

Dakota College at Bottineau Course Syllabus
Online Spring

Course Prefix/Number/Title: Physics 120

Number of credits: 4

Course Description: Application of physics concepts and principles to the real world. Topics selected from mechanics, heat, optics, electricity, and magnetism. Astronomy and modern physics will also be surveyed

Pre-/Co-requisites: High-School Algebra

Course Objectives: The primary goal of this course is to provide the students with an understanding of basic physical principles that will aid them in everyday lives and careers as informed members of society as well as in other courses. The students should attain a conceptual understanding of physics and math concepts so that they can readily apply their knowledge to real world problems and situations. Travel may be necessary to understand the role of physics in their everyday life.

Instructor: Angie Bartholomay

Office: NSC 111

Office Hours: MWF 10-11am, MF 2-3pm

Phone: 701-228-5471

Email: angela.bartholomay@dakotacollege.edu

Lecture/Lab Schedule: TBD

Textbook(s): Physics; Paul G Hewitt, 9th Ed. 2012

Course Requirements:

Textbook, Scientific calculator, Notebook

Grading Policy: Grades will be assigned based on the following scheme:

A- 90-100%; B 80-89.4% ; C- 70-79.4%; D- 60-69.4%; F<60%

Component	points possible	total
Unit exams	5 x 80	400
Quizzes	6 x 20	120
Lab reports	12x 25	<u>300</u>
	Total	820 pts

In order for you to be successful in physics you will need to review the notes, complete practice assigned problems, conduct the labs and read the text.

Tentative Course Outline: with reading

Week #1 Chapter #1- Science, scientific method, structure of the solar system

Week #2 Chapter #2 & 3 - Motion in one dimension

Week #3 Chapter #4- Force, Newton's Laws of motion

Week #4 **Exam Unit #1**

Chapter #6- momentum, work

Week #5 Chapter #7- energy, conservation of energy, power

Week #6 Chapter #8- rotational motion

Chapter #9- gravity

Week #7 Chapter #10 projection and satellite motion

Exam Unit #2

Week #8 Chapter #11- Atomic nature of matter & Chapter #12- Solids

Week #9 Chapter #13- liquids & Chapter #14- gases

Exam unit #3

Spring Break March 16-20

Week #10 Chapter #15 Temperature, heat & expansion

Week #11 Chapter #16 heat transfer

Week #12	Chapter #17 Change of phase
Week #13	Chapter #18 Thermodynamics
	Exam Unit #4
	Chapter #19 vibration and waves
Week #14	Chapter #20 Sound
	Chapter #22 electrostatics
Week #15	Chapter #23 electric current
	Chapter #24 magnetism
Week #16	Chapter #25 properties of light
	Exam unit #5
Special Topics	Chapter #32 the atom & the quantum
	Chapter #33 atomic nucleus & radioactivity
	Chapter #35 Special theory of relativity
	Chapter #36 general theory of relativity
Week #17	Final exam

General Education Goals/Objectives: This course meets General Education Goal 1: Explains the interrelationships between physics and their environment and the role of science in their lives. Specific objectives include:

- 1) Demonstrates the application of the scientific method of inquiry (Objective #1).
- 2) Demonstrates an awareness of the role of science in everyday life (Objective #3)

Relationship to Campus Theme: 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: The use of calculator software on cell phones, tablets and laptops will not be permitted on exams. There will be a 30% deduction for any exam not taken on time unless prior arrangements have been made with the instructor, and the exam must be made up within one week. Labs & Quizzes cannot be made up, unless special circumstances exist and prior approval has been made with the instructor.

Academic Integrity: All students are expected to adhere to the highest standards of academic integrity. Dishonesty in the classroom or laboratory and with assignments, quizzes and exams is a serious offense and is subject to disciplinary action by the instructor and college administration. For more information, refer to the Student Handbook.

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.