	<b>PHYS101N Physical Science I Section ZZ</b>	<b>Fall 2022</b>
<b>Department</b>	Mathematics and Science	
<b>Instructor</b>	Bob Bragdon	
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<b>Telephone Number</b>	(603) 578-8941	
<b>Office Hours</b>	Tuesday and Thursdays from 2-4	
<b>Office Location</b>	Room 90	
<b>Class Days/Meeting Time</b>	Online	
<b>Class Location</b>	Online	

### Rationale:

Physics encompasses the study of matter and energy throughout the universe from the largest galaxies to the smallest subatomic particles. Moreover, it's the basis of many other sciences, including chemistry, oceanography, seismology, and astronomy (and can be applied to biology or medical science).

### Course Description:

This course studies the impact of physics on everyday life. Topics include motion, gravity, heat, electricity and magnetism, waves, sound, light and the physics of the atom. Conceptual understanding is emphasized over mathematical manipulation.

### Course Competencies:

At the successful completion of these courses the student should be able to:

1. Begin to see the relevance and importance of physics to everyday experiences.
2. Demonstrate the ability to analyze simple physical situations by identifying the key scientific concepts involved.
3. Plot and interpret simple graphs of physical situations.
4. Demonstrate an understanding of direct and inverse relations between physical properties.
5. Read and understand appropriate scientific articles that appear in newspapers and popular journals such as Scientific American.

6. Demonstrate lab techniques based on the scientific method.
7. Demonstrate the ability to communicate both qualitative and quantitative information, orally and written.

### Essential Questions:

How does physics serve to improve our understanding of physical systems?

How do the principles of physics effect your daily life?

Describe something in nature that has become more compelling because of an understanding of physics principles

Is it possible to describe the whole natural world (chemical and biological) with a small number of physical principles? If so, how?

### Required Materials:

**Textbook(s)** Hewitt; Conceptual Physical Science (with Modified Mastering Physics Access); 6th Edition; Pearson; ISBN 9780134465463 (Hardcover) OR 9780134091976 (E-text).

All homework will be completed online using Mastering Physics. You will need the access code from the textbook (or be prepared to purchase access if you bought a used textbook that didn't come with a code). To register and start using Mastering Physics click on the "MyLab and Mastering" Link in the Course Navigation panel on the left hand side of the Canvas screen.

Click on this link to access the NCC bookstore's website  
<https://www.bkstr.com/nashuaccstore/home>

### Technology

In order to be successful at NCC, all students need a laptop or personal computer (PC) as well as reliable internet access. It is recommended that students purchase a laptop for in-class use. Specifications can be found by clicking on the link below. If you do not have Internet access or the right kind of computer equipment (e.g., laptop, webcam, etc.) you may be eligible for the college's technology lending program, which is a first come first served program. Click on this link for more information  
<https://www.nashuacc.edu/technology>

Laptops that meet NCC technology specifications are available for purchase at the NCC bookstore. Financial aid may be used for purchases

made at the bookstore. Contact the bookstore for more information  
<https://www.bkstr.com/nashuaccstore/home>

## **Supplemental Materials:**

Scientific Calculator

## **Course Expectations: Overview of Course Structure**

Weekly modules will be posted in the content and assignments area on Thursday evening, with all work required for each module to be completed by midnight the following Thursday.

Each module will represent one chapter of the text, and will generally have the following:

- a) Required Reading
- b) Homework Assignments on Mastering Physics
- c) Lab assignments using physics simulations found on the PhET website
- d) A discussion board question pertaining to the chapters

In addition, there are 3 exams that will be given. The first is after the Mechanics section (covering chapters 1-5), the second after the Electricity and Magnetism section (covering chapters 6-9), and the third at the end of the course (covering chapters 10-13). The exams are given on Mastering Physics. Once you start a given exam, you will have three hours to complete it, and it may not be restarted.

### **Course Expectations:**

Discussion board responses must be done during the assigned week. There will be no credit given for late responses.

Homework and lab assignments that are late will be penalized by 5% per day they are late, up to a maximum deduction of 50%.

The exams must be done during the assigned week (unless there are exceptional circumstances), and once started must be completed in 3 hours.

### **Online Course Participation:**

“Attendance” in an online course is indicated through academic engagement, including but not limited to:

- Submitting an academic assignment
- Taking an exam
- Participating in an interactive tutorial or computer-assisted instruction
- Attending a study group that was assigned by the institution
- Contributing to an academic online discussion (e.g. posting and responding to Discussion Board)
- Initiating contact with the faculty member to ask a question about the academic subject studied in the course.

Lack of participation in an online course will count as missed class time per the college's AF policy.

## Instructor's Communication Policy

**Email Response Time:** Response within 24 hours during the week and within 48 hours on the weekend

**Assignment/Homework Response Time:** All homework and assignments will be graded within one week of submission

## Grading:

Assignment	Weight
Discussion Board Postings	15%
Mastering Physics	20%
Simulations (Labs)	20%
Exams	45% (3 at 15% each)
<b>Total</b>	<b>100%</b>

**Grades will be assigned according to the following department scale:**

### Department Grading Scale:

> 93	A	73-76	C
90-92	A-	70-72	C-
87-89	B+	67-69	D+
83-86	B	63-66	D
80-82	B-	60-62	D-
77-79	C+	< 60	F

## **Diversity, Equity, and Inclusion Statement:**

We are all responsible for creating a diverse, equitable, inclusive, and just environment. Thus, we must treat individuals with respect by valuing all types of diversity. This is fundamental in creating a welcoming and inclusive learning environment. Diversity may include multiple ways of identifying ourselves, including, but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. These diverse identities, among many others not mentioned, influence the perspectives our students, faculty, and staff bring to the NCC community. Through use of various approaches that enhance intellectually rich, respectful, safe, and inclusive learning environments, this dynamic process will demonstrate our sustained commitment at NCC. It is our core belief that diversity, equity, and inclusion promote excellence, collaboration, and innovation while also seeking justice.

## **Available Support Services**

**NCC Library:** Get help with research for your papers and assignments from the NCC librarian and staff. Email [ncclibrary@ccsnh.edu](mailto:ncclibrary@ccsnh.edu)

**Tutoring and Writing Center:** The Tutoring and Writing Center, located in the library, offers free academic support services to all NCC students. Meet in-person or via Zoom with experts who can tutor you in math or accounting or help you with writing for any course. Tutoring is drop-in or by appointment. View the current tutoring schedule at <https://library.nashuacc.edu/home/tutoring>

Online chat tutoring is also available 24/7 with *Smarthinking*. Find a link on the left navigation menu inside Canvas courses.

**Disability & Accessibility** (*Reasonable Accommodation Plan*): Students who think they may have or have a documented disability (*physical, learning, or mental health*) and/or had an IEP or 504 Plan in high school who may need classroom accommodations must meet with the Disability Services Coordinator to set up an NCC Reasonable Accommodation Plan (RAP). For more information view the Disability & Accessibility page: <https://www.nashuacc.edu/student-services/disability-accessibility-information> and/or contact Jodi Quinn, Disability Services Coordinator (office located in the library), at [jquinn@ccnsh.edu](mailto:jquinn@ccnsh.edu) or (603) 578-8996.

In order to receive reasonable accommodations, it is the student's responsibility to email the current semester's RAP to each instructor and as needed meet with instructors to discuss the Plan. Each term the student wants to utilize accommodations, the RAP must be renewed and the student provides the current term Plan to instructors even if provided a Plan to an instructor for a previous term course.

**Audio Record Classroom Lecture:** Please note that as a student in this class, you may have a classmate who by permission can audio record class lectures for his/her learning purposes. **Only students with prior written permission** from the instructor or the Disability Services Coordinator may audio record class lectures - *for educational purposes only*. Students who audio record class lectures are prohibited from selling, transcribing, or distributing the recordings in *any manner* and are asked to delete the recordings when it is no longer essential for their learning purposes.

Instructors may record their own class lectures, activities, and discussions using electronic video, still photo, or audio recording for educational purposes, including academic research, professional development, and recording of course content for access through online learning and other formats. Every student present will be informed by the instructor of any recording at the beginning of class.

### **CARE Team**

If you need information or a referral to local resources in the areas of Mental Health or basic support services (such as food, clothing, shelter, substance abuse or others including domestic and sexual violence), you can email the NCC CARE team ([NCCCares@ccsnh.edu](mailto:NCCCares@ccsnh.edu)) and we will assist you in connecting to community resources. <https://nashuacc.edu/student-services/care-team>

**Student Assistance Program:** The Community College System of NH (CCSNH), which includes NCC, offers a Student Assistance Program (SAP) provided by Kepro to provide students with access to free confidential Student Counseling Services (SCS) by licensed mental health professionals in the local area and other supports 24 hours a day, 7 days a week, 365 days a year. Kepro's services are confidential. <https://nashuacc.edu/student-services/student-assistance-program>

## **Department Policies**

### **College Policies**

**Non-Discrimination:** The NCC Equity Committee is designated to coordinate compliance with the Non-Discrimination Policy and handles all concerns of discrimination that occur on campus that are not covered under Title IX. View more information here [Non-Discrimination Policy and Grievance Procedure](#)

**Title IX:** Classroom instructors at Nashua Community College are encouraged to create and maintain a safe learning environment in which students feel able to share opinions and related life experiences in classroom discussions, in written work, and in meetings with professors. To the greatest extent possible, this information will be kept private. However, staff and faculty have a legal obligation to report information concerning sexual misconduct, violence and exploitation of individuals per federal statute and in compliance with established policies and procedures at Nashua Community College. If you have been subjected to sexual misconduct, violence or exploitation, we encourage you to contact your Title IX Coordinator, Vice President Lizbeth Gonzalez, for support and assistance. She can be reached at Nashua Community College, 505 Amherst Street, Nashua, NH, 603-578-8928 or [lgonzalez@ccsnh.edu](mailto:lgonzalez@ccsnh.edu). View more information here [Title IX Policy and Grievance Procedure](#)

**Attendance:** Regular attendance and active participation are essential for academic success. Every student should carefully review the department and college attendance requirements posted in the Department and College Policies Sections of this syllabus.

If a student must be absent from class, the student should contact his/her professor and follow the professor's make up policy listed in the syllabus under Course Expectations. In an online or hybrid class, measures of attendance and active participation include contributing to discussion board, submitting an assignment, taking a test or quiz on Canvas, etc. Logging into Canvas does not count as class attendance or participation. (For a complete definition of active participation, see regular and substantive interaction statement in student handbook.)

Rarely, a student may experience a serious situation that prevents that student from attending class for an extended period. This could be for reasons such as illness/hospitalization, loss of childcare, or lack of transportation. In these situations, the student should notify his/her professor as soon as possible and contact the advising center for assistance [NCCAcademicAdvisingCenter@ccsnh.edu](mailto:NCCAcademicAdvisingCenter@ccsnh.edu).

**AF Policy: In all cases**, faculty **will** issue an AF grade if a student has 1) missed more than two consecutive weeks of class and 2) failed to communicate with the instructor by responding to EAB attendance alerts and other outreach.

**Students should also refer to department attendance policy under the Department Policies section of the syllabus.**

In addition, an instructor or administrator may issue an AF grade if a student's behavior violates the Student Code of Conduct and disrupts classroom instruction.

Please be advised that if the behavior of any student (or students) disrupts the learning of his/her classmates, the following steps will be taken by the instructor 1) verbal warning; 2) meeting with instructor and department chair; 3) filing of


written complaint and referral to Vice President of Academic Affairs for possible removal from the course with AF grade.

An AF grade may also be issued if a student registered in a clinic, practicum, internship, or lab is deemed unsafe or performing in an unsatisfactory manner as determined by an evaluation by a faculty member/agency supervisor in accordance with department criteria and procedure.

An "AF" grade is calculated in the GPA as an "F". Students should refer to the student handbook for additional information about the AF policy.

**Canvas:** Canvas is the online learning management system used by instructors and learners at Nashua Community College. Instructors will post syllabi, course related documents and grades in Canvas. Students may be required to submit assignments and/or take assessments through Canvas and/or participate in discussion boards. **If class is ever cancelled because of instructor illness or inclement weather, students will need to check Canvas for their assignment.**

**24/7 Canvas Support:** To access support through email, phone or chat

click on the  icon. Students can also find guides, videos, and a Canvas community by clicking on the *CCSNH Resources* icon on the tool bar at the left of the Canvas screen then choosing Canvas Resources.

If you have forgotten your Easy Login Password information, please visit the following link: <https://password.ccsnh.edu/accounts/Reset>

EAB Alerts Faculty can issue "Alerts" for students at any time. The administration at NCC encourages professors to issue alerts for any student who may be having difficulty in the course. When a faculty member raises an alert, both the student and student's advisor receive an automated email based on the alert raised. Faculty can issue an alert through EAB Navigate on the college website or directly using the following link: <https://nashuacc.campus.eab.com>

**College Email System:** Nashua Community College has established a College email system as a means of the College sending official information to enrolled students, and for students to send communication to their instructors and College personnel. All students registered at NCC will be assigned a College email account/address to be used as the only email address for all email communication: 1) sent to the students from their instructors and from all College personnel; and, 2) sent by the students to their instructors and to all College personnel.

In addition:

- Students should check their College email account regularly to ensure they are staying current with all official communications. Official communication includes, but is not limited to, policy announcements,



- registration and billing information, schedule changes, emergency notifications and other critical and time sensitive information.
- Students should also check their college email account to be sure that they are current with all email communication from their faculty.
  - The student email account/address should be the only e-mail address students use to send email to faculty and College personnel so that student email is recognized and opened.
  - This service is provided exclusively to the students of NCC. Accounts are for individual use only, and are not transferable or to be used by any other individual.
  - Students using their College email account do so under the policies set forth in the Student Handbook under "Student Computer Conduct Code".

**Sensitive Materials Policy:** During the semester, in order to cover certain academic topics, there may be occasions to view or discuss material which may not meet the student's own personal definition of appropriateness. At such times, every student has the right to decide not to participate. Every effort will be made by the instructor to notify students in advance of when such sensitive material will be used so that students can make alternative arrangements. Faculty will guide students in the identification of alternate learning opportunities consistent with relevant course objectives so that students opting out of scheduled "sensitive" learning experiences will not be penalized academically in any way. Please note the opportunity to leave the classroom discretely is always available to each student when such sensitive material is being discussed. The student then has the responsibility before the next class meeting to inform the instructor as to the reason for leaving.

### **Academic Conduct**

All students are expected maintain high standards of academic integrity as they complete their coursework at NCC. Cheating and plagiarism are violations of the Student Code of Conduct and all instances of academic dishonesty are taken very seriously by the College.

**Cheating:** Cheating includes, but is not limited to: (1) use of any unauthorized assistance from other persons or technologies in taking quizzes, tests, or examinations or in the preparation and completion of class assignments; (2) dependence upon the aid of resources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) the acquisition, without permission, of tests or other academic material belonging to a member of college faculty, staff, or students; or (4) knowingly providing unauthorized assistance of any kind to another for the purpose of providing unfair advantage to the recipient in the completion of course assessments/assignments (sometimes known as facilitation).

When a student is found to have cheated on an academic assignment, it will be up to each instructor to determine the grading penalty. Depending on the

severity of the incident, this could range from a warning to a loss of credit for the course. **In all cases of cheating, the instructor will notify the student's advisor and the advisor will document the incident on EAB using advisor notes.**

If any further incidents of cheating are reported to the student's advisor, the advisor or VPAA will file a complaint with the appropriate college Judicial Body. Additional sanctions may be imposed.

**Plagiarism:** Plagiarism is a serious violation of a student's academic integrity and the trust between a student and his or her teachers. Plagiarism is the act of a person presenting another person's work as if it were his or her own original work. Such acts of plagiarism include, but are not limited to:

1. A student submitting as his or her own work an entire essay or other assignment written by another person.
2. A student submitting as his or her own creation the artwork (including but not limited to a painting, drawing, photograph, object, digital representation) of another person.
3. A student taking word for word a section or sections of another person's work without proper acknowledgment of the source and quotation.
4. A student using statistics or other such facts or insights as if these were the result of the student's efforts and thus lacking proper acknowledgment of the original source.
5. The paraphrasing of another person's unique work with no acknowledgment of the original source.
6. Copying another student's work on a quiz or test.

Some instructors may consider self-plagiarism to be a form of plagiarism. Self-plagiarism includes **submitting the same paper** in response to two **different** assignments. Please consult with your instructor and carefully review instructor expectations posted on your syllabus if you have any questions.

When a student is found to have plagiarized an academic assignment, it will be up to each instructor to determine the grading penalty. **Depending on the severity of the incident**, this could range from a warning to a loss of credit for the course. **In all cases of plagiarism, the instructor will notify the student's advisor by posting an alert on EAB Navigate. The advisor will then document the incident on EAB using advisor notes.** If any further incidents of plagiarism are reported to the student's advisor, the advisor or VPAA will file a complaint with the appropriate college Judicial Body. Additional sanctions may be imposed. For other examples of Academic Misconduct and a full description of the Student Disciplinary Process, please refer to the NCC Student Handbook

### Credit Hour Guidelines

1. A credit hour shall be the equivalent of one (1) hour of classroom or direct faculty instruction and a minimum of two (2) hours of out-of-class student work each week for 15 or 16 weeks.
2. A credit hour shall be allocated based on the following:

Category	Contact Hours per Week	Contact Hours per Sem. (based on minimum 15 week semester)
Class	1	15
Laboratory	2 or 3	30-45
Clinical	3 to 5	45-75
Practicum, Fieldwork	3	45
Internship	3 to 6	45-90
Co-op	Variable by Dept.	Variable by Dept.

## Course Calendar

### PHYS101N-ZZ/Fall 2022

<b>Content Topic</b>	<b>Subtopics ( a., b., etc.)</b>	<b>Competencies</b>
I. Mechanics Chapters 1-5 Weeks 1-6	A. Motion B. Newton's Laws C. Energy D. Momentum E. Gravity F. Fluids	1, 2, 3, 4, 5, 6
II. Thermodynamics Chapters 6 + 7 Weeks 7 & 8	A. Temperature B. Thermal Expansion C. Heat Capacity D. Heat Transfer E. Laws of Thermodynamics	1, 2, 4, 5, 6
III. Electricity and Magnetism Chapters 8 + 9 Weeks 9 & 10	A. Electric Forces and Charge B. Electric Potential C. Current D. Magnetic Forces E. Ampere's Law F. Faraday's Law	1, 2, 3, 4, 5, 6
IV. Waves and Sound Chapter 10 Weeks 11 & 12	A. Vibrations and Waves B. Sound Waves C. Reflection and Refraction of Sound D. Superposition of Wave E. Resonance and Standing Waves F. Diffraction G. Doppler Effect	1, 2, 4, 5, 6
V. Light Chapter 11 Week 13	A. Electromagnetic Spectrum B. Reflection and Refraction of Light C. Interference and Diffraction of Light D. Color E. Wave-Particle Duality	1, 2, 4, 5, 6

<b>Content Topic</b>	<b>Subtopics ( a., b., etc.)</b>	<b>Competencies</b>
VI. The Atom Chapters 12 + 13 Weeks 14 & 15	A. Electrons, Protons and Neutrons B. Bohr's Model C. Quantum Mechanics D. The Periodic Table of the Elements E. The Nucleus F. Radioactivity G. Fission and Fusion	1, 2, 4, 5, 6

**This schedule is subject to change**