

Dakota College at Bottineau Course Syllabus
Spring 2013

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.

Instructor: Angie Bartholomay

Office: NSC 111

Office Hours: MWF 10-11am
T TH 1:30-3:30pm

Phone: 701-228-5471

Email: angela.bartholomay@dakotacollege.edu

Lecture/Lab Schedule: Lecture M,W,F 12:14-1:01 Lab TTh 12:14-1:01

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	3 x 100	300
Final exam	1 x 120	120
Quizzes	12 x 15	180
Lab reports	12x 25	<u>300</u>
Total		900 pts

In order for you to be successful in physics you will need to attend class & lab, practice assigned problems, reading the text and participating in class.

Tentative Course Outline:

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

Chapter #2 & 3 - Motion in one dimension

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

Chapter #5- stellar evolution

Exam Unit #1

Chapter #6- momentum, work

Chapter #7- energy, conservation of energy, power

Chapter #8- rotational motion

Chapter #9- gravity

Chapter #10 projection and satellite motion

Exam Unit #2

Chapter #11- Atomic nature of matter

Chapter #12- Solids

Chapter #13- liquids

Chapter #14- gases

Exam unit #3

Chapter #15 Temperature, heat & expansion

Chapter #16 heat transfer

Chapter #17 Change of phase

Chapter #18 Thermodynamics

Exam Unit #4

Chapter #19 vibration and waves

Chapter #20 Sound

Chapter #22 electrostatics

Chapter #23 electric current

Chapter #24 magnetism

Exam unit #5

Chapter #25- properties of light

Chapter #32 the atom & the quantum

Chapter #33 atomic nucleus & radioactivity

Chapter #35 Special theory of relativity

Chapter #36 general theory of relativity

Final exam Unit #6

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.

Cell phone and related technology are prohibited in the classroom at all times. It is recommended that you do not bring your cell phone into the classroom or, at the very least, turn it off. Be respectful of other students, technicians, instructors, and guests.

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.

Disabilities and Special Needs: If you have a disability for which you need accommodations, you are encouraged to contact your instructor and the Learning Center (228-5479 or 1-888-918-5623) to request disability support services as early as possible during the beginning of the semester

