## Syllabus PHZ3113, Introduction to Theoretical Methods in Physics

Spring 2010 Prof. Patrick Schelling

Lecture: MAP 306, M,W,F 9:30-10:20PM Office: PSB 1, Room 305 Email: <u>pschell@mail.ucf.edu</u> Office hours: PSB 1 305: M,W,F 2:00-3:00pm

Textbook: Mary L. Boas, Mathematical Methods in the Physical Sciences, 3rd Edition

Recommended: Integral Table, although I will provide some of the most important integrals. Gradshtein and Ryzhik is a good one.

Grades: Final grade will be based on homework, midterms, and final. Here is the breakdown:

Homework: 30% Midterms: 30% Final: 40%

The final exam will be comprehensive of the entire course. Two midterms will be given during the semester, and homework problems will be assigned weekly.

I will give +/- grades. The breakdown for the grades is as follows:

А 85-100 B+ 81-84 B 76-80 B-71-75 C+ 66-70 С 61-65 C-56-60 D 51-55 F 0-50

Lecture notes will be posted online. There is no guarantee that lecture notes are complete however, so attending class is essential.

The general outline of the schedule follows. Some topics or examples may not be in the book, but will be discussed in class. While most chapters are included below, most chapters will not be covered in their entirety.

Part 1: Infinite series, complex numbers, linear algebra, partial differentiation, multiple integrals, vector analysis, Fourier series Boas Chaps. 1-5

Feb. 17, Midterm #1

Part 2: Vector analysis, Fourier series, ordinary differential equations, coordinate transformations, tensor analysis, special functions,

Boas Chaps. 6-8, 10-11

Mar. 31 Midterm #2

Part 3: Series solutions of differential equations, Legendre, Bessel, and Hermite functions, partial differential equations, functions of a complex variable, , Green functions

Boas Chaps. 12-14

Final April 30, 7:00-9:50am, MAP 306

## Missed Work, Makeup policy:

It is Physics Department policy that making up missed work will only be permitted for University-sanctioned activities and bona fide medical or family reasons. Authentic justifying documentation must be provided in every case (in advance for Universitysanctioned activities). At the discretion of the instructor, the make-up may take any reasonable and appropriate form including, but not limited to the following: a replacement exam, replacing the missed work with the same score as a later exam, allowing a 'dropped' exam, replacing the missed work with the homework or quiz average.

## **UCF Golden Rule:**

Your work should be your own, although working with your classmates is encouraged. Compute projects are group projects, but you are expected and required to participate and understand the work of your group.

Academic cheating and dishonesty will not be tolerated. As graduate students in science, the highest standards of honesty are essential. If cheating or dishonesty occurs, it will be handled according to the UCF Golden Rule. Please familiarize yourself with these rules. Cheating may result in failure or even expulsion.

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