



UNIVERSITY OF CALGARY

DEPARTMENT OF PHYSICS AND ASTRONOMY COURSE OUTLINE

1. Course: Physics 609, Advanced Classical Mechanics

Lecture Sections: L01: TuTh, 09:30-10:45, Engineering F334

Instructor, D.W. Hobill

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Office Hours: M W 10:00-11:30

Departmental Office: SB 605, 403-220-5385, phasugrd@ucalgary.ca

2. Prerequisites: Background should include Physics 343 and or equivalent

3. Grading: The University policy on grading and related matters is described sections [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Assignments	40%
MidTerm Exam	20% (See syllabus for date)
Final Examination	40% (To be scheduled by the Registra

Percentage to letter grade conversion scale:

> = 97%	A +	> = 77%	B +	> = 62 %	C +	> = 50%	D +
> = 87%	A	> = 72%	B	> = 57%	C	> = 48%	D
> = 82%	A -	> = 67%	B -	> = 52%	C -	< 45%	F

4. 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](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.6](#) of the University Calendar

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.

5. Course Materials: "Classical Mechanics" (3rd Edition), H. Goldstein, C. Poole and J. Safko, Addison Wesley

6. Examination Policy: Both the midterm and final examinations will be open-book, open-notes. Students should also read the Calendar, [Section G](#), on Examinations.

7. 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 [Section K](#). Student Misconduct 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 on [assembly points](#).

(c) Academic Accommodation Policy: Students with documentable disabilities are referred to the following links:

[Calendar entry on students with disabilities](#) and [Student Accessibility Services](#).

(d) Safewalk: Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 2205333 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 is 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. For more information see also

(f) <http://www.ucalgary.ca/secretariat/privacy>.

(g) Student Union Information: [VP Academic](#) Phone: 220-3911 Email: suvpaca@ucalgary.ca.
SU Faculty Rep. Phone: 220-3913 Email: sciencerep@su.ucalgary.ca; [Student Ombudsman](#)

(h) Internet and Electronic Device Information: You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries 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.

(i) At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval _____ Date _____

Course Syllabus

Topics to be covered in this class are:

1. Review of Classical Mechanics
2. Variational Principles and Lagrange's equations
3. Examples and Applications (point particles and extended objects)
4. Hamilton's equations of motion
5. Hamilton-Jacobi Theory, Poisson brackets
6. Transition from Classical Mechanics to Quantum Mechanics

Topics to be covered if time permits

- Chaotic dynamics of non-linear systems
- Relativistic dynamics
- Classical Field Theory

There will be one (in-class) mid-term examination in late October or early November.

The final exam will consist of two parts:

- (a) a "take home" part and
- (b) a shorter (3hr) exam to be scheduled by the Registrar during the final exam period.