Physics 1402Q Section 002 -- General Physics with Calculus II
Fall 2025

Instructor: **A.T. Le, Ph.D.**
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Office hours: Wednesday: 12:30 pm - 1:30 pm, or by appointment
Lecture: **Monday & Wednesday, 10:10 am - 12:05 pm; Room: GP 113**
Lab: **Friday 10:10 am - 12:05 pm; Room: GP 110**

I hope you all do well in this course. Feel free to contact me with any questions or concerns about lectures, quizzes, homework problems, or exams. As long as you work hard to succeed in solving the problems that we will cover, I'm sure we will have a successful class this semester.

Course Assistants (Please find out their Office Hours in HuskyCT):
Shane Brown, shane.brown@uconn.edu
Max Meynig, max.meynig@uconn.edu

Lab Manager: **Dr. Diego Valente**: diego.valente@uconn.edu

Course Description
Quantitative study of the basic facts and principles of physics with an emphasis on electromagnetic phenomena, including electromagnetic radiation and waves and electric circuits. The laboratory offers fundamental training in physical measurements. Recommended for non-engineering students who desire to have a calculus-based physics sequence. It is also recommended for science majors for whom a one year introductory physics course is adequate. CA 3-LAB.

General Course Information
Announcements, syllabus, lecture notes, grades, exam schedules, and other relevant course information will be posted on HuskyCT, found at https://lms.uconn.edu which should be visited on a regular basis. This course is taught in the studio-physics format in specially designed lecture rooms to enhanced active learning during lectures, tutorials and lab sessions.

Required Materials
All the required materials could be purchased at UConn Bookstore.

- **The Expert TA Access** (It can be purchased directly from its website: https://theexpertta.com/. Please see details for registration below.)
- **Calculator**
- **i>Clicker Reef** (Please see details for registration below.)
- **Lab manual**
- **Access to UConn OneDrive:** Your NetID and password are needed

Suggestive Textbooks

No textbook is required for this course. However, it is highly recommended to have at least one of the following textbooks as the learning reference. The lecture's content is based on the first textbook on the following list:

- Hugh D. Young and Roger A. Freedman, ***University Physics with Modern Physics***, 14th edition but any edition should be a good reference
- A free alternative has been published as part of an opensource initiative. This text is part of the OpenStax project, and can be accessed online and downloaded free of charge at:
  https://openstax.org/details/books/university-physics-volume-2
  (Electricity and Magnetism)
  https://openstax.org/details/books/university-physics-volume-3
  (Optics and Modern Physics)
- Paul A. Tipler and Gene Mosca, ***Physics for Scientists and Engineers***, any edition should do
- Raymond A. Serway and John W. Jewett, ***Physics for Scientists and Engineers***, any edition should do
- David Halliday, Robert Resnick, and Jearl Walker, ***Fundamentals of Physics Extended***, any edition should do

Online Homework: The Expert TA

- The Expert TA website is the online assignment platform where students finish and submit homework.
  The link you will need to register for the course on the Expert TA website is
  https://reg.theexpertta.com/USA08CT-D05A01-29K
  The UConn email address and NetID should be used for student registration (Your UConn NetID has three letters followed by five numerical digits).
- **Expert TA Terms of Service**: Expert TA problems are copyrighted. It is expressly forbidden in Expert TA's Terms of Service (TOS) for a student to post this copyrighted material. Violating the TOS can result in discontinuation of the student's Expert TA account.
- **Late Homework Submission Policy:**
  Late homework receives 15% credit deduction. Then the rate of credit decrease is 5% per day. The late submission policy has no exceptions.

iClicker

We will be using the iClicker Cloud classroom polling system in order to make our class time more engaging. This will help me understand what you know, give everyone a chance to participate, and increase how much you learn when we are in class together. This will also provide you with feedback on how well you are comprehending course concepts, help you master challenging concepts, and allow you to review material after class.

Please download the iClicker Reef app on your phone and log in using your UConn email address. If you do not have an active subscription, you will need to purchase one through the iClicker website (https://www.iclicker.com/) or the UConn Bookstore. Please note that you do not need to purchase a clicker remote, but you can use it for the in-person classes if you have one.

Please use this link to register and join the course: https://join.iclicker.com/HZNV
You can also scan this QR code to join the course:

iClicker activities fall under the provisions of our campus academic honesty policy. Students must not engage in academic dishonesty while participating in iClicker activities. This includes but is not limited to:

- Checking in while not physically in class
- Having another student check you into class
- Answering polling questions while not physically in class
- Looking at other students' devices while answering live questions

To account for excused absences or other reasons, grading will be based on a maximum of 75% of the maximum accumulated score.

Example 1: If the maximum number of available clicker points is 267, 75% of this is 200.3. Anyone with an accumulated score ≥ 200.3 will receive full credit for clickers. Example 2: A person with an accumulated score of 190 in the same course would receive (190/200.3) x 4 = 3.79 points in the final course grade.

The Tutorial

An important learning goal in physics classes regards problem solving and tailored worksheets we call "tutorials" present problems to provide you with an opportunity to practice with our excellent teaching staff supporting your learning efforts. It will follow immediately after the lecture. All students are expected to actively engage in physics during each session, working in small groups to complete group activities that may include discussing conceptual questions and solving problems. These activities will be completed twice a week.

To account for excused absences or other reasons, grading will be based on a maximum of 75% of the maximum accumulated score.

Labs

Satisfactory completion of the lab is required as part of your course grade. Attendance is required at all labs. **Students who miss more than two labs will receive an "F" for the lab portion of the course and will fail the entire course by departmental policy. Students must pass the lab component to pass the course.** Please see the policies and requirments for the labs in a separate lab syllabus.

Exams

There will be **two** in-person mid-term exams during the semester and a **final** exam at the end of the semester. ***The final exam is mandatory***.

You may bring one handwritten or typed (no photocopies) 8.5" x 11" page of notes (two sides) to the exams. It must be turned in with your exam papers and cannot contain solutions or hints to assignment or other problems.

Exams Dates:

Midterm Exam #1	**Friday, October 03**	**10:10am**	**GP 110 (Lab room)**
Midterm Exam #2	**Friday, November 07**	**10:10am**	**GP 110 (Lab room)**
Final Exam	Scheduled by Registrar		

The policies and procedures of rescheduling final exams

Students are required to be available for their final exam. If you have a conflict with the time, you must visit the Dean of Students Office to discuss the possibility of rescheduling this exam.

Please note that vacations, previously purchased tickets or reservations, social events, misreading the exam schedule and over-sleeping are not viable excuses for missing a final exam. If you think that your situation warrants permission to reschedule, please contact the Dean of Students Office with any questions. Thank you in advance for your cooperation.

Grading:

Lab:	25%
Homework:	15%
Tutorials	6%
Clickers	4%
Midterm I:	16%
Midterm II:	16%
Final exam:	18%
Total:	**100%**

Grading Scale:

Grade	Letter Grade	GPA
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0
60-62	D-	0.7
<60	F	0.0

Tentative Schedule (subject to change)

Week No.	Dates	Lecture/Tutorial/Lab Topics
1	08/25	Introduction and Vector Review
	08/27	Coulomb's Law
	08/29	**Lab#1: Electrostatic Activity**
2	**09/01**	**Labor Day: No Class**
	09/03	Electric Field I
	09/5	**Lab#2: Coulomb's Law**
3	09/8	Electric Field II
	09/10	Electric Flux & Gauss's Law
	09/12	**Lab#3: Gauss's Law**
4	09/15	Gauss's Law II
	09/17	Electric Potential-I
	09/19	**Lab#4: Electric Potential**
5	09/22	Electric Potential-II
	09/24	Capacitance
	09/26	**Lab #5: Capacitor**
6	09/29	Capacitors
	10/01	Electric Current I
	10/03	**Exam 1 (Lab room: GP 110)**
7	10/6	Electric Current II
	10/8	Direct-Current Circuits
	10/10	**Lab#6: DC Circuits I**
8	10/13	Kirchhoff's Laws
	10/15	RC Circuits
	10/17	**Lab#7: DC Circuits II**
9	10/20	Magnetic Force I
	10/22	Magnetic Force II
	10/24	**Lab #8 RC Circuits**
10	10/27	Magnetic Torque
	10/29	Source of Magnetic Field
	10/31	**Lab#9: Magnetic Fields**
11	11/03	Electromagnetic Induction
	11/05	Ray Optics
	11/07	**Exam 2 (Lab room: GP 110)**
12	11/10	Mirrors
	11/12	Lenses
	11/14	**Lab#10: Lenses and Mirrors**
13	11/17	Interference and Diffraction-I
	11/19	Interference and Diffraction-II
	11/21	**Lab#11: Diffraction**
	11/24	

14	**11/26**	**Thanksgiving Break**
	11/28	
15	12/01	EM Waves
	12/03	Any MISSED Topics, etc..
	12/05	**Lab Makeup: Tabletop Optics (Tentative)**

PLRC and Q-Center
The Physics Learning Resource Center (PLRC), http://physics.uconn.edu/learning-resource-center, located in **GS-216** Gant South Building, is a good resource for help with your physics questions. The Q-Center, http://qcenter.uconn.edu, located in the Homer Babbidge Library, is another good resource.

Minimum Technical Skills

To be successful in this course, students need the following technical skills:

- Use electronic mail with attachments.
- Save files in commonly used word processing program format.
- Copy and paste text, graphics, or hyperlinks.
- Work within two or more internet browser windows simultaneously.
- Open and access PDF files.

University students are expected to demonstrate competency in computer technology. Explore the Computer Technology Competencies page (http://geoc.uconn.edu/computer-technology-competency/) for more information.

Technical and Academic Help

- Technical and Academic Help (https://onlinestudent.uconn.edu/frequently-asked-questions/) provides a guide to technical and academic assistance.
- This course is completely facilitated online using the learning management platform, HuskyCT. If there is any difficulty accessing HuskyCT, students have access to the in person/live person support options available during regular business hours through the Help Center (http://helpcenter.uconn.edu/). There is also a 24 × 7 Course Support (http://www.ecampus24x7.uconn.edu/) including access to live chat, phone, and support documents.

Policy Against Discrimination, Harassment and Related Interpersonal Violence

The University is committed to maintaining an environment free of discrimination or discriminatory harassment directed toward any person or group within its community – students, employees, or visitors. Academic and professional excellence can flourish only when each member of our community is assured an atmosphere of mutual respect. All members of the University community are responsible for the maintenance of an academic and work environment in which people are free to learn and work without fear of discrimination or discriminatory harassment. In addition, inappropriate amorous relationships can undermine the

University's mission when those in positions of authority abuse or appear to abuse their authority. To that end, and in accordance with federal and state law, the University prohibits discrimination and discriminatory harassment, as well as inappropriate amorous relationships, and such behavior will be met with appropriate disciplinary action, up to and including dismissal from the University. Additionally, to protect the campus community, all non-confidential University employees (including faculty) are required to report sexual assaults, intimate partner violence, and/or stalking involving a student that they witness or are told about to the Office of Institutional Equity. The University takes all reports with the utmost seriousness. Please be aware that while the information you provide will remain private, it will not be confidential and will be shared with University officials who can help.

Academic Integrity Statement

This course expects all students to act in accordance with the Guidelines for Academic Integrity at the University of Connecticut. Because questions of intellectual property are important to the field of this course, we will discuss academic honesty as a topic and not just a policy. If you have questions about academic integrity or intellectual property, you should consult with your instructor. Additionally, consult UConn's guidelines for academic integrity: http://community.uconn.edu/the-student-code-appendix-a/

Students with Disabilities

The Center for Students with Disabilities (CSD) at UConn provides accommodations and services for qualified students with disabilities. If you have a documented disability for which you wish to request academic accommodations and have not contacted the CSD, please do so as soon as possible. The CSD is located in Wilbur Cross, Room 204 and can be reached at (860) 486-2020 or at csd@uconn.edu. Detailed information regarding the accommodations process is also available on their website at www.csd.uconn.edu

Appendix: Outline of the Five-step Problem Solving Strategy

This outline is borrowed from Heller, Keith and Anderson's work on teaching problem solving in introductory physics courses (Heller, *et al.,* 1991).

1. **Visualize the problem**

Translate the words of the problem statement into a visual representation:

- Draw a sketch (or series of sketches) of the situation;
- Identify the known and unknown quantities and constraints;
- Restate the question;
- Identify a general approach to the problem-what physics concepts and principles are appropriate to the situation.

2. **Describe the problem in physics terms (physics description)**

Translate the sketch(s) into a physical representation of the problem:

- Use identified principles to construct idealized diagram(s) with a coordinate system (*e.g.*, vector component diagrams) for each object at each time of interest;
- Symbolically specify the relevant known and unknown variables;
- Symbolically specify the target variable (e.g. find v_0 such that $h_{max} > 10$ m).

3. **Plan a solution**

Translate the physics description into a mathematical representation of the problem:

- Start with the identified physics concepts and principles in equation form (*e.g.*, $\bar{a}_x = \Delta v_x/\Delta t$, $\sum F_x = ma_x$);
- Apply the principles systematically to each object and type of interaction in the physics description (*e.g.*, $N_1 - W_1 \cos\theta = m_1 a_{1x}$ and $W_1 = m_1 g$);
- Add equations of constraint that specify the special conditions that restrict some aspect of the problem (*e.g.*, two objects have the same acceleration, $a_1 = a_2$);
- Work backward (from target variable) until you have determined that there is enough information to solve the problem (the same number of independent equations as unknowns);
- Specify the mathematical steps to solve the problem (*e.g.*, solve equation #2 for N_1, then substitute into equation #1, *etc*.).

4. Execute the plan

Translate the plan into a series of appropriate mathematical actions:

- Use the rules of algebra or calculus to obtain an expression with the desired unknown variable on one side of the equation and all the known variables on the other side;
- Substitute specific values into the expression to obtain an arithmetic solution.

5. Check and evaluate

Determine if the answer makes sense:

- Check-is the solution complete?
- Check-is the sign of the answer correct, and does it have the correct units?
- Evaluate-is the magnitude of the answer reasonable?