andrea Blair, andreab@k-state.edu.

* Faculty members who have a student with a disability in their class will want to contact Disability Support Services. DSS will help faculty provide academic accommodations for students with documented disabilities. Accommodations may include administration of course exams with extended time and/or distraction reduced environment, note taking services, or providing alternate format of text materials. For courses taught on the Manhattan campus or online contact Andrea Blair, andreab@k-state.edu, 785.532.6441; Salina campus, Danielle Brown, dnbrown@k-state.edu, 785.826.2649; and Olathe campus: Dana Reinert, dmr4159@k-state.edu, 913-307-7340.

3. **Statement Defining Expectations for Classroom Conduct**

All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Governing Association By Laws, Article VI, Section 3, number 2. Students who engage in behavior that disrupts the learning environment may be asked to leave the class.

Grades: Final grades will be determined from the total points as follows:

A 540-600

B 480-539

C 420-479

D 360-419

F Less than 360

See below for schedule

Class Schedule

Week of	Chap.	In-class problems: mostly done in class	HW-due at start of class
Tues. 22 th January	1	Chap. 1: 10, 18, 19, 24, 31, 39, 44, 48	
Tues. 29 th	2	Chap. 2: 1, 4, 5, 7, 12, 17, 18	Ch.1: 37, 43, 45
Tues. 5 th February	2; 3	Chap. 2: 24, 33, 34, 35, 37, 38, 48, 52	Ch.2: 8, 13, 19
Tues. 12 th	3	Chap. 3: 1, 2, 5, 6, 11, 14, 16, 21, 31	Ch.2: 26, 28, 53
Tues. 19 th	4 (not 4.4)	Chap. 4: 2, 6	Ch.3: 8, 25, 29
Tues. 26 th	4	Chap. 4: 7, 18, 19, 28, 31, 34, 36, 40, 47, 50	Ch.4: 8
Tues. 5 th March	5.1-3	Chap. 5: 1, 2, 5, 13,	Ch.4: 13, 41, 48
Thurs. 7th March Exam 1, covers Chap. 1, 2, 3, 4, 5.1-3			
Tues. 12 th	5.4-8	Chap. 5: 23, 30, 34, 40, 43	No HW
Tues. 19 th	SPRING BREAK		
Tues. 26 th	6	Chap. 6: 3, 5, 10, 11, 21	Ch. 5:21,33,45ab
Tues. 2 th April	7.1-5	Chap. 7: 1, 3, 4, 5, 14, 15, 17	Ch.6: 4, 15, 20
Tues. 9 th	7.6 - 8	Chap. 7: 25, 29	Ch.7: 2, 18, 20
Tues. 16 th	8.1-5	Chap. 8: 1, 4, 11, 13	Ch.7: 22, 31, 33
Tues. 23 rd	8.6-7;	Chap. 8: 16, 17, 19, 30	Ch. 8: 6, 7, 12
Tues. 30 th	9.1-7	Chap. 9: 1, 2, 3, 9	Ch. 8: 18, 23, 28
Thur. 2nd May Exam 2, covers Chap. 6, 7, 8, 9			
Tues 7 th - Thur 9 th	Review: 2.2, 2.27, 3.7, 3.13, 4.3b(only), 4.16, 5.4, 5.9, 7.7.21, 8.15, 9.8. Solutions posted May 6 th , 2013		No HW
Mon. May 13th, 9:40 – 11:30 a.m., Final Exam			

Homework should be turned in on the date listed above - this is a Tuesday at the start of class.

Only turn in the **three boldface homework** questions. Please take care to make sure you don't accidentally turn in the wrong question. Solutions to these HW problems will be posted on KState on-line after the due date.

All homework must be **NEATLY laid out** and **LEGIBLE**. Make sure your name is on your HW.

You should make sure you work through all of the above problems.

Non-bold faced problems will be covered in lecture and in recitation. This means you are not expected to work all these problems completely yourself.

Prior to each exam I recommend that you re-do any HW, in-class problems and examples done in class.

There is a review HW posted and to be done during the week prior to the final exam. Make sure you review HW already done first. Solutions to this review HW will be posted May 6th 2013.

Help sessions: Thurs 4/11/13, Thurs 4/18/13, Wed 4/24/13, Wed. 5/1/13 at 5:20 p.m.
For final: Sun. May 12th, 8:00 p.m. – 9:00 p.m.