

# PHYSICS 300: *Modern Physics*

Spring 2024 [Schedule](#)

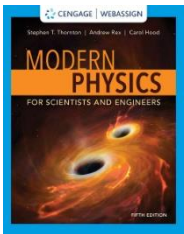
Canvas: [uwsp.edu/canvas](https://uwsp.edu/canvas)

<b>Instructor:</b>	Dr. Ken Menningen	<b>Office hours:</b>	<u>M</u>	<u>T</u>	<u>W</u>	<u>R</u>	<u>F</u>
<b>Office:</b>	B101 Science Building	12:00pm – 1:00pm	☺	☺	☺	☺	☺
<b>email:</b>	<a href="mailto:Ken.Menningen@uwsp.edu">Ken.Menningen@uwsp.edu</a>	1:00pm – 3:00pm	☺	☺			
		By appointment	☺	☺	☺	☺	☺

**Course Prerequisites:** PHYSICS 250

**Required text:** [Modern Physics for Scientists and Engineers](#), Thornton and Rex, 5<sup>th</sup> edition (available at Text Rental)

**Other required materials:** Scientific calculator (graphing capability is **not** necessary)



**Course Objectives:** *Modern Physics* is a continuation of the calculus-based course sequence designed for science majors. The principal objectives are:

- Explain the fundamental concepts of relativity, quantum, and nuclear physics
- Use graphs, algebra, and calculus to explain measurements and make predictions.
- Describe the usefulness and limitations of problem-solving methods for realistic examples

**Attendance:** Attendance is not required but it is a disadvantage to miss any lectures because the lectures, demonstrations, and in-class activities will greatly enhance your ability to understand the material. If you are ill, please contact me *before class* to make arrangements concerning any missed work.

**Grading policy:** The grade you earn will be based upon the five assignment types listed below. A grading scale is also given for your reference. Grades are not curved, encouraging you to work together, but I expect each student to hand in their own work. The lowest lab, homework and weekly in-class scores will be dropped at the end of the semester.

Grading Scale		Grade Breakdown	
<u>Letter</u>	<u>Score</u>	<u>Assignment</u>	<u>Weight</u>
A	90-100	Midterm exams	36%
B	75-89	Final exam	24%
C	60-74	Homework	35%
D	50-59	In-class work	5%
F	0-49		

**Responsibilities:** The grade you earn in this course will be a measure of how well you have learned the material. However, you will have learned the material in the context of a *community*, and that means you have a responsibility to make a positive contribution to that community, by both making an honest effort to participate in class activities and by refraining from activities that will interfere with your neighbor's ability to learn. You are expected to attend class regularly, participate respectfully and with integrity, and to remain on task during class periods. Likewise, you are expected to refrain from using any electronic device during class periods. Not only does text messaging and web browsing during class prevent you from listening and learning, it also distracts your neighbor and interferes with *their* learning. If a true emergency has arisen, please quietly excuse yourself from the room before attending to the matter. You are expected to refrain from talking at the same time as the instructor, eating or drinking noisily, using e-cigarettes, or any other behavior that might distract your fellow student and interfere with learning.

**Exams:** Midterm exams are scheduled to occur on **February 21, March 27, and April 24**. These dates may change but it's not likely. The comprehensive final exam is scheduled for **Wednesday, May 15 at 12:30 pm**. Late exams are not allowed, but in special cases you may take an exam early.

**Homework:** The **chapter assignments** are due at the beginning of class on the days indicated on the [course schedule](#). To avoid a zero for late homework you must warn me by phone or email *before they are due* and make special arrangements.

If you are too ill to complete the assignment, please see a doctor and obtain documentation. You should not believe that the homework problems are sufficient practice for the exam. Instead, I recommend that you work a few additional problems for each chapter from the textbook. The answers to odd problems are provided in the text and I have the solutions to even problems as well.

**In-class work:** During many lectures I will present formative assessments to help you gain understanding and confidence. These assignments do not have a large impact on your course grade. Regard them as a "safe" practice experiences.

### Tentative Course Schedule

Week	Chs.	Topics
1	2	Relativity I
2	2	Relativity II
3	2	Relativity III
4	3	Quantum physics I
5	3	Quantum physics II
6	3-4	Atomic physics I
7	4-5	Quantum physics III
8	5-6	Quantum physics IV
9	6	Quantum physics V
10	6	Quantum physics VI
11	7	Atomic physics II
12	7-8	Atomic physics III
13	10,13	Nuclear physics I
14	13-14	Nuclear physics II
15	14	Particle physics

[For a detailed course schedule with links to lecture content, see the [online course schedule](#)]

### Community Rights & Responsibilities:

Students with special needs should contact the [Disability Resource Center](#) during the first two weeks of the semester in order to request accommodation. An [Exam Accommodation Request Form](#) is available online. Religious beliefs will be accommodated according to UWS 22.03 as long as the student notifies the instructor about the conflict within the first three weeks of class. Students are expected to maintain the highest standards of academic integrity for their work in this course. The University of Wisconsin-Stevens Point dedicated to a safe, supportive and non-discriminatory learning environment. It is the responsibility of all students to familiarize themselves with University policies regarding special accommodations, misconduct, religious beliefs accommodation, discrimination and absence for university sponsored events. (For details please refer to the [Academic Concerns](#) page, the [Student Conduct Process](#) page, and the [Academic Integrity](#) document.)