Physics A301: Classical Mechanics II

Syllabus and Course Information – Summer 2006

Initial Version – 2006 April 28

Course Information

The course will be split into two parts. The first part, from May 8 to June 1, will be taught by Dr. John T. Whelan, and the second part, from June 5 until the end of the semester, will be taught by Dr. Carl Brans.

Part One will cover gravity (Symon, Chapter Six), moving coördinate systems (Chapter Seven), and tidal effects. Part Two will cover Lagrangian Mechanics and other advanced topics from Symon and/or other sources.

Details for Part One

Lectures:
MTR 2:00-3:30pm, 450 Monroe, beginning May 8 and ending June 1

Textbook:
Mechanics, by Keith R. Symon

Instructor:
Dr. John T. Whelan;   464 Monroe;   `john.whelan@astro.rit.edu`
Office Hours: by appointment

Prerequisites:
PHYS A300 (Classical Mechanics I)

Outline of Part One:

1. Gravity (Chapter 6): three lectures.

2. Moving Coördinate Systems (Chapter 7) and tidal effects: five lectures.

3. Initial Introduction to Lagrangian Mechanics (Chapter 9): two lectures.

4. Review and midterm exam: two lectures.

Lecture notes will be posted in advance on the course website. Please read through them before coming to class.

Exam:
One midterm exam, to be given in class June 1.

Homework:
Approximately three problem sets every two weeks; anticipated due dates May 15, 18, 23, and 29. Homework will not be accepted after solution sets have been distributed. Timely completion of the homework is essential to avoid falling behind.

Course Website: `http://www.loyno.edu/~jtwhelan/A301/`

Course Listserv: `physa301001@loyno.edu`
Please subscribe ASAP by sending email to `majordomo@loyno.edu` with
`subscribe physa301001`
in the *body* of the message.

All students are expected to be subscribed to the course listserv from address which they read frequently, as organizational announcements may be sent there. Students are also encouraged to use the listserv to discuss concepts and issues related to the course.

I will also use the listserv to respond to student questions, so that the entire class can benefit from the exchange. If you email me a question which you don't want shared with the class, you must specify that explicitly in the email. (Similarly, if you want to ask a question anonymously, specify that you'd like your name left out of any reply posted to the listserv.)

Course Policies for Part One

Attendance:
There is no attendance grade for the course, and no penalty for missing class. However, most students will find themselves at a disadvantage on the homeworks and exams if they neglect to take advantage of the full range of tools (including both lectures and reading) to gain understanding of the material.

Class Disruptions:
Please try to avoid disrupting the class by arriving late and/or leaving early. Please switch off all cell phones and beepers if possible. In case of an urgent need to be reachable during 90 minutes of lecture (on-call EMT, critically ill loved one, etc.), please use silent/vibrate mode.

Collaboration:
Collective brainstorming is a time-honored tool of physicists attacking a problem, be they freshmen or tenured professors. That said, working through the homework problems is an important aid to gaining mastery of the material, and a student who simply transcribes the solution of another student or of the group will likely have trouble come exam time. In light of this, solutions which are clearly (in my judgement) transcriptions from other sources or from each other will receive reduced or no credit. You should use outside sources or group

discussions as needed to get the idea of how to do a problem, then go off and write up your own solution.

Additionally, in the interest of learning proper academic procedures, you should acknowledge any outside help you get on homeworks, whether from other students or from references outside the textbook.

Working together on exams or copying off of someone else's test is of course cheating and will not be tolerated.

Grades:

The grade for Part One will make up 40% of the total course grade. Of this, the midterm exam will make up 5/8 (25% of the total course grade) and four problem sets together will make up 3/8 (15% of the total course grade). Your score on each component of Part One (the midterm exam, and all the homeworks together) will be converted to a numerical "grade point" score, and the weighted average (5/8 exam and 3/8 homework) of those two scores will be your Part One Grade. It will also be posted as your midterm grade, converted to a letter grade according to the scale below (which includes equivalent ranges on Dr. Brans's 100-point scale for reference).

Grading Scale:

3.75–4.5	A	90–97.5	1.75–2.25	C	70–75
3.25–3.75	B+	85–90	1.25–1.75	D+	65–70
2.75–3.25	B	80–85	0.75–1.25	D	60–65
2.25–2.75	C+	75–80	-0.5–0.75	F	47.5–60

Special Arrangements for Students with Disabilities:

Students with disabilities who wish to receive accommodations in this class should contact Disability Services at 865-2990 as soon as possible so that warranted accommodations can be implemented in a timely fashion. Disability Services are located in the Academic Enrichment Center, Monroe Hall 405.

Information on Part Two

Part two will be taught by Prof. Carl Brans. Details on the second half of the course will be forthcoming.