

**UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE OUTLINE**

1. **COURSE: Physics 341 – Classical Mechanics I**

L01: MWF 16:00 – 16:50, SS 109, Dr. A. Louro, SB 533 403-220-8648, louro@ucalgary.ca, office hours: See online calendar. Course website: <https://piazza.com/ucalgary.ca/fall2013/phys341/home>.

PHAS main office: SB 605, 403-220-5385, office@phas.ucalgary.ca.

2. **PREREQUISITES:** Physics 227 or 321; Mathematics 211 or 213.

3. **GRADING:** The University policy on grading and related matters is described in sections F.1 and F.2 of the online University Calendar. In determining the final grade in the course, the following weights will be used:

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|--|------------------------------------|--------------------|
| • Assignments (best 10 of 12)
– 35% | • Labs (4) – 15% | • Final exam – 20% |
| • In-class tests (4) – 28% | • Whiteboarding activities –
2% | |

Percentage grades will be given for all elements of term work and examinations. A weighted course percentage will be calculated for each student after the final exam is written. A table of conversion from final course percentage to final course letter grade will be published on the course website later in the term. A percentage grade of 50% or higher in the final exam is required to pass the course.

4. **PERCENTAGE TO LETTER GRADE CONVERSION:** The final percentage grade will be converted to a letter grade according to the following table:

Percentage range	Letter
95–100	A+
85–95	A
80–85	A-
75–80	B+
70–75	B
65–70	B-
60–65	C+
55–60	C-
45–55	D+
0–45	F

5. **MISSED COMPONENTS OF TERM WORK:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>. It is the student's responsibility to familiarize himself/herself with these regulations. See also <http://www.ucalgary.ca/pubs/calendar/current/e-3.html>.

6. **TESTS:** The four tests (Wed 10-13, 10-24, 11-14, and 12-05) will be in class from 16:00 to 16:50. REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME ACTIVITY. If you have a clash with this out-of-class-time activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

7. **TEXTBOOK:** Analytical Mechanics, Fowles & Cassiday, 7th. Ed.
8. **EXAMINATION POLICY:** Calculators are allowed. Students are encouraged to read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.
9. **WRITING ACROSS THE CURRICULUM:** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports.
See also <http://www.ucalgary.ca/pubs/calendar/current/e-2.html>.
10. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**
 - (a) **ACADEMIC MISCONDUCT** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. *A single offence may lead to disciplinary probation or suspension or expulsion.* The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) to inform yourself of definitions, processes and penalties.
 - (b) **ASSEMBLY POINTS IN CASE OF EMERGENCY DURING CLASS TIME:** Be sure to familiarize yourself with the information at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.
 - (c) **ACADEMIC ACCOMMODATION POLICY:** Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>
Disability Resource Centre: <http://www.ucalgary.ca/drc/>
 - (d) **SAFEWALK:** Campus Security will escort individuals day or night. Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
 - (e) **FREEDOM OF INFORMATION AND PRIVACY:** This course will be conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. See <http://www.ucalgary.ca/sec-retariat/privacy>.
 - (f) **STUDENT UNION INFORMATION:**
VP Academic: Phone 220-3911, email suvpaca@ucalgary.ca.
SU Faculty Rep.: Phone 220-3913, email sciencerep@su.ucalgary.ca
website <http://www.su.ucalgary.ca/home/contact.html>.
Student Ombudsman: <http://www.su.ucalgary.ca/services/student-services/student-rights.html>.
 - (g) **INTERNET AND ELECTRONIC COMMUNICATION DEVICE INFORMATION:**
You can assume that in all classes that you attend, your cell phone should be turned off. Also, communication with other individuals, via laptop computers, smartphones, or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

PHYS 341 Syllabus:

Vectors, and vector operations. Taylor series and linear approximations.

Rectilinear motion of a particle. Conservative forces. Kinetic and potential energy. Velocity-dependent forces: Fluid drag and terminal velocity.

Oscillations. Harmonic motion, with and without damping. Forced harmonic motion: Resonance. Non-linear oscillations.

3-D motion of a particle. Potential energy in 3-D: The del operator. Harmonic oscillations in 2- and 3-D. Motion of particles in electric and magnetic fields. Motion under constraints.

Noninertial reference frames. Rotating coordinate systems.

Gravitation and central forces. The two-body problem. Kepler's laws.