

Physics 208
Mathematical Methods for the Physical Sciences

Text: Riley, Hobson & Bence: *Mathematical Methods*, 3rd Edition

<u>Week(s)</u>	<u>week starting</u>	<u>Chapter</u>	<u>topic</u>
1	1/14/08	1-6	review: calculus, complex #
2	1/21	7	Vector algebra
3	1/28	7	Vector algebra
4	2/4	8	Matrices/Vector Spaces
5	2/11	8	Matrices/Vector Spaces test: Chpts 1-8 on Wed. 2/13
6	2/18	10	Vector Calculus
7	2/25	12	Fourier Series
8	3/3	12	Fourier Series test: Chpts 8,10,12 on Wed. 3/5
9	3/10		SPRING BREAK
10	3/17		SPRING BREAK
11	3/24	13	Integral Transforms
12	3/31	14	1 st Order DE
13	4/7	15	Higher order DE
14	4/14	16	Series Solutions test: Chpts 12-15 on Wed. 4/16
15	4/21	17	Eigenfunctions
16	5/28	20	Partial DE & Separation of Variables

FINAL EXAM @ 9-noon on Wednesday, May 7.

Only people with exceptional excuses are allowed by the Dean of Faculty to take the final at another time.

Grades

<u>final %</u>	<u>grade</u>	
90-100	A- to A	60% tests
80-90	B- to B+	15% homework & quizzes
etc.		25% final exam

Course goals and expectations:

Physics 208 is a survey course developing a suite of mathematical skills that form the basis for junior and senior level chemistry, physics or engineering courses. We develop the topics of linear algebra (via vector algebra and vector spaces), Fourier series/transforms, and differential equations. While each of these topics is at least a full course, we will focus on the techniques, insight and applications that can be used to attack and understand problems in the physical sciences. Math 111-112 and Physics 203-204 or their equivalent are required prerequisites for this course. There will be three tests plus a final exam; all of the problems on the tests will be graded in such a way that most of the credit will be given for setting up the problem correctly using the principles we develop in class and that you have practiced on the homework. The course grade is based on many components but there is no “curve” or distribution assigning course grades; all of you can earn an A in the class.

The class can be described as “lecture-based”, but the class time is divided among various activities (lecturing, answering questions, examples, demonstrations, posing questions and relating the material to the “real world”). I actively solicit questions at the beginning of each class. I will assign many homework problems over the semester so that one (sometimes two) homework sets are due each week. You need to practice using the principles in solving the problems related to this course. I make homework due at least two class periods after it is assigned so you can look over the problems and ask questions at the next class meeting. The homework is then due at the beginning of the following class meeting. Test questions will combine the concepts used in the homework and discussed in class, but will not be the same problems.

Rules during class:

- 1) If you have a question then ask. If you don't know how to phrase the question, then ask a more general question (what is the important concept? how does one obtain a solution from the concept? can you give me a simple example of this concept?) If you have a question, then others will as well. It is much easier for me to answer a question when it occurs than to try to address it several days later when we may be on a different topic.
- 2) In consideration of your fellow students, please do not eat during class nor leave your cell phone on.
- 3) You should come to class on time and stay engaged; I will try to hold your attention while I explain the concepts and how to apply them.
- 4) I encourage you to see me after class if you have questions.
- 5) It is very important that what you turn in for a grade is your work. If you copy from another student or source and submit it for a grade, then you risk receiving an F in the course. The policy for Academic Integrity is on the next page:

Policy Regarding Conflicts between Academic Responsibilities and Co-curricular/Extra-curricular Activities

The College of Wooster is an academic institution and its fundamental purpose is to stimulate its students to reach the highest standard of intellectual achievement. As an academic institution with this purpose, the College expects students to give the highest priority to their academic responsibilities. When conflicts arise between academic commitments and complementary programs (including athletic, cultural, educational, and volunteer activities), students, faculty, staff, and administrators all share the responsibility of minimizing and resolving them.

It is your responsibility to inform me in writing of conflicts between academic commitments to this course and complementary programs in which you participate as soon as you are aware of them. You are to discuss with me how you might fulfill your academic commitments to our mutual satisfaction without sacrificing the academic integrity and rigor of the course.

Academic Support

The Learning Center (ext. 2595) offers services designed to help students improve their overall academic performance. Sessions are structured to promote principles of effective learning and academic management. Any student on campus may schedule sessions at the Learning Center.

Any student with a documented learning disability needing academic accommodations is requested to speak with Pam Rose, Director of the Learning Center (ext. 2595), and the instructor, as early in the semester as possible. All discussions will remain confidential.

HOMEWORK SOLUTIONS FOR PHYSICS 208

Solutions will be posted on the Consort Libraries Electronics Reserve web site.
To access the solutions, go to:

<http://eres.library.denison.edu/eres/default.aspx>

Click on "Electronic Reserves & Reserves Pages"

Use one of the methods listed to search (Course number, instructor, etc.)

Click on Woo-Phys208

Type in the Course Password: phys208

Click "Accept"

This will take you to a list of homework solutions that have been posted so far.