PHYSICS 380: Mathematical Methods of Physics II

Fall 2015

Instructor: Dr. David B. Slavsky
Class Meetings: Lectures: T, Th 4:00-5:15 in Cudahy 314
Office Hours: T 9:30-10:30 and 2:00-3:00; Th 9:30-10:30
Contact Information: Cudahy 404, phone 773-508-8352, fax 773-508-3506, email dslavsk@luc.edu
Text: Mathematical Methods in the Physical Sciences, Boas
Course web page:
http://luc.edu/faculty/dslavsk/courses/phys380/phys380-2015.shtml

Course Description

PHYS 380 will be an extension of the work we have done in Phys 301. I envision that we will delve deeper into methods of solving partial differential equations, learning how to use the method of separation of variables in other geometries. We will also study the method of Frobenius to allow us to investigate Bessel Functions and thus solve PDEs in cylindrical coordinates. We will cover special functions, such as the beta, gamma and error functions, and begin an investigation of complex variables, culminating (time permitting) with contour integration.

If there are topics you were hoping to cover this term, please tell me. This is a course designed to meet your needs and interests in mathematical physics.

Grading

This is a course whose success will lie largely with the efforts of the students. I see myself more as a facilitator of knowledge, and anticipate doing much less direct instruction compared to what you experienced in Phys 301. I will assign reading and suggested problems for each class period. During class, I will discuss what I consider to be the critical points of each day's topic, but much of the class time will be devoted to students working in small groups to solve the problems given. Thus, while there will not be exams or weekly homework assignments, being prepared for each class will be critical not just for your success in the course, but for the success of the entire course.

Each week I will email you with a grade (an integer on [1,5]) for your work in the preceding week. I will determine this grade based on your preparation for each class and on your engagement in class. You will receive an A if the average of your weekly grades is greater than or equal to 4.25, a B if your grade is greater than (or equal to 3.5), a C if your average grade is greater than (or equal to) 2.5. Unexcused absences will earn a zero. Excused absences will be given for medical purposes requiring physician's care, death in the immediate family, travel for an official university event (like attending a conference), religious observance, or court date. Please provide documentation for any excused absence.

Policy Regarding Academic Dishonesty

It is my expectation that each of you will continue to meet the high standards of conduct that I have come to expect from Loyola students.

Homework must be the result of your own effort. While it is often very useful for students to work together on homework, be careful that the work you submit must clearly be the result of your own efforts. Students will receive a grade of zero for the first instance of copied homework during the semester; a second such instance will result in a grade of F for the course.

Academic dishonesty on exams, which includes specifically but not exclusively copying from another's paper, using crib notes, transferring information to another student during the exam, will result in a grade of F for the course.

In all cases of academic dishonesty, I will send copies of the material to the Dean's Office for inclusion in your permanent Loyola file.

You can review Loyola's policies on academic honesty by reading the following links:

www.luc.edu/education/academics_policies_integrity.shtml

http://www.luc.edu/education/academics_policies_main.shtml

Please see section below for the policies regarding use of electronic devices in class.

Accommodations for Persons with Disabilities: Students who have disabilities which they believe entitle them to accommodations under the Americans with Disabilities Act should register with the Services for Students with Disabilities (SSWD) office. To request accommodations, students must schedule an appointment with an SSWD coordinator. Students should contact SSWD at least four weeks before their first semester or term at Loyola. Returning students should schedule an appointment within the first two weeks of the semester or term. The University policy on accommodations and participation in courses is available at: http://www.luc.edu/sswd/