

Physics 342 – Computers in Science

Fall 2015

Course website <http://coursespaces.uvic.ca> Assignments and other material will be posted and completed assignments are to be uploaded to this website.

Instructor Dean Karlen EIL 217 karlen@uvic.ca (250) 721-6585
office hours: Drop in or by appointment

Class schedule	Lectures: Tuesday, Wednesday, Friday	9:30-10:20	BEC 363
	Labs: Tuesday	2:30-3:20	ECS 130

Textbooks Required: Coursepack for this course is available at the bookstore
Optional: Any reference textbook on Java

Course objectives This course introduces students to the use of computers in the study of the physical sciences. Behaviours of simple and complex physical systems are simulated by applying numerical methods to solve ordinary differential equations. Complex systems with a degree of unpredictability are treated using the concept of probability. Much of the course is devoted to statistical methods used to deal with uncertainties present in most experimental measurements. As a common framework, the Java computer language will be used throughout. Students are expected to be familiar with Java programming prior to taking this course.

Topics Numerical solutions to ordinary differential equations in Java, Probability theory, Monte Carlo methods, Statistical data analysis.

Grading There will be several lab and class assignments, some short online quizzes, two mid-term exams, and a final exam. The final grade is determined as follows:

Class assignments	20%	Midterm exams	20%
Lab assignments	20%	Final exam	35%
Online quizzes	5%		

The letter grades are obtained by converting the numerical scores as follows:

F	D	C	C+	B-	B	B+	A-	A	A+
0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100

Computer Students need to have access to a portable personal computer capable of running Java to do the assignments and labs. Computers are not provided in the lab session.

Calculator For the in-class and final exams, the departmental policy will be followed: On all examinations the only acceptable calculator is the Sharp EL-510R. This calculator can be bought in the Bookstore for about \$10.

Course experience Near the end of term you will be invited to complete an anonymous survey regarding your learning experience. The survey site is: <http://ces.uvic.ca>