

Syllabus § Introduction to Computational Physics

PHYS 220 – Spring 2009

Credits: 4.0
Laboratory: REIC 101 09:00 – 12:00 R
Lecture: NSCI 136 13:00 – 14:00 MWF

Prerequisites: PHYS 211X, 212X, 213X; and Math 202X; or permission of instructor

Instructor: Curt A. L. Szuberla

Office: ELVEY 706D (Geophysical Institute) and REIC 110

Office Hours: During all laboratory periods, one hour following each lecture or at the GI by appointment. My schedule at the GI is uncertain; arrange an appointment via email or telephone prior to visiting.

Contact: GI 474-7347 (V) + voicemail
474-7290 (F)
REIC 474-6973 (V) office hours
474-6130 (F)
Cell 687-7979 (V)
URL <http://www.gi.alaska.edu/~cas/physics>
URL (alt) <http://www.anaxamandar.com/physics>
Email ffcas@uaf.edu

Text: *Computational Physics*, by M. J. Giordano & H. Nakanishi, Prentice Hall, Upper Saddle River, NJ, 2nd edition 2006. (Various supplements will be discussed in class.)

Grading:	Homework (~ten assignments)	15%
	Laboratory reports (~ten reports)	15%
	Project	20%
	Lecture & laboratory participation	10%
	Mid-term exam	20%
	Final exam	20%

Letter grades will be assigned as follows: [100%,90%] A, (90%,80%] B, (80%,70%] C, (70%,60%] D, (60%,0%] F. **Late work will be penalized 10%/day.** I reserve the right to make adjustments to final course grades based on participation and work ethic demonstrated during the semester.

Course Outline

This course is intended as an introduction to the art and science of solving physics problems with a computer. The computer will be used as a tool to provide insight into physical systems and their behavior in all areas of physics. It is designed for undergraduate students who have completed their introductory coursework in physics and calculus. The course combines lectures and computer laboratory exercises.

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Lab sessions and reports

Roughly each week you will have a laboratory session involving problems in computational physics. You should be able to complete the bulk of your lab work and report during the laboratory session. **During the lab sessions you should not expect me to provide answers to your every question, as the laboratory is a place of self-discovery.** This may include outside reading/research prior to the session.

Homework

Roughly each week you should expect homework based on the lectures and labs. These assignments will generally be due at the beginning of Monday's lecture.

Participation

You are expected to fully attend both the laboratory and lecture sessions. Planned absences should be discussed with me in advance. Habitual tardiness or absenteeism affects not only your own performance, but that of your classmates, too. Assessment will be based on your contributions to class discussions and laboratory investigations.

Project

You will choose a computational physics problem of your own, develop and execute a solution. A written project proposal will be submitted not later than the lecture session of 6 March. You will submit a complete, written solution of the problem, to include working codes, prior to the beginning of the final scheduled lecture. You will give a 10-minute presentation of your project to the class during the final lab session.

Exams

A one-hour mid-term examination will be given in lieu of lecture on 18 March. A two-hour final examination will be given 8 May, 13:00, per the UAF Exam Schedule. Both will be held in REIC 136.

Student Code of Conduct

You are expected to submit work that is your own and properly acknowledge the work of others. You are responsible for understanding and adhering to the Student Code of Conduct that is printed in the UAF Course Catalog. **Abide by it.** Violations of the Code will be reported to the Dean of Students.

Disability Services

The UAF Center for Health and Counseling provides services for UAF students with disabilities to ensure equal access to educational opportunities. The Center's Disability Services Program ensures compliance with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. If you believe you are eligible for 504 and/or ADA accommodations, please contact them at 474-7043 (203 WHIT).

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Initial Questionnaire

Name _____ Student # _____

Academic Major(s) _____ Email _____

Physics courses completed:

Physics courses this semester:

Computer and programming experience:

I have read & understand the course syllabus. _____, _____
Signature Date