

**Syllabus for PHYS F211X FE1+FE2+FE3+FE4 – General Physics I**  
**College of Natural Science and Mathematics**  
**University of Alaska Fairbanks**  
**Spring 2017 (1/18/2017 to 5/3/2017)**

**Course Information:**     **PHYS F211X FE1+FE2+FE3+FE4 (CRN 34464+34465+34466+34467)**

Title:                    General Physics I – 4 credits (3+1)

Lectures:               Monday, Wednesday, and Friday from 17:50 to 18:50  
in room 201A Reichardt Building

Lab:                     FE1: Tuesday from 14:15 to 17:15 in room 254 Reichardt Building  
FE2: Tuesday from 18:00 to 21:00 in room 254 Reichardt Building  
FE3: Thursday from 14:15 to 17:15 in room 254 Reichardt Building  
FE4: Thursday from 18:00 to 21:00 in room 254 Reichardt Building

Final exam:             Wednesday, 3 May, 17:45 to 19:45

Prerequisites:         Concurrent enrollment in MATH F201X; or ES F208 or concurrent enrollment in ES F210; placement in ENGL F111X or higher; or permission of instructor.

**Instructor:**           **Dr. Daniel Solie, Term Assistant Professor of Physics**

Office:                 Room 120 Reic. Physics Department

Office Hours:         Tuesday from 1:00PM – 2:00PM ; and Monday, Wednesday & Friday 10:45-11:45AM  
**or by appointment.**

Phone:                 907-474-6106 (office phone)

Email:                 djsolie@alaska.edu

**Required Texts (1):**    *Physics for Scientists and Engineers, 3<sup>rd</sup> ed., Addison-Wesley*  
Knight, R. D.  
ISBN: 9780321740908

**Outside Resources:**

Blackboard:            <http://classes.uaf.edu> (Handouts, assignments, schedules, etc.)

Homework Help         Room 122 Reic. Tues – Thursday Aft.

**Course Description:**   This course covers Newton’s Laws of motion and applications (Chapters 1-8), Momentum and Impulse (Chapter 9), Work & Energy (Chapters 10 & 11), Angular Momentum (Chapter 12), Universal Gravity (Chapter 13), Fluids (Chapter 15), and Oscillations, Waves and Sound (Chapters 14, 20, 21 and parts of 22 time permitting). Physics 211X is for engineering, mathematics and physical science majors, and requires extensive use of algebra and calculus.

### Course Objectives:

Excite an interest and understanding in how a handful of basic physical principles can explain so much in the natural world.

Develop quantitative physics problem solving skills, using mathematics and physical intuition

Develop data collection and analysis skills through laboratory experiments, as well as hypothesis building and the ability to work in a team.

Understand and explain relationships between science and society

**Instructional Methods:** In-class lectures and demonstrations, quizzes, exams, homework assignments, laboratory experiments and reports, are closely integrated. Class activities emphasize a hands-on approach to developing problem solving skills and physical intuition. Homework will be done by hand (non-electronic) and turned in weekly.

**Grading weights:** (Grades will be on an A-F scale ( +/- grades assigned where appropriate), note that the final grade is a *weighted average*)

Quizzes (6)	15%
Weekly homework assignments	15%
Lab participation and reports	15%*
Midterm exam 1	15%
Midterm exam 2	15%
Final Exam	25%

### Course Policies:

- Attendance & active participation are required for all class lectures and laboratories.
  - **\*All labs and reports must be completed to earn a passing grade in lab.**
  - **\*A passing grade in lab is required to earn a passing grade in the course.**
- A short quiz or in-class exercise will be assigned approximately every other week.
- Homework assignments (13) will be assigned weekly and are due on Friday 10:00AM in Physics office Wooden Box (marked 211).
- Late assignments will not be accepted for credit
- All work submitted by each student must be his/her own work (except for designated group projects), however you are to work with other but NOT copy solutions.
- The UAF student code of conduct applies to this course and plagiarism will not be tolerated. See review the UAF student code of conduct and plagiarism guide at the following links:
  - [http://www.uaf.edu/catalog/current/academics/regs3.html#Student\\_Conduct](http://www.uaf.edu/catalog/current/academics/regs3.html#Student_Conduct)
  - <http://library.uaf.edu/ls101-plagiarism>
- Two midterm exams and one final exam will be given during course.
- UA email and Blackboard accounts are required to be active the first day of class.

**Disabilities Services:** The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodations to students with disabilities.

**Note on the core natural science designator:** PHYS FX satisfies the Natural Science component of the UAF Core Curriculum. As such, this course will conform to the guidelines set by UAF Faculty Senate, excerpted below from

<https://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/guidelines-for-core-desig/>

The goal of the Natural Science component of the Core Curriculum is to prepare students for lifelong learning in the natural sciences (biology, chemistry, earth science, physics). In order to achieve this goal, three objectives will be met:

1. Students will become familiar with the methods used for acquisition and expansion of scientific knowledge through laboratory/field exercises which deal with
  - a. data collection and analysis,
  - b. hypothesis building, and
  - c. experimentation.
2. Students will learn and use major concepts of natural science either by exploring in depth a single discipline or the conceptual relationship between at least two of the natural sciences. Although there are no well-defined criteria for identifying a "major concept" of natural science, the following are generally accepted examples: momentum and energy, electricity and magnetism, the atomic and nuclear nature of matter, equilibrium, the cellular basis of life, evolutionary theory, and plate tectonics.
3. Students will understand the relationships between science and society in terms of the historical context of modern science and the influence of science on contemporary issues. They will also study elements of public science policy and the methods by which it is developed.