

**Instructor:** Brianna Santangelo, South Engineering 318E  
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**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. The students should attain a conceptual understanding and problem-solving ability such that they can readily apply their knowledge to novel problems and situations. Specifically, students shall be able to: Reason qualitatively and quantitatively about linear and rotational motion, forces, energy, momentum, and fluids using a few foundational dynamical and conservation principles; Translate between a graph and its physical meaning in the contexts of motion, forces, energy, and momentum; and Apply the laws of thermodynamics to determine if a given thermodynamic process is allowed

**Prerequisites:** MATH 105 (Trigonometry) or higher, or placement test, or consent of instructor

**Meetings:** Monday, Wednesday, and Friday 3:00PM - 3:50PM in *NDSU AGHILL CTR Building (formerly STEM building), Rm 112*  
According to NDSU Policy 333 ([www.ndsu.edu/fileadmin/policy/333.pdf](http://www.ndsu.edu/fileadmin/policy/333.pdf)) class attendance is expected.

**Office hours:** Brianna Santangelo: Mon and Wed, 2pm-3pm in South Engineering  
Wathsala Amadoru Jayawardana: Tue and Thur, 12:30pm-3:30pm in South Engineering 318C  
Emily Klusman: Mon, 12:30pm-1:30pm, first floor of AGHILL

(additional time offered by physics TAs, time will be announced)

**Recommended Textbook:** Nicholas J. Giordano, *College Physics, Reasoning and Relationships 2nd edition*, (Brooks/Cole, Cengage Learning), Chapters 1-16

**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 1-16 will be covered.

Chapters 1-3.4: Linear Motion  
**Exam I: Friday, February 1**  
Chapters 3.5-5: Forces and 2D Motion  
**Exam II: Friday, March 8**  
Chapters 6-9: Work, Energy, and Momentum  
**Exam III: Friday, April 12**  
Chapters 10-16: Comprehensive  
**Final Exam: Tuesday, May 7 (10:30am – 1:00pm)**

**Format:** The class will involve traditional lecture, along with discussion, worksheets, and problem solving. Students are encouraged to engage in in-class discussions and ask questions at any time during or after class.

**How to succeed:** Attending class, reviewing lecture notes, reading the assigned text, taking part in class activities and discussions, and doing homework (and additional) 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:** The LON-CAPA course management system will be used to post homework, grades, and other information. LON-CAPA can be accessed by selecting the appropriate server at [http://www.ndsu.edu/physics/lon\\_capa/](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) A \$5 course fee is assessed for LON-CAPA server upgrades and maintenance.

**Homework:** Homework problem sets will be assigned via the LON-CAPA online system. Homework will be worth 25% of your grade and the lowest homework grade will be dropped. You may work together on homework sets, but simply copying another’s answers is neither recommended nor beneficial. Late homework will be considered on a case by case basis.

**Exams:** Three in-class exams and a comprehensive final exam will be given. Each exam will be worth 20% of your grade and the final will be worth 25% of your grade. The exams will be based primarily on material covered since the last exam, but certain questions may require previous knowledge. The final exam will be comprehensive, covering all course material. The problems on the exams are a mix of conceptual and computational problem-based questions. Your lowest of the 3 exam scores (not the final) will be dropped. That is, only the best 2 exam scores and the final score count toward the final grade.

You will be allowed 1 page of notes for all exams. 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, calculator, and scantron sheet for each exam. No makeup exams will be scheduled.

**Grading:** Grading will be based on LON-CAPA homework score (25%), Clicker questions (5%), reading assignments (5%), the best 2 out of 3 exams (20% each), and the final (25%).

88.0% -100% A,  
77.0% - 88.0% B,  
66.0% - 77.0% C,  
55.0% - 66.0% D,  
0% - 55.0% F.

The instructor reserves the right to lower the grade cutoffs in response to class performance, but they will not be raised.

Note that exams make up 65% of your final score! It is crucial that you prepare and study accordingly.

If you participate in 75% of all clicker questions, you will receive the full 5%.

**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 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](http://www.ndsu.edu/academichonesty).*

*Please note that the statements in this syllabus are subject to change as the semester progresses. Any changes will be announced in class and posted on the Blackboard course page. Even if you are not present in class for a particular announcement, you are still responsible for knowing about any changes that may occur*