1017-330 Classical Mechanics Fall Semester 2023 (2231)

Instructor: Dr. Greg Trayling **TA/Grader:** Felix Martinez
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- Office Hours: MWF Noon-1:00 PM Room GOS-3130
  Other times are available by appointment

Lectures: MoWe 9:00-9:50 AM GOS-2300, TuTh 9:30-10:50 AM GOS-2300

Test Dates: Thurs Oct 12th (week 7), Tues Nov 21st (week 13), both tests during class times.

Text: Classical Mechanics by John Taylor.
Details and off-campus ordering: https://uscibooks.aip.org/books/classical-mechanics/
Available at the RIT online Bookstore (New ~$150, eBook ~$71 and other $ options).

Couse Description: This course is a study of the concepts and mathematical structure of Classical Mechanics. It is a systematic presentation of Newtonian kinematics and dynamics including equations of motion in one- and three-dimensions, conservation laws, non-inertial reference frames, central forces, Lagrangian (and possibly some Hamiltonian) mechanics, and rigid body motion. This course will use advanced mathematical techniques including differential equations, vector calculus, and matrix and tensor formulations.

Pre-requisites: (MATH-219 or MATH-221) and MATH-231 and (PHYS-209 or PHYS-212 or PHYS-217). Students in the PHYS-BS program are also required to complete PHYS-275 prior to taking this course. Co-requisites: PHYS-320 or equivalent course. Any unusual cases should see Dr. Dawn Hollenbeck over in CAR-1264 for approval.

Grading and Tests: Tests (two 75-min tests during class time)	25%, 25 %
Weekly written homework submitted online	25 %
Final	25%

Grading will be close to the usual scale. These cutoffs may be lowered but not raised:

A-type: 90-100, B-type: 80-89, C-type: 70-79, D: 60-69, F: <60

Exams: Exams will be in-class during the longer class days (Tues, Thurs). You may bring anything you'd like, provided you're not communicating with other students; books, notes, math handbooks, table of integrals, lucky charms (no candles). You can even bring your computer to access digital notes, as long as you're not texting with anyone else.

There will be 3 problems on each of the two Tests where you show all of your work. The Final typically has 5 problems. Cut-offs for the material are shown on the Lecture Plan on MyCourses.

Make-up exams are provided only in rare circumstances. In general, if you think you might have an exam conflict or problem ahead of time, let me know as soon as possible.

Policy on Cheating: Don't.

Note: working in groups on the homework assignments is not considered cheating and is actually encouraged.

Students are expected to attend all classes. The goal is always that every student will pass, but there is an extremely strong correlation between those few that skip even a few classes and those that start to fall behind. In general, if you miss a class for any reason, e-mail me so I know what's going on. Attendance will be spot-checked at random times, but just for the information and not for points.

Homework: There will be 12 written homework assignments posted on MyCourses, consisting of 6 questions each. These will be submitted as scanned .pdf's through MyCourses. The due date schedule is listed in the Lecture Plan posted on MyCourses. They will be due on Wednesdays with a break in the middle of the semester. During Thursday's class, I will roll a die to determine which two problems will be graded for points by the grader over the weekend. I will post solutions to all of the problems shortly afterward. Late assignments will only be accepted under very exceptional circumstances.

Notes: These will be posted on MyCourses within a day of each class. This is mainly because Covid might still be an issue, so I'll do it from the start in case anyone misses anything. These will be summaries and should not be used as a substitute for attending classes under normal circumstances.

Remember: Professors don't decide grades; students decide grades by their actions during the semester and professors just make sure that the grades are assigned correctly.