

Course Prefix/Number/Title: Phy 211 College Physics with Lab

Number of Credits: 4

Course Description:

This non-calculus physics course sequence is recommended for pre-medical and preprofessional students.

Topics:

Newtonian mechanics and gravitation, work and energy, solids and fluids, heat and thermodynamics, light, and an introduction to modern physics. Includes lab.

Pre-/Co-requisites:

Pre-requisite Math 103

Course Objectives:

1. Students will use reasoning skills to analyze and solve problems.
2. Students will apply physics principles to real world situations and/or future academic pursuits.
3. Students will work effectively within a collaborative group to achieve a distinct result.
4. Students will be able to Integrate learning theory with laboratory performance.

Instructor: Kristen Miller, Ph. D.

- Office: online only
- Office Hours: online, by appointment as necessary
- Phone: upon request
- Email: kristen.miller2@dakotacollege.edu (but please use the Message feature in Blackboard to contact me)

Lecture/Lab Schedule:

Both the lecture and lab components of the course are online and asynchronous. Deadlines for weekly modules are given within the online classroom.

Textbook: College Physics 2e, OpenStax (free online, available within the classroom)

Course Materials:

1. This course uses the PhET physics lab simulations, which are html-based, free, web-based simulations designed by the University of Colorado. Links to the simulations can be found in the lab documents. The labs work best on a Chrome browser using a PC (see the PhET requirements page (<https://phet.colorado.edu/en/offline-access>) for information on using the simulations other systems. PhET provides limited technical support for their labs through their Help Center (<https://phet.colorado.edu/en/help-center/getting-started>)

2. The homework templates and lab documents are provided in Microsoft word (.docx) format. The assignments must be completed on these documents and uploaded for grading. Links to google docs are not acceptable (google docs may be downloaded and then re-uploaded for grading). PDF files are acceptable, but .pages (and any other format) is not accepted.

Course Requirements:

In order for you to be successful in physics you will need to study the assigned chapter each week; review the notes, participate in the discussions, complete practice assigned problems, and complete the labs.

Grades will be assigned based on the following scheme:

A- 90-100%; B 80-89.9% ; C- 70-79.9%; D- 60-69.9%; F<60%

Grading:

- 10 Lab Reports at 50 points each= 500 points
- 13 Discussion Forums at 50 points each= 650 points
- 13 Homeworks at 30 points each= 390 points
- 3 Concept Quizzes at 70 points each= 210 points
- 3 Topic Projects at 100 points each = 300 points
- **Total Points: 2050 points**

Course Schedule:

Week	Topic	Textbook Reading	Assignments
Week 1	Kinematics	Chapter 2	W1 Discussion W1 Homework
Week 2	Two-Dimensional Kinematics	Chapter 3	W2 Discussion W2 Lab W2 Homework
Week 3	Force and Newton's Laws of Motion	Chapter 4	W3 Discussion W3 Lab W3 Homework
Week 4	Uniform Circular Motion	Chapter 6	W4 Discussion W4 Homework
Week 5	Work and Energy	Chapter 7	W5 Discussion W5 Lab W5 Homework
Week 6	Linear Momentum	Chapter 8	Concept Quiz 1 Topic Project 1
Week 7	Fluid Statics	Chapter 11	W7 Discussion W7 Lab W7 Homework
Week 8	Fluid Dynamics	Chapter 12	W8 Discussion W8 Lab W8 Homework
Week 9	Temperature and Gas Laws	Chapter 13	W9 Discussion W9 Lab

Week	Topic	Textbook Reading	Assignments
			W9 Homework
Week 10	Heat and Heat Transfer	Chapter 14	W10 Discussion W10 Lab W10 Homework
Week 11	Thermodynamics	Chapter 15	W11 Discussion W11 Lab W11 Homework
Week 12	Waves	Chapter 16	Concept Quiz 2 Topic Project 3
Week 13	Physics of Hearing	Chapter 17	W13 Discussion W13 Lab W13 Homework
Week 14	Electromagnetic Waves	Chapter 24	W14 Discussion W14 Lab W14 Homework
Week 15	Vision and Optical Instruments	Chapter 26	W15 Discussion W15 Homework
Week 16	Medical Applications of Nuclear Physics	Chapter 32	Concept Quiz 3 Topic Project 3

General Education Competency/Learning Outcome(s) OR CTE Competency/Department Learning Outcome(s):

#1 Identifies the interrelationships between humans and their environment
 #1 Applies scientific methods of inquiry

Relationship to Campus Focus:

This course addresses the campus theme by incorporating the role that physics plays in our everyday life and the impact it has on our natural world. In addition, students will use technology to conduct labs as well as study how technology can be used in physics. The course will address the role of physics in their everyday life as well as in their future.

Classroom Policies:

Late work will not be accepted unless prior arrangements have been made with the instructor; approved late work will be subject to a weekly penalty.

All work must be shown for all calculations (on homeworks and labs) to receive credit.

The homeworks must be typed on the provided templates.

All labs must be typed and uploaded as word documents or pdfs. Handwritten work will not be accepted, nor will scanned work.

All work must be done by the student.

Student Email Policy:

Dakota College at Bottineau is increasingly dependent upon email as an official form of communication. A student's campus-assigned email address will be the only one recognized by the Campus for official mailings. The liability for missing or not acting upon important information conveyed via campus email rests with the student.

Academic Integrity:

According to the DCB Student Handbook, students are responsible for submitting their own work. Students who cooperate on oral or written examinations or work without authorization share the responsibility for violation of academic principles, and the students are subject to disciplinary action even when one of the students is not enrolled in the course where the violation occurred. The Code detailed in the Academic Honesty/Dishonesty section of the Student Handbook will serve as the guideline for cases where cheating, plagiarism or other academic improprieties have occurred.

Disabilities or Special Needs:

Students with disabilities or special needs (academic or otherwise) are encouraged to contact the instructor and Disability Support Services.

Title IX:

Dakota College at Bottineau (DCB) faculty are committed to helping create a safe learning environment for all students and for the College as a whole. Please be aware that all DCB employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers) are required to report information about such discrimination and harassment to the College Title IX Coordinator. This means that if a student tells a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the College's Title IX Coordinator. Students wishing to speak to a confidential employee who does not have this reporting responsibility can find a list of resources on the DCB Title IX webpage.

AI Student Policy:

Unless otherwise indicated in the course syllabus, or in individual instructions for course assignments, or in the absence of the express consent of the course instructor, students are not allowed to utilize generative AI to help produce any of their academic work. Any violation of this policy will be considered an act of academic dishonesty as outlined within the Dakota College Code of Student Life.

RESPONSIBILITIES

Students	• Responsible to follow the syllabus and assignment instructions regarding use of generative AI for all academic work. • Obtain permission of the instructor prior to the use of generative AI that is outside of the syllabus or assignment instructions. Provide appropriate rationale for how the use of generative AI will enhance the learning experience for the assignment. • In instances where generative AI is permissible, appropriately cite the generative AI program used and indicate where in the assignment it was used, in a brief submission statement.
Faculty	• Determine if the use of generative AI could enhance student learning in any assignment or project. • Clearly indicate in all course syllabi if generative AI is allowable for any academic work. • If allowable, give specific parameters for how and when generative AI may be used. • If a violation of generative AI for the individual course/syllabus is suspected, discuss the concern with the

	student. If violation is still suspected, inform the appropriate semester coordinator/program director.
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