

Mechanics (PHYS 4003)

Instructor: Dr. Kevin Cornelius
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Course Website: <http://plaza.obu.edu/corneliusk/cm/>

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Course Description:

This undergraduate physics course emphasizes a systematic approach to the mathematical formulation of mechanics problems and to the physical interpretation of the solutions. Applications of the fundamental concepts and principles of classical mechanics will be to particles, systems of particles and rigid bodies. 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.

Textbook:

Classical Dynamics of Particles and Systems
Marion and Thornton, 5th ed.

Grading:

Grades will be determined from the following areas:

Project(s):	10%
Homework:	50%
Capstones:	40%

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

A = 100% – 88% B = 87% – 75 % C = 74% – 60 % D = 59% – 50 % F < 50%

Areas of Study:

Newtonian Mechanics – Single Particle	(Ch. 2)	
Oscillations	(Ch. 3)	
Gravitation & Central-Force Motion	(Ch. 5, 8)	
Lagrangian and Hamiltonian Dynamics	(Ch. 6, 7)	Final: Wed., Dec. 16 th @ 11:00 am
* <i>Dynamics of a System of Particles</i>	(Ch. 9)	

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! **No work shown = No credit given!**

** Extra credit reading summaries from the book will be accepted up until the capstone over the current section is due. (*These are listed on the website*)

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 if you have not showing up for class.

No Class

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

Labor Day: Sept. 7, **Fall Break:** Oct. 15 – 16, **Thanksgiving:** Nov 25 – 27.

Project(s):

A mathematical project(s) will be assigned during the semester in which the student will solve a real world problem.

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 Dan Jarboe, University Counselor and ADA/504 Coordinator, in the Student Services Office. The office is located in Evans Student Center and the telephone number is 245-5591. You may email the University Counselor and ADA/504 Coordinator at 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.