

This syllabus was last updated on **January 14, 2020**.

- Instructor:** Sylvio May, South Engineering 216A,
email: Sylvio.May@ndsu.edu, web: <https://www.ndsu.edu/faculty/symay/>
- Bulletin Description:** Beginning course for students without a calculus background. Includes basic principles of bodies at rest and in motion, fluids, vibrations, waves, sound, and thermodynamics.
This course has been approved for the General Sciences category in general education because “Students will learn to comprehend concepts and methods of inquiry in science and technology, and their application for society.” and “Students will learn to integrate knowledge and ideas in a coherent and meaningful manner.”
- Goals:** The primary goal of this course is to provide the students with an understanding of the basic principles of classical mechanics that will aid them in their everyday lives and careers as informed members of society.
- Objectives:** The students should attain a conceptual understanding and problem-solving ability such that they can readily apply their knowledge to novel problems and situations. Students shall be able to reason qualitatively and quantitatively about linear and rotational motion, forces, energy, momentum, fluids, and waves using a few foundational dynamical and conservation principles.
Course objectives are met by readings, lectures, in-class discussions, and homework through the development of conceptual understanding and the ability to quantify concepts in specific physical situations. Students demonstrate their level of comprehension in LON-CAPA homework and exams.
- Prerequisites:** MATH 105 (Trigonometry) or higher, or consent of instructor
- Meetings:** Monday, Wednesday, and Friday 3:00PM - 3:50PM in *NDSU A.G.HILL Building, Room 112*
According to NDSU Policy 333 (www.ndsu.edu/fileadmin/policy/333.pdf) class attendance is expected but is not a component of the course grade.
- Office hours:** Mon and Fri 11am-1pm in South Engineering 216A by Sylvio May
Wed 10am-12pm in South Engineering 318 by Nekeisha Johnson
- Textbook:** Nicholas J. Giordano, *College Physics, Reasoning and Relationships 2nd edition*, (Brooks/Cole, Cengage Learning), Chapters 1-13
- Topic Outline and Timing:** The textbook chapters to be covered in this course are listed below, along with the tentative exam dates. Most (but not all) material of chapters 1-13 will be covered.
- Chapters 1-2: Introduction to Motion and Forces
Exam 1: Wednesday, January 29
- Chapters 3-4: Forces and Motion
Exam 2: Wednesday, February 19
- Chapters 5-6: Gravitation, Work, Energy
Exam 3: Wednesday, March 11
- Chapters 7-9: Momentum, Collisions, Rotational Motion
Exam 4: Wednesday, April 08
- Chapters 10-11: Fluids, Harmonic Motion, Elasticity
Exam 5: Wednesday, April 29
- Chapters 12-13: Waves, Sound
Final Exam: Monday, May 11 (10:30am – 12:30am)
- Format:** The class will both involve traditional lecture and engage the students in discussions and active problem solving. Paper flash cards will be distributed and used. Students are encouraged to ask questions at any time during or after class.
- How to succeed:** Attending class, reviewing lecture notes, studying the textbook, taking part in class activities and discussions, and completing homework problems are keys to success. Each student is encouraged to contact the instructor with any concerns, questions, and suggestions. If desired, review sessions will be held prior to exams.

LON-CAPA:

This course does not use Blackboard. Instead, the LON-CAPA course management system will be used to post homework, lecture notes, grades, and other information. LON-CAPA can be accessed by selecting the appropriate server at http://www.ndsu.edu/physics/lon_capa/. Your username is everything to the left of the @ in your NDSU email address (use all lowercase letters). For example, if your email address is Sheldon.Cooper.2@ndsu.edu, then your LON-CAPA username is sheldon.cooper.2. Initially you create your own password by following the link “Forgot Password”. For help using LON-CAPA contact your instructor or laboratory technician Paul Omernik (SE110, Paul.Omernik@ndsu.edu, 231-7047)

Homework:

Homework problems will be available for each textbook chapter through LON-CAPA. A total of 100 correct solutions (out of more than 200 available problems) for chapters 1-13 yield full credit.

set #	1	2	3	4	5	6
chapters	1-2	3-4	5-6	7-9	10-11	12-13
assigned	Jan 15	Jan 15	Jan 15	Jan 15	Jan 15	Jan 15
due	Jan 31	Feb 21	March 13	April 10	May 01	May 10
# of problems assigned	≈ 30	≈ 30	≈ 40	≈ 60	≈ 40	≈ 30

Each correctly solved problem earns 1 point (for problems with multiple parts each part earns 1 point). Only 100 problems from the entire set (chapters 1-13) need to be solved. The maximal number of points for all homework sets is 100. You may work together on homework sets, but simply copying another’s answers is neither recommended nor beneficial. No late homework will be accepted.

Exams:

Five in-class “midterm” exams and a comprehensive final exam will be given. The midterm exams will be based primarily on material covered since the last exam, but questions may require previous knowledge. The final exam will be comprehensive, covering all course material. Each midterm exam consists of 10 multiple-choice problems. The final consists of 20 multiple-choice problems. Each correctly solved problem earns 2 points. The problems are a mix of conceptual and computational problem-based questions. The two lowest of the midterm exams or the final (whatever is lower) will be dropped.

All exams are open notes (i.e., using the lecture notes and textbook is permitted during an exam). A calculator will be required for successful completion of the exams; all other electronic devices must be turned off and stored. The use of calculator software in cell phones, translators, laptop computers, etc., is not permitted on an exam. Bring a #2 pencil, photo ID, and calculator to each exam. Scantron sheets will be provided. No makeup exams will be scheduled.

Grading:

Grading will be based on LON-CAPA homework score (max. 100 points) and exams (max. $5 \times 20 = 100$ points). From the actual number of points and the maximal number ($100+100 = 200$ points) the percentage will be calculated and used to grade according to: 0% - 55.0% F, 55.0% - 66.0% D, 66.0% - 77.0% C, 77.0% - 88.0% B, 88.0% -100% A. Expressed in points, this corresponds to: 0 - 109 F, 110 - 131 D, 132 - 153 C, 154 - 175 B, 176 - 200 A. The instructor reserves the right to lower the grade cutoffs in response to class performance, but they will not be raised.

Additional Statements:

Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders. Any students with disabilities or other special needs, who need special accommodations in this course, are invited to share these concerns or requests with the instructor and contact the Disability Services Office (www.ndsu.edu/disabilityservices) as soon as possible. The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.