

**Dakota College at Bottineau Course Syllabus**  
**Spring 2014**

**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, 9<sup>th</sup> 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:

Week #1	Chapter #1- Science, scientific method, structure of the solar system
Week #2	<b>Martin Luther King Day Jan. 20<sup>th</sup> No Class</b> Chapter #2 & 3 - Motion in one dimension
Week #3	Chapter #4- Force, Newton's Laws of motion
Week #4	<b>Exam Unit #1</b> 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 <b>Exam Unit #2</b>
Week #8	Chapter #11- Atomic nature of matter

Week #9	Chapter #12- Solids Chapter #13- liquids Chapter #14- gases <b>Exam unit #3</b>
Week #10	Chapter #15 Temperature, heat & expansion
Week #11	Chapter #16 heat transfer Chapter #17 Change of phase
Week #12	Chapter #18 Thermodynamics <b>Exam Unit #4</b>
Week #13	<b>Easter Break April 18-21</b> 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 <b>Exam unit #5</b>
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	<b>Final exam</b>

**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

