

Instructor: Kyle T. Strand, Ph.D

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Office Location: South Engineering 216A

Office Hours: Tuesday: 12:30PM - 2:30PM or by appointment

Course Website: <http://triton.physics.ndsu.nodak.edu>

Course Description: Application of physics concepts and principles to the real world. Topics selected from mechanics, heat, optics, electricity, and magnetism.

Course Goals: This course is intended to give a general overview of the many broad topics found within physics. The goal is to gain a better understanding of how general physics applies to everyday life as well as assist in improving scientific literacy. This course will cover a brief history of classical physics including and not limited to Newtonian mechanics, electromagnetism, and thermodynamics. Topics in modern physics will also be introduced with may include relativity, quantum mechanics, atomic theory, particle physics, and astrophysics.

Course Format: This course is to be taught physically in the classroom. However, each course will be recorded and uploaded to Blackboard. It is **STRONGLY** encouraged to attend each and every class meeting.

Prerequisite(s): High school algebra

Credit Hours: 3

Recommended Text: *Physics, Concepts & Connections*, 3rd Edition

Author(s): Art Hobson; **ISBN:** 978-13-357090

Grading:

“Weekly” Homework	65%
Exams (3)	20%
Final Exam	15%

90%	A
80%	B
70%	C
60%	D

Course Information:

- **Homework:**

- Homework assignments will be handled using LON-CAPA. Answering 90% of the problems correctly will result in full homework credit for the course. The two lowest homework scores will be dropped.
- Assignments and due dates will be announced in class and posted on LON-CAPA. Any changes will be announced in class and posted on LON-CAPA.
- Late assignments will have have a grading penalty of 25%.

- **Exams:**

- No make up exams will be allowed except for prearranged accommodations or cases of emergency circumstances.
- There will be 3 exams throughout the semester.
 - * Each exam will be taken on paper in class on its scheduled day.
 - * I will provide the exams and extra scratch paper. Scantron will not be used.
 - * Calculators are allowed, but will not be provided.
 - * No laptops, phones, or other personal electronic devices will be allowed.
 - * Each exam will contain 8 questions and graded out of 20 points.
 - * 5 multiple choice questions worth 1 point each.
 - * 3 written problems worth 5 points each.
 - * Partial credit is available for work shown on written problems.
 - * The lowest exam score of the semester will be dropped from the final grade.

- **Final Exam:**

- The final exam will be a take-home exam.
- Working in groups is allowed, however, everyone must submit their own individual, hand-written page.
- The final exam will be due at **5 pm on Thursday, December 14.**
- The exam can be submitted in person, via email, or Lon-Capa dropbox.
- More details of the final exam's format will be available near the end of the semester.

- **Miscellaneous:**

- I reserve the right to provide extra credit opportunities available to the entire class. These opportunities are not guaranteed and will be provided at my discretion.
- Extra credit opportunities will only be provided to the class as a whole. No extra credit opportunities will be available for individuals.
- Grades will be posted on Blackboard throughout the course.
- I reserve the right to adjust grades as I see fit, but any adjustments can only be made to the student's benefit.

Student Responsibilities:

- Students will not be graded on attendance, but attending each class is highly encouraged. Physics courses can be quite difficult, especially if students are not present and engaged. If a class must be missed, the student is responsible for acquiring material from that session.
- The textbook for this course is not required as all materials for learning and success will be provided. However, reading the sections of the book covered in class is strongly recommended. Reading lists will be posted on LON-CAPA.
- In class participation is strongly encouraged. Class discussion can help to solidify course concepts in a very strong manner. If nobody participates, you have to listen to me the whole time.

- We will attempt to solve problems and engage in small group discussions. We will use these small group activities to drive the full class discussions as much as time permits.
- Coming to office hours are a great way to get extra help. If you are unable to make it to office hours, we can attempt to arrange special appointments to meet. You can also send questions via email and I will do my best to give a prompt response.
- I have an open door policy in regards to office hours. If you come to my office outside of scheduled office hours and my door is open, feel free to come in and help will be available!
- Studying in groups are also an excellent way to learn in a physics course. I encourage you to arrange study groups to work together outside of class.
- Most of all, work hard and have fun! This course can be very enjoyable and I will do my best to make sure we can maximize the enjoyment. If you have any concerns, let me know. I welcome all feedback to help make the course better. It is my job to help you to learn the course materials to the best of your ability, so use me as a resource!

LON-CAPA:

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/. For help using LON-CAPA contact your instructor or laboratory technician Paul Omernik (SE110, Paul.Omernik@ndsu.edu, 231-7047)

• LON-CAPA First Time Login instructions

1. Go to: <http://triton.physics.ndsu.nodak.edu>.
2. On the login section on the left side of the page, click 'Forgot Password?'
3. Fill in forms for username and email address and the captcha.
 - Your email address will be your ndsu email address. Ex: kyle.t.strand@ndsu.edu
 - Your LON-CAPA username is the same as your ndsu email address, but without the '@ndsu.edu.' Ex: kyle.t.strand
4. Submit form and check your email for a password reset link.
 - **If you do not see the password reset email in your inbox, check your junk mail folder.**
5. Log in.

Tentative Course Outline:

Chapter	Content
Chapter 1:	Scientific method and early astronomy
Chapter 2:	Matter & Units
Chapter 3:	Motion, speed, and velocity
Chapter 4:	Force; Newton's Laws
Chapter 5:	Gravity
Chapter 6:	Work and energy
Chapter 7:	Second law of thermodynamics and entropy
Chapter 8:	Electricity and magnetism
Chapter 9:	Waves, electromagnetic radiation, and atmospheric issues
Chapter 10:	Special theory of relativity
Chapter 11:	General theory of relativity
Chapter 12-13	Quantum Mechanics
Further topics (time permitting):	Particle and nuclear physics, meteorology

Tentative Exam Dates
Exam #1: Thursday, September 28
Exam #2: Thursday October 26
Exam #3: Thursday, November 30
Final Exam: Due Thursday, December 14, 5:00PM

Illness:

Do not come to class if you are sick or if you have been exposed to individuals who have tested positive for COVID-19 and/or you have been notified to self-quarantine due to exposure. Please protect your health and the health of others by staying home and participate in class remotely. For further information on COVID-19 symptoms, testing, and steps to stay healthy, see https://www.ndsu.edu/studenthealthservice/covid_19. If you are unable to attend class at the regularly scheduled time due to illness, contact instructor for alternate arrangements, especially for exams and homework due dates.

Student Resources:

There are many resources available to you as a student to help when needed. There's no shame and reaching out when you are in need of help. There are many other great resources available which can be very helpful in times of need:

- NDSU Counseling Services: 701-231-7671, <https://www.ndsu.edu/counseling>
- NDSU Disability Services: 701-231-8463, <https://www.ndsu.edu/disabilityservices>
- Student Health Service: 701-231-7331, <https://www.ndsu.edu/studenthealthservice>
- Dean of Students Office: 701-231-7701, <https://www.ndsu.edu/deanofstudents>
- National Suicide Prevention Lifeline: 1-800-273-8255, <https://www.suicidepreventionlifeline.org>

Additional Information:

-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.

-All access to NDSU computers must respect NDSU Senate Policy, section 158: Acceptable use of Electronic Communication Devices

www.ndsu.nodak.edu/policy/158.htm

-Any students with disabilities or other special needs, who need special accommodations in this course are invited to share concerns or requests with the instructor and to contact the Disability Services Office as soon as possible.