

Math Physics (PHYS 4053)

Instructor: Dr. Kevin Cornelius

Office: JSC 316

Phone: 245-5407

Email: corneliusk@obu.edu

Course Website: <http://plaza.obu.edu/corneliusk/mp/>

Course Description:

This undergraduate physics course covers a broad spectrum of mathematical techniques essential to the solution of advanced problems in physics and engineering. The mathematical framework developed in this course will consist of advanced mathematical and numerical techniques that will provide a solid mathematical background used in all modern physics courses. Topics include vector calculus, complex variables, Fourier series & transforms and solutions to ordinary differential equations. Application of these topics to the solution of problems in physics and engineering is stressed.

Textbook:

Mathematics for Physicists

Susan M. Lea

Grading:

Grades will be determined from the following areas:

Homework: 70%

Capstones: 30%

Grades will NOT be posted. Come see me anytime for your current grade.

A = 100% – 90% B = 89% – 80 % C = 79% – 70 % D = 69% – 60 % F < 60%

Areas of Study:

Vector Calculus (Ch. 1)

Complex Variables (Ch. 2)

Analysis of Solutions to Specific DEQ's (Ch. 3, 8)

Fourier Series/Transforms (Ch. 4, 7)

Multipole expansions

Homework:

Homework will be assigned on a 1 to 2 week basis, meaning the student will have up to 1 to 2 weeks to turn it in. *No assignments will be accepted after the due date has passed!*

No work shown = No credit given!

Capstones:

Capstones will be given at the end of each major section of the study as listed above:

Absences:

If you can pass this class without showing up, power to ya! However, don't come by my office and expect to get help on any assignments or lectures if you have not been showing up for class.

No Class

There will be **NO** class on the following dates:

CFW: Feb. 13, **Spring Break:** March 18 – 22, **Good Friday:** Mar. 29.

Integrity:

Students at Ouachita are obligated to uphold the Covenant on Academic Honor, which reads in part, "I will refrain from all forms of academic dishonesty, and I will act responsibly when confronted with the knowledge of such behavior." For the possible consequences of any violation of this covenant, please see **The Tiger Handbook**.

Disabilities:

Ouachita Baptist University is committed to extending access and opportunity to those who have disabilities. To request modifications or accommodations due to a disabling condition, or for a copy of the University policy concerning modifications or accommodations, contact Daniel Jarboe in the Student Services Office. The office is located in Evans Student Center and the telephone number is 870-245-5591. Mr. Jarboe's email address is jarboed@obu.edu.

Tips for Success:

1. Read the textbook. This will provide a second presentation of the material covered in class.
2. Solve problems. Physics is a performance discipline just like athletics or music. It is not a subject that can be learned solely through reading, regular practice is required. Work through the examples for the current chapter in the textbook and as many additional odd numbered exercises at the end of each chapter as possible for which the answers are provided.
3. Get help. If you have tried steps one and two and are still having problems, get help. A tutoring schedule will be posted outside of the Physics Department offices. This service is free. Talk to your professor. Your difficulties are probably not as big as you think.
4. Turn in homework and labs on time. Some credit is better than none at all.
5. Take good notes. The tests are based on the class notes as well as homework.
6. For the ambitious students, recopy your notes after each lecture. Understanding may not come during class because information is coming hard and fast, but valuable insight often occurs as you go over the material again. This is also an excellent tool in preparing for tests.