

# Nashville State Community College

School of STEM

Master Syllabus

PSCI 1030 – Survey of Physical Science

## Course Information

Division: STEM

Program: Physics

Course: **PSCI 1030 – Survey of Physical Science**

Course ID: 1030

Course delivery mode: on ground

Semester Term and Year:

## Instructor Information

Name:

NSCC Email:

Phone:

Office Location:

Office Hours:

Class Session Zoom Link:

This course is a conceptual introduction to physical science using a minimum of mathematics. Topics discussed include Newtonian mechanics, gravitation, waves, sound, heat, electricity, magnetism, light, optics, and an introduction to modern physics.

## Course Delivery

On-ground: **PSCI-1030** is an on-ground course in which we will meet twice a week for lecture and lab classes.

**Prerequisite(s):** Level 2 Placement in Math and Reading.

Credit Hours: (4 credits)

## Course Policies

This syllabus sets forth the expectations for course content, work, and grading as well as expectations for student performance and conduct. The syllabus does not constitute a contract between the student and the instructor or the College. The information contained here is subject to change at any time. Students will be notified if any changes are made. Though changes are possible, it is expected that the course will be conducted as described in this syllabus.

## Purpose of the Course

The purpose of this course is to introduce concepts of physics to non-physics major students with minimum math. Each student is expected to actively contribute as individual (and in-group projects if applicable) using course resources.

## Structure of the Course

This course is designed for students in the face-to-face setting. Students will work on a module each week and are expected to complete given assignments. Students will be responsible for studying lecture notes, lab manuals, and all other posted text materials and doing activities. There are predetermined class meeting times on Monday and Wednesday. Weekly assignments are typically posted on Monday, discussion submissions are due by Thursday, and assignments and discussion responses due on the following Monday.

## Required Textbook(s) & Other Materials:

Once enrolled, all students should verify that they have the correct textbook and materials information by consulting the D2L/NS Online shell for the course.

**Textbook(s):** Conceptual Physics, 12<sup>th</sup> edition, by Paul G. Hewitt, Pearson.

**ISBN:** 9780321909107. (Hard copy)

OR

Conceptual Physics, 12<sup>th</sup> edition, by Paul G. Hewitt, Pearson.

**ISBN:** 9780321939777. (Online subscription for e-text)

## Reference Materials:

**Supplies:** Lecture Slide handouts, lab manuals

## Textbook Information

Before courses begin, you should make sure you have the correct textbook and materials for each course. You can look up your courses on the [bookstore's website](#) using your A# or by entering your course information.

## Accommodation and Accessibility Needs

If you are registered with the [Access Center](#) and require an alternate format for the textbook and other course materials, please contact the Access Center as soon as possible at 615-353-3721, 615-353-3741, or [accesscenter@nsc.edu](mailto:accesscenter@nsc.edu).

## Honors Option

Honors credit is available in some classes. If you are interested in participating in the Honors Program, please contact your instructor within the first four weeks of class.

## Learning Objectives (Course Level Learning Outcomes)

Upon successful completion of this course, students will be able to:

1. Explain the nature of a scientific theory and the basic mathematical tools used in physical science.

2. Illustrate the physical quantities necessary to describe one-dimensional motion and discuss the equations relating to them.
3. Explain Newton's Laws of Motion and illustrate their application.
4. Discuss the concepts of energy and momentum and illustrate their uses.
5. Illustrate the universal law of gravitation.
6. Examine the structure and states of matter.
7. Explain the concepts of temperature and heat.
8. Discuss the concepts of basic and applied electricity and magnetism.
9. Interpret the ideas of wave motion, sound, and electromagnetic waves.
10. Explain the basic concepts of optics.

## Topics to Be Covered:

### Lecture Topics:

- Science and the scientific method
- Inertia and Newton's first law of motion
- Linear motion
- Newton's second law of motion
- Newton's third law of motion
- Momentum and energy
- Rotational motion
- Gravity
- The atomic nature of matter
- Solids, liquids, gases, and plasmas
- Temperature, heat, and expansion
- Methods of heat transfer
- Change of phase
- Vibrations, waves, and sound
- Electrostatics and electric current
- Magnetism and electromagnetic induction
- Properties of light and color
- Reflection and refraction
- Light waves, Light emission, and quanta

### Sample Laboratory Topics:

- Introduction to Measurement
- Measurement of the standard gravity of Earth
- Conservation of Energy and Momentum
- Density and Buoyancy
- Hooke's law
- Torques and Equilibrium.
- Standing waves and the speed of sound in Air

- Electrostatics
- Magnetism
- Refractive index of materials

### **Course Policies**

As a student on this course, you should strive to obtain as much knowledge and improve skill sets in physical sciences. As an NSCC student, you should be courteous, thoughtful, detailed, and diligent throughout your coursework. Lack of initiative or motivation will surely impede your opportunity to complete this course successfully.

### **Student Responsibilities**

My goal for you is to excel in this class and to develop the skills necessary to succeed in your chosen career. However, you have the major responsibility for doing well. Achievement of course objectives will require you to know what you need to do to improve performance and do it. You are expected to research all materials and software needed to complete your assignments, apply the feedback returned to you, and document your progress throughout. You cannot meet the objectives of this course by being a passive learner. As the semester progresses, you should be able to implement several ideas to improve your performance. In addition, you are expected to ask questions to clarify expectations, evaluations, or other aspects of the course that are not clear to you. Nashville State provides many student resources for academic and personal support; see the “Nashville State Community College Resources” section of this syllabus for more information.

### **Academic Integrity and Student Authentication**

Plagiarism is prohibited in this course. You cannot copy from anybody without giving proper credit in academic writing. This course uses proctoring services like Honorlock or Respondus for authentication and to curtail cheating on exams. If plagiarism is detected in writing or exams that particular assignment will not be accepted.

### **Contact Preferences**

Email is preferred as my primary mode of contact. Be sure you use your NSCC student email and put “(Course ID)” in the email header. State your question or issue in detail so I can answer it effectively. Reply times may vary from 24-48 hours but I may answer you sooner if I am available. Any questions after Friday afternoon may have to wait until the following Monday morning. We can meet in my office for any scheduled appointments but make sure our appointments have been confirmed. I am also available to meet virtually through Zoom but only under specific criteria or appointment only.

### **Communication Plan**

Frequent and meaningful communication is crucial for the successful completion of this course. You can communicate with me via email, phone, or set up appointments in Zoom.

**Email Communication:** When communicating via email make sure you include your full name, course ID, course number, and course section. Write your questions in detail. On weekdays (Monday – Friday), I will respond to your emails within 24 hours. Weekend emails will be replied to by next Monday.

**Phone Communication:** I will receive your calls Monday through Thursday between 8 am and 5 pm when I am in the office. Remember, there are no set office hours, so I may not pick up your phone if the meeting is not prescheduled via email.

**Setting up an appointment to meet:** To schedule an appointment for meeting with me use my Calendly link: <https://calendly.com/bohara-professor-physics> I will be available for in-person meetings at White Bridge Road Campus in the K Building in room K-205D, or virtually via Zoom. You also can schedule an appointment for a meeting by sending me an email.

### **Feedback policy**

Timely feedback is vital for improving learning. I will provide feedback through news postings, in the discussions, grading feedback, and via email. In news postings, you will find general announcements and assignment reminders. Check the news section in D2L frequently. In each assignment's grading, I will post feedback. Expect grade with feedback within a week of the due date. Once you get feedback check rubrics to find mistakes.

### **Participation/Attendance**

My expectation in this course is that you will start early and submit all the assignments by due dates. If you work on each module per week, your workload will be reduced, and you will better understand the subject matter resulting in better outcomes. You should regularly login to the NS Online course (at least once a day on weekdays) to check course announcements, posts and respond to weekly assignments, and to communicate effectively with the class and the instructor.

### **Time Management/Expectations**

To complete all assignments in this course you may approximately requires 9-12 hours a week. Students may be expected to expect 2-4 hours of homework per credit hour on average in a college course. Associated weekly readings and assignments will also be expected to be completed quickly so plan accordingly. **Pro Tip:** Treat this course as a part-time job and set aside several hours a week to dedicate to completing your projects and weekly assignments. Some weeks may be lighter than others, but the work ethic you represent will affect your ability to meet the course learning objectives and successfully pass this course.

### **Late Work**

Timely submission of assignments, quizzes, discussions, labs, and tests is the best practice in this course to maximize your grade. To provide extra time for learning, late Assignments, quizzes, and labs will be accepted within one week after the due dates. In doing so there will be a 10%-point deduction. Discussions will not be accepted after the due date to maintain the

pace of the course. Tests will not be accepted after the due date, but if a test is missed due to illness or situations beyond your control, the test will be reopened provided the student provides written documentation.

### **Document Formatting**

Any work submitted for this course should be formatted intuitively applying APA or MLA formatting when required. If the instructor has a hard time deciphering your work, it may count against you. Spelling, grammar, and punctuation are important so make the effort to submit your best efforts.

### **Assignment Descriptions**

The following performance assessments will be used to demonstrate students' understanding, knowledge, and skills: Discussions, Tests, Quizzes, and Labs. For each of the activities listed below, be sure to follow the deadlines provided on the **Course Schedule**, which is available on the **'getting started'** section in D2L. Missed activities will result in zero grades. See additional penalties and policies listed under the Late Work section of this syllabus.

Your grade in this course will be calculated according to the following percentage weight.

<b>Percentage weight</b>	<b>Assessment Components</b>
20%	14 quizzes (a lowest grade will be dropped)
20%	12 Lab Reports (a lowest grade will be dropped)
30%	3 Non comprehensive tests
15%	Final exam (comprehensive)
15%	14 Discussions (a lowest grade will be dropped)

### **Formative Assignments**

**Discussions:** There will be 14 discussions in this course. You are expected to respond to each discussion question or prompt on Thursday and respond to at least 1 post by Monday.

**Quizzes:** You are expected to complete 14 quizzes in this class. The quizzes are primarily based on lecture slides. These quizzes contain multiple choice and short answer questions. You are allowed to take the quiz once, so prepare well before taking the quiz.

### **Summative Assignments**

#### **Lab Reports**

Labs will be integrated with the lectures. You will be expected to complete 12 labs. Based on data you must make a lab report and submit it in proper Dropbox in D2L.

## Tests

We will cover chapters 1-31 of the required textbook. Some topics will be emphasized more than others. Chapters 1-31 will be distributed among three units as follows:

- Unit I: Chapters 1-9: **Test 1**
- Unit II: Chapters 11-17, 19, and 20: **Test 2**
- Unit III: Chapters 22-31: **Test 3**
- **Final exam: All chapters**

Every test is worth approximately 10% of your total grade. The final examination is the comprehensive test, and it covers all chapters. The final will have weightage 15% of your total grade. The questions on these tests will be like the ones assigned for quizzes. You cannot retake tests.

## **Grading Policy and Feedback**

There are several gradable elements in this course. So be sure to follow the associated rubrics. You will have multiple times throughout the semester to receive feedback from the instructor to improve your work and you should strive to reflect and improve your learning when given these opportunities.

## **Rubrics**

This class uses rubrics. A rubric is a scoring guide for assignments that details criteria for earning points. Check the rubrics of each assignment before submitting assignments.

## **Grading Scale**

<b>Letter Grade</b>	<b>Percentage Range</b>
A	90-100
B	80-<90
C	70-<80
D	60-<70
F	<59
FA	never withdrew
FN	never attended

According to NSCC policy, an FA is awarded to students who do not officially withdraw from a course and do not attend after the cut-off date provided in the academic calendar. 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).” Students who stop attending on or before this date receive an FA; students who stop attending after this date receive an F. An FN is awarded to students who never attended class.

For online courses, attendance is defined by the submission of assignments. Students who fail a course and whose last assignment is submitted on or before the FA date will earn an FA for the course. Students who fail a course and whose last assignment is submitted after the FA date will earn an F for the course. An FN is assigned to students who do not submit any assignments.

Students with an F average whose last date of attendance is before **03/24/2023** will receive an FA; students with an F average, whose last day of attendance is on or after **03/24/2023** will receive an F.

**FN: An FN is awarded to students who have never attended class.**

**W** - The last day to withdraw from the course with a W is **03/24/2023**.

### **Nashville State Community College Resources**

You do not have to tackle the challenges of higher education alone! There are many resources available to Nashville State's online students, from tutoring to counseling to address academic honesty. You are encouraged to utilize the available student and academic support services throughout the semester as needed. This information will also help students access D2L support and technology resources including minimal expectations of learner technology skills, links to software applications, and technology requirements for D2L compatibility and services offered to students at Nashville State.

### **Technology Support**

The [NSCC Help Desk](#) assists students and employees with campus systems as well as helps with student personal equipment used for coursework. Help Desk Technicians offer remote troubleshooting assistance via phone, email, and remote desktop. Email support is strongly encouraged by contacting [helpdesk@nsc.edu](mailto:helpdesk@nsc.edu).

### **Technology Statement**

- All classes at the NSCC are web-enhanced.
- It will be essential for students to have access to a computer and an internet connection to complete assignments, engage in online discussions, and access various course materials and technologies through D2L/NS Online course shells.
- Students may also be required to use free video conferencing platforms (ex: Zoom, Teams) for classes and meetings.
- Students will be responsible for appropriate dress while on video, to ensure a distraction-free environment (mute sound as needed), and to ensure their background is neutral for others to view.
- If you have questions or concerns regarding access to a computer or internet resources, please review [Nashville State's Laptop Loaner Program and Internet Access](#) information or contact your instructor.
- Certain publisher materials or supported technologies may not work on cellphones, mobile devices, or Chromebooks.

## Minimum Technology Requirements

Students taking courses that utilize online learning will be required to access a reliable computer and high-speed internet. You should have or will acquire the following technology skills throughout this course:

1. Downloading and installing software applications.
2. Using Microsoft Office 365 (or similar alternative software) to draft and save in multiple file formats.
3. Copying and pasting between documents and D2L. To **select all** press and hold Ctrl (the control key) on the keyboard and then press the A on the keyboard. To **copy**, press and hold Ctrl and then press the C on the keyboard. To **paste**, press and hold down Ctrl and then press V.
4. Communicate effectively using a webcam and microphone in synchronous interactions using supported video conferencing tools (Zoom or Microsoft Teams) to participate in video conferencing sessions, view recordings, or create recordings (if applicable).
5. Using D2L to upload files, post to discussion boards, complete tests, and submit files and assignment entries (where applicable).
6. Using NSCC email accounts to communicate with your instructors.

You should also have access to the following software and hardware:

- Computer or Laptop; Chromebooks or mobile devices may not be sufficient.
- High-Speed Internet
- **Internet Browsers:** [Google Chrome](#) and [Firefox](#) are the recommended browsers to use with NS Online D2L.
- [Install Office 365](#) (free)
- **Mandatory Accessory:** Webcam (built-in or external),
- Recommended Accessory: Noise-cancelling headphones/microphone (external, not one built into your computer)
- Student Wi-Fi Zones
  - [White Bridge Campus](#)
  - [Southeast Campus](#)
  - [Clarksville Campus](#)
  - [Humphreys County Campus](#)

## NS Online/ D2L

It is the students' responsibility to check D2L/NS Online course shells for all enrolled courses and myNSCC, including student email, regularly. These are the official communication channels between the college and students, who are responsible for the information communicated through those channels. D2L/NS Online contains specific course information and myNSCC contains information important for other purposes.

To register or access Nashville State online courses, go to [NS Online](#). NSCC web courses have a "W" section number. Any course ending with section number R50 is a TN eCampus course.

## Student Email

Find student email within Office 365. Use your student email address as the login ID and your myNSCC password. Download the Microsoft Office suite once you are logged in by clicking the “Office 365” download link on the upper left.

## Computer Lab Access

Computers are available for student use at each campus during campus open hours. Open computer lab availability may vary from campus to campus. Students should check NSCC website for current hours of operation.

- **White Bridge Campus** [WBR Library Computer Sign Up](#)
- **Southeast Campus** Call 615-916-5865 or email [John.Cherry@nsc.edu](mailto:John.Cherry@nsc.edu) for an appointment.
- **Clarksville Campus** Call 931-472-3556 or email [Reginald.Mclain@nsc.edu](mailto:Reginald.Mclain@nsc.edu) for an appointment.
- **Dickson Campus** Call 615-740-5998 or email [DicksonCampus@nsc.edu](mailto:DicksonCampus@nsc.edu).
- **Humphreys County Campus** Call 931-296-1739 ext. 311 or email [Bryan.Trout@nsc.edu](mailto:Bryan.Trout@nsc.edu).

## NSCC Support Services

Listed below are Nashville State support services and policies. These support services are listed for your benefit should you feel the need to use them. These services or policies may change or be updated periodically. The instructor reserves the right to change or adapt materials within the course as needed.

### John E. Mayfield Library

- [Mayfield Library](#)
- [Library Services](#)

## Equity Statement

Nashville State Community College has a relentless commitment to the transformation of our institution through the intentional design of college experiences that expect and promote excellence from students, faculty, staff, and administration. We consider equity to be an obligation of higher education. We strive to ensure that each student receives what that student needs to be successful, with goals of success beyond the classroom. We do this through an evidence-based and collaborative effort, understanding that our student population has diverse needs that must be addressed. We recognize that this effort may not always be comfortable and that partnering with students is the driving force to overcome barriers to success.

## Academic Freedom

“Teachers are entitled to freedom in the classroom in discussing their subject, but they should be careful not to introduce into their teaching controversial matters which have no relation to the subject.” The preceding comes from the [American Association of University Professors’ statement on academic freedom](#). Though the entire statement speaks to many issues, it is this portion on the conduct of the course that is most relevant. This means that faculty members

have the right to conduct their classes in a fashion they deem appropriate as long as the material presented meets the learning objectives laid out by the entire faculty.

### **ADA Compliance Statement**

Nashville State complies with the Americans with Disabilities Act (ADA). Nashville State complies with the Americans with Disabilities Act (ADA) and so provides accommodations for students with a documented physical, emotional, and/or learning condition. 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](mailto:accesscenter@nsc.edu). If you are registered with the [Access Center](#) and require an alternate format for the textbook and other course materials, please contact the Access Center.

### **Academic Misconduct**

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. Students are responsible for understanding and abiding by the [Academic Misconduct Policy](#) in the Nashville State Student Code of Conduct. In addition to other possible disciplinary measures that may be applied through regular college procedures as a result of academic dishonesty, the instructor has the authority to assign an “F” or a “zero” for the exercise, paper, or examination, or to assign an “F” for the course. Students may appeal through the appropriate college grade appeal procedures.

### **Classroom Misconduct**

Nashville State Community College has a zero-tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary measures. 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.

### **Sexual Misconduct Policies**

It is the policy of Nashville State Community College, in order to maintain an environment in which the dignity and worth of all members of the institutional system are respected, that sexual harassment of employees or students is prohibited. Such conduct is a form of behavior, which seriously undermines the atmosphere of trust essential to the academic environment. This policy is consistent with federal and state laws prohibiting sex discrimination. It is also a policy of the University that willful false accusations of sexual harassment shall not be condoned. Review [NSCC’s Sexual Misconduct Policies](#).

### **Copyright**

Nashville State Community College urges everyone in its community to abide by the computer acceptable use policy and comply with copyright law. Copying or sharing music or other copyrighted material, including software, without a permissible copyright defense, such as Fair Use, or a valid license, is not only a violation of the colleges and the Tennessee Board of Regent’s policies, but also illegal. It may have dire personal consequences and jeopardize the individual’s continued enrollment or continued employment, as well as future job prospects.

[Acceptable Use Policy](#) (PDF)

### **Student Support Services**

[Student Support Services](#) include resources you may need through the NSCC Foundation and include Campus Cupboard, Child Care Assistance, Textbook Assistance, Transportation Assistance, Community Support Services by County, Mental Health Resources, Health Insurance, Financial Empowerment Center, Support from Monroe Harding, and Homeless Student Liaison.

At the [Student Success Center](#), we'll connect you to resources and opportunities to maximize your success at Nashville State. At the center you will find our Student Success Advisors, Financial Empowerment Counselors, and Student Resource Managers.

### **Student Wellness**

The general well-being of students is an important component of their academic success. Nashville State Community College has several resources available to provide support when needed:

- [Tutoring options and appointments](#)
- [Academic and student resources](#) for school
- [Support services](#)

### **Student Online Resources**

- [NS Online D2L Tech Support](#)
- [Learning Center and Tutoring](#)
- [Student Resources for NS Online and Zoom](#)
- [Zoom Basics Tutorial](#)
- [Accessing myNSCC Email and Office 365](#)
- [Free Microsoft Office 365 Applications for Students](#)
- [How to Read Your Schedule](#)
- [myNSCC Quick Start](#)
- [Get Started with NS Online](#)
- [How to Purchase Textbooks](#)
  - Contact the Bookstore at [bookstore@nsc.edu](mailto:bookstore@nsc.edu)
- [Learning Center/ Tutoring](#)

### **ON-CAMPUS RESOURCES**

Find what you need on-campus with these [Nashville State resources](#) for students and faculty. Search for jobs at the Career Services Office, find that umbrella at the NSCC Lost and Found, or buy textbooks at the bookstore.

## Financial Aid and Attendance

The College is not an attendance-taking institution as defined by [34 CFR 668.22\(b\)\(1\)](#) in the Code of Federal Regulations; however, students are expected to attend all scheduled classes and laboratories.

- Absences in a course may affect a student's final grade.
- Tardiness may also affect a student's final grade.
- Students are responsible for all work/tests that occur during any missed class session(s) regardless of reason(s) for absence.
- Students who are sick or not well enough to attend class must notify the instructor as soon as possible before the scheduled class time, unless incapacitated or unable to do so. In that case, students must contact the instructor as soon as reasonably possible.
- If a student has an unavoidable conflict with a scheduled class session, students must notify the instructor, preferably before the class session, or as soon as possible.

For purposes of financial aid continued attendance is determined via engagement in the course. This can be accomplished in several ways including, but not limited to, continued attendance and/or participation in on-ground class sessions, participating in D2L as prompted (e.g., responding to an instructor's email, posting to a discussion board), and/or completing and submitting assignments.

## Academic Early Alert System

Nashville State Community College uses an Early Alert System to let students know of a faculty member's concern in one or more of these academic areas: lack of attendance, lack of classroom participation, late or missing assignments, and/or poor performance on assignments/tests. \*Please note that Early Alerts do not affect a student's academic standing. If you receive an Early Alert email, please see your instructor and your academic advisor as soon as possible.

## Inclement Weather, Campus Closings, and RAVE

Emergency events can happen at any time, and Nashville State Community College wants to notify students if and when they occur. For this reason, all students have been enrolled in the free [RAVE alert system](#). Nashville State will use the RAVE alert system to send a text message to students, staff, and faculty about adjusted hours of operation and/or closings at individual campuses. All students should check [the Nashville State website home page](#) at [www.nsc.edu](http://www.nsc.edu) for announcements on campus closures, which may vary from campus to campus. Campus closures will also be announced on local television stations. Students should use their own best judgment in determining whether to report to campus during inclement weather when classes are not canceled.

Your RAVE Username is your NSCC email address. If you have 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.

Even when campuses are closed, students are still responsible for completing all assigned work. When classes are canceled, faculty will post online assignments and any additional instructions in the D2L/NS Online course shell. Check D2L/NS Online for a message from your instructor regarding your online assignment requirements. Faculty have discretion over adjusting deadlines or due dates for assignments, but students are responsible for completing all assigned work by the due date established by the instructor.