

Nashville State Community College

School of STEM

Physics Program

Course Syllabus

(PHYS 2110 – Calculus-based Physics I)

The purpose of the syllabus is to tell you how the course is organized, what the expectations are, and how you will be graded. In addition, there is important information about how the college will operate during severe weather and how the college will communicate with you. The syllabus is not a contract. Instead, it is meant to help you succeed in this course. If any of the content changes during the semester, you will be notified.

Course information:

Course Title: PHYS 2110 – Calculus-Based Physics I

Credits: 4

Class Hours: 3 class hours; 3 lab hours

Course mode : Face to face

Course Description:

A calculus-based course in the concepts and principles of classical mechanics, fluids, heat, mechanical waves, and thermodynamics. This course is primarily intended for students who plan to major in science, engineering, mathematics, or other technical fields at the four-year college level.

This course will cover chapters 1-14; 17 & 18 of the required textbook. These chapters are distributed among 4 units. There will be a test at the end of each unit (for more information about chapter distribution and testing dates see the class schedule provided by your instructor).

Prerequisite: MATH 1910

Instructor Information:

Name:

Email :

Office Phone :

Office Location:

Office Hours:

Instructor Zoom Room link:

Required Textbook(s) & Other Materials:

Textbook(s): University Physics with Modern Physics, 15th Edition by Hugh D. Young and Roger A. Freedman, Pearson

ISBN: 9780135159552

Supplies:

Lab Manual: First Semester Physics Lab Manual, Provided by the instructor.

Calculator: A scientific calculator is required for this course.

Once you have registered for your courses, you should make sure you have the correct textbook and materials for each course. Before courses begin, you can do this by looking up your courses on the bookstore's website (<https://www.bkstr.com/nscctestore/shop/textbooks-and-course-materials>) using your A# or by entering your course information. If you are registered with the Access Center and need an alternate format for the textbook and other course materials, please contact the Access Center at 615-353-3721, 615-353-3741, or accesscenter@nscctest.edu

Honors Option: Honors credit is available in this class. If you are interested in participating in the Honors Program, please see your instructor within the first four weeks of class.

Course Outcomes: At the end of the semester, this is what you should know and/or be able to do:

- Describe the nature of physical quantities.
- Employ the equations necessary to describe general accelerated motion in one or multiple dimensions.
- Illustrate Newton's Three Laws of motion and apply the laws and the conditions of equilibrium to general systems of forces.
- Interpret the concepts of work, kinetic energy, and potential energy for general force systems and apply the law of conservation of energy.
- Apply the concepts of elasticity, periodic motion, and the universal law of gravitation, including the variation of g with altitude.
- Contrast the statics and dynamics of fluids.
- Describe the general properties of waves and explain the properties of sound waves.
- Illustrate the meaning of temperature and discuss the thermal properties of matter and the basics of thermodynamics.

Topics to Be Covered:

Lecture Topics:

- Units and physical quantities
- Vectors
- Motion in one, two, and three dimensions
- Newton's laws of motion
- Work and energy
- Energy conservation
- Momentum and Impulse
- Collisions
- Rotational motion
- Equilibrium
- Elasticity

- Gravitation
- Periodic motion
- Fluids
- Mechanical waves
- Interference
- Sound
- Temperature
- Heat
- Thermal properties of matter
- Concepts of Thermodynamics

Laboratory Topics:

- Measurement
- The Acceleration Due to Gravity
- Acceleration on an Inclined Plane
- Elastic Collisions
- Inelastic Collisions
- Hooke’s Law
- Density and Buoyancy
- Torque and Equilibrium
- Thermal Expansion
- Specific Heat Capacity of Solids
- The heat of Fusion of Ice

Course Assessments:

The following performance assessments will be used to demonstrate students’ understanding, knowledge, and skills: Homework, Quizzes, Labs, and Tests. Your grade in this course will be calculated according to the following course components and assessments:

Percentage weight	Assessment Components
15%	Homework (lowest grade will be dropped)
20%	Quizzes (lowest grade will be dropped)
25%	Lab reports (lowest grade will be dropped)
40%	4 Tests (Includes Non-comprehensive Final Exam)

Grading Policy and Description of Course Components

Homework (15 % of total grade)

It is the student's responsibility to complete assigned homework on time. I will grade homework based on the correctness of the final answer but please show your detailed work. Submit your homework in D2L Dropbox by due dates. You will get feedback on homework within a week of the due date.

Quizzes (20% of total grade)

The online quizzes will be given after completion of the chapter(s), and you will have to submit them within the allotted time. The amount of time provided by your instructor will depend on the complexity of the quiz. The quiz will be auto graded in the D2L course shell, and you will be able to see your score immediately after submission of the quiz. Quiz questions are typically based on class lectures and evaluate your follow-up of the class.

Lab Reports (25% of total grade)

Experimental activities (labs) on the topics of classical mechanics, heat, and temperature will be integrated into the lectures. We will have 11 labs. Each student should prepare a lab report based on his/her data and submit it to me via the D2L course Dropbox. The lab report will be graded out of 10. Your lab report should include complete and correct data, all the questions answered correctly, and a reasonable conclusion.

Tests and Final Exam (40% of total grade)

There will be a total of four tests during the semester, and this includes a non-comprehensive final examination. Equally weighted, these four tests make up 40% of your grade. The level of difficulty of the problems in the tests is similar to the exercises assigned as homework, and to the ones discussed in class. If you feel that a test was graded incorrectly, I'll be happy to take another look.

FA

If you stop attending class or if you are in an online class and stop submitting assignments, but do not turn in a withdrawal form by the deadline, you are still enrolled in the class. You will be given a grade of FA, which means you have failed due to not attending class and not completing your assignments. Please refer to the current academic calendar available on the Nashville State website, looking for the date that indicates it is the "Last Day to Earn F for Attendance (FA)." If you stop attending your course after this date, you will receive an F.

Students with an F average whose last date of attendance is before 10/28/2022 will receive an FA; students with an F average, whose last day of attendance is on or after 10/28/2022 will receive an F.

FN

An FN is awarded if you have never attended your course or done any of the work in an online course.

W - The last day to withdraw from the course with a W is 10/28/2022.

Grading Scale:

Letter Grade	Percentage Range
A	90-100
B	80-90
C	70-80
D	60-70
F	<60

Late Work Policy & Make-up Procedures for Missed Assignments and Work:

Timely submission of assignments, quizzes, labs, and tests is the best practice in this course to maximize your grade. The late homework assignment is unaccepted in this course. I will accept late quizzes, and

labs within a week after the due dates with a 10% decrease in grade. Tests will not be accepted after the due date, but if a test is missed due to illness or situations beyond your control, there will be a makeup test provided the student provides written documentation.

Instructor's Policy

The attendance policy for this course: *Please attend each class session to understand and succeed in this course. The class attendance will be taken in the class. **The instructor will not be responsible to repeat or make up any course works/assignments that are missed due to the student's absence.***

For financial aid purposes, **attendance** is measured by participation in the course. Instructors can determine your level of participation in several ways. Some of those ways are:

- continued attendance
- participation in on ground class
- participating in D2L as prompted
- responding to an instructor's email
- posting to a discussion board
- completing and submitting assignments

Technology Statement

- All classes at the College are web enhanced. "Web-enhanced" means that components of the course, such as assignments and online discussions, may be located online in the class D2L/NS Online course shell and used in the course, even if the course meets in a classroom on the ground.
- You must have access to a computer and an internet connection to complete assignments, engage in online discussions and access various course materials through D2L/NS Online course shells.
- You may also be required to use free video conferencing platforms (examples: Zoom, Teams, etc.) for course sessions and meetings.
- You will be responsible for the appropriate dress while on video. This means that you are expected to dress as if you were in a classroom.
- You will be responsible for a distraction-free environment while on video. This means that the professor and others in the course should not be able to hear noise in your homes, such as cell phones, TVs, or barking dogs. The best way to do this is to keep yourself on "mute" until you need to speak.
- You will be responsible for making sure your background is neutral. Keep in mind that students and professors come from all around the world, and you are all a part of our community. Therefore, please avoid having images in your background that may be offensive to your classmates.
- Certain publisher materials, such as textbook figures, may not work on cellphones and may require a laptop or a tablet.
- If you have questions or concerns regarding access to a computer or internet resources, please contact your instructor. Additional information is available on this website: <https://www.nsc.edu/current-students/student-online-resources/access-to-internet-and-technology>.

Computer Labs

Computers are available for all Nashville State students to use at each campus during open hours. Open computer lab availability may vary from campus to campus.

You should check the NSCC website for current hours of operation.

D2L/NS Online and myNSCC

It is your responsibility to check your email in **both** D2L/NS Online course shells and your @my.nsc.edu (student email) regularly. These are the official communication channels between the college and you. You are responsible for the information communicated through these email channels. D2L/NS Online emails contain specific course information and @my.nsc.edu emails contain important information from college offices, such as Financial Aid.

ADA Compliance Statement

If you need accommodations due to a disability, please do not hesitate to reach out to our Access Center. Disabilities for which you can receive accommodations include documented physical, emotional, and/or learning conditions. Nashville State is committed to supporting your success, and we encourage you to get assistance if needed. If you require accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721, or e-mail accesscenter@nsc.edu.

Classroom Misconduct

Disruptive conduct is not allowed in the classroom. Disruptive conduct is any behavior that prevents students from learning and interferes with the ability of the instructor to teach. This may change from course to course; therefore, your instructors will give you guidance on what qualifies as "disruptive conduct" in their courses. Please review the [Nashville State Student Code of Conduct policy](#). Please be aware that children are not allowed in class or to be left unattended on campus.

Academic Misconduct

You have started this academic journey to prepare for a future career. Because of this, it is important that you learn the materials being presented in your courses. For this reason, cheating, in any form, robs you of your opportunity to learn and master the material that will enable you to succeed in that future career. Nashville State has a clear [Academic Misconduct Policy](#) that you are expected to follow. In addition, your instructors will clarify what Academic Misconduct looks like and the consequences for violations in each course that you take. The instructor has the authority to assign an "F" or a "zero" for such violations or for the semester grade.

- The first instance of academic dishonesty will lead to a score of zero on the test/assignment involved and will be referred to the Dean of Student Affairs.
- **ANY FURTHER INSTANCE OF ACADEMIC DISHONESTY WILL LEAD TO A GRADE OF 'F' FOR THE COURSE.**

Academic Early Alert System

If you are not doing well in your course, your instructor may send you an Early Alert through your @my.nsc.edu email. This email will go to your academic advisor and Student Success advisor, as well. If you get an Early Alert, contact your instructor immediately. Instructors send these when they want to

help you figure out how to get extra support to pass the course. An Early Alert does not mean that you have already failed the course. Rather, it means you are in danger of failing the course if you do not change your learning strategy. Please use an Early Alert to your advantage and as an opportunity to improve your grade.

RAVE Emergency Alert System

You can log in to this free alert system to receive text messages about emergencies related to NSCC campuses: <https://www.getrave.com/login/nscc>. The instructions for this are listed below.

- Your RAVE Username is your NSCC email address.
- If you've never received an email from RAVE with your password, or if you need to reset your password, select "Forgot your password?" and a new password will be emailed to you.
- Should the RAVE system indicate "user not found", select Register and create your own RAVE account.

Student Wellness

Your well-being is important to us. With this in mind, the college has several resources available to provide support when needed:

- Free tutoring: <https://www.nsc.edu/current-students/on-campus-resources/learning-center-and-tutoring>
- NSCC email, scheduling, online courses, textbooks, tech check out and support, computer labs on campuses, academic advising, financial advising, COVID-19 information and procedures on campuses: <https://www.nsc.edu/current-students/student-online-resources>
- Services that help with bus passes, food, childcare, textbooks, housing, financial counseling, personal counseling, suicide prevention, health insurance: <https://www.nsc.edu/current-students/on-campus-resources/student-support-services>

Equity Statement

We are taking steps to become more aware of the many different needs of students. Faculty, staff, and administrators are committed to helping students find ways to meet their needs so that ALL students can reach their goals. Please ask for things you need.

Inclement Weather & Campus Closings

You get notices about campus closings in these places: text messages from RAVE and www.nsc.edu. Even when campuses are closed, you are still responsible for completing all assigned work. Check D2L/NS Online for a message from your instructor so you do not miss important assignments and due dates, which may change due to the campus closure.

Class Cancellation Policy

Our instructors post messages about canceling classes in the D2L/NSOnline course shells and/or on the classroom door on campus. These messages can be found in the News and Content section or the Email tab in the online shell. Please check these to be sure that you take advantage of opportunities for learning and points toward your grade.