

Instructor: Dr. Bao-An Li
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Office Hours: TR 1:30-4:00pm or by appointment
Textbook: Classical Mechanics, Herbert Goldstein, ISBN 0-201-02918-9
Reference: Analytical Mechanics, G.R. Fowles and G.L. Cassiday, ISBN 0-03-022317-2

Catalog Description: PHYS 511, Introduction to Theoretical Mechanics

3 semester hours

A course in the classical mechanics including the method of Lagrange, Hamilton, matrices, tensors, and Hamilton-Jacob theory.

Objective 1: Students will demonstrate that they have understood the principle of virtual work, Hamilton's variational principle and their applications in deriving the Lagrange's equation

Objective 2: Students will demonstrate that they can apply Lagrange's equations in solving typical problems in mechanics, such as small oscillations

Objective 3: Students will demonstrate that they have mastered the theories and techniques to solve both kinematic and dynamical problems of rigid bodies rotating about fixed or arbitrary axis

Objective 4: Students will demonstrate that they understood the derivation and can apply the Hamilton equation of motion in solving problems in mechanics

Grading:

Home works	50%
Exams	50%

Grade Scale:

90 and above	--	A
80 to 90	--	B
70 to 80	--	C
60 to 70	--	D
below 60	--	F

Homework:

Homework will be assigned regularly and it may be discussed in class. The homework counts 50% towards the final grade.

Exams:

There will be totally 2 in-class exams including the final. All exams will be given equal weight, and all will have an in-class component. At the instructor's discretion, a take-home component may also be assigned in order to test the students on more difficult or time-consuming problems. **Students must do their own work on any take-home components of exams.**

Cheating, Plagiarism, and other Breaches of Academic Conduct:

Academic cheating, plagiarism, and other forms of academic misconduct may result in removal of the student from class with a failing grade or may in extreme cases result in suspension or expulsion from the University as described in the “Code of Student Conduct” section of the *Student's Guidebook*.

Classroom Behavior:

Disorderly conduct which interferes with the normal classroom atmosphere will not be tolerated. The classroom instructor is the judge of such behavior and may instruct a disorderly student to leave the room with an unexcused absence or, in more serious situations, a student may be removed from the class with a failing grade. **All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Student's Guide Handbook, Policies and Procedures, Conduct)**

Attendance and Tardiness:

Students are expected to be on-time and present for all class meetings. Excused absences can be arranged prior to the class period being missed for appropriate activities as determined by the instructor. If an **emergency** results in an absence, the student should contact the instructor **as soon as possible** informing the instructor of the emergency and inquiring about ways to make up the missed class. The instructor will make judgments on how to handle the situation. Possible reasons for an excused absence are listed in the *Student's Guidebook* under class attendance policy. A student who is tardy at the time roll is called may be marked absent. Attendance records will be maintained.

Any student who misses more than three consecutive classes without a proper excuse will be penalized a letter grade.

ADA Eligible Students:

ADA eligible students should make arrangements with the instructor in the first week of the semester about special arrangements needed for classroom or testing facilities and procedures to accommodate the disability.

Evaluation of Instruction:

Students will be given opportunities to evaluate instruction near the end of the semester. The physics department utilizes a scantron-graded questionnaire with statements regarding various elements of instruction and in addition utilizes an open-ended form where students can make comments on all elements of the classroom. These comments are given to the instructor and department head soon after the grades are recorded. If students have concerns about the classroom experience during the semester they should inform the instructor of those concerns and failing a satisfactory response may, as a last resort, contact the physics department head with those concerns.