FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Undergraduate Programs

Department Physics

College Science

UUPC Approval 10/7/24
UFS Approval
SCNS Submittal
Confirmed
Banner Posted
Catalog

Current Course Prefix and Number	*Current* Course Title
PHY 3101C	Survey of Modern Physics

*Syllabus must be attached for **ANY** changes to current course details. See Template. Please consult and list departments that may be affected by the changes; attach documentation.*

Change title to:

Change prefix

From: To:

Change course number

From: To:

Change credits*

From: To:

Change grading

From: To:

Change WAC/Gordon Rule status**

Add ☐ Remove ☐

Change General Education Requirements***

Add ☐ Remove ☐

*See Definition of a Credit Hour.

**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.

***GE criteria must be indicated in syllabus and approval attached to this form. See Intellectual Foundations Guidelines.

Change description to:

Change prerequisites/minimum grades to:

Change corequisites to:
MAP 3305 or MAP 2302

Change registration controls to:

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).

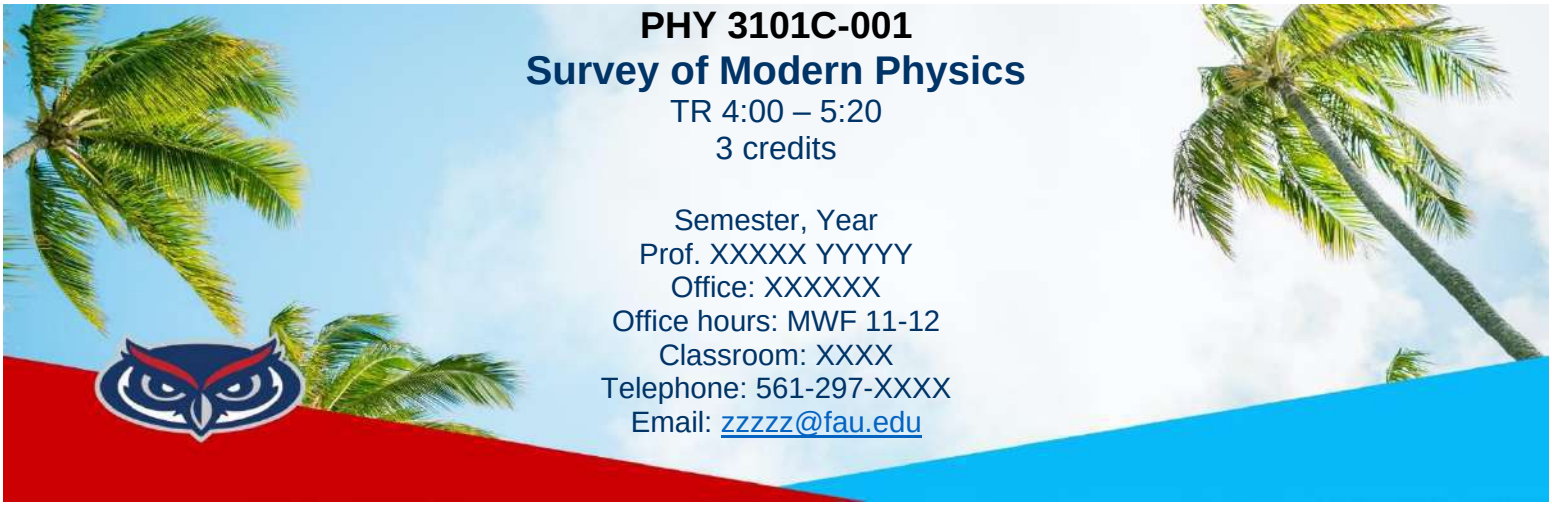
Effective Term/Year for Changes: Spring 2025

Terminate course? Effective Term/Year for Termination:

Faculty Contact/Email/Phone Korey Sorge / ksorge@fau.edu / 7-3380

Approved by	*Date*
Department Chair	9/20/24
College Curriculum Chair Korey Sorge	9-24-24
College Dean	9/25/24
UUPC Chair Korey Sorge	10/7/24
Undergraduate Studies Dean Dan Meeroff	10/7/24
UFS President	
Provost	

Email this form and syllabus to mienning@fau.edu seven business days before the UUPC meeting.



PHY 3101C-001
Survey of Modern Physics

TR 4:00 – 5:20
3 credits

Semester, Year
Prof. XXXXX YYYYY
Office: XXXXXX
Office hours: MWF 11-12
Classroom: XXXX
Telephone: 561-297-XXXX
Email: zzzzz@fau.edu

TA name	xxxxxx xxxxxxxxx
Office	xxxxxxxx
Office hours	MWF xx:xx – xx:xx
Telephone	561-297-xxxx
Email	xxxxxx@fau.edu

Catalog Description
Survey of the quantum and statistical theories underlying modern physics as well as an overview of atomic and nuclear physics. The in-class lecture section will be complemented by experimental and computational exercises.

Course Description
This course surveys important conceptual developments in physics over roughly the past century. The focus will be on conceptual developments and the need for them, as well as the simplest elements of the resulting mathematical formalisms. These elements will then be applied to key examples. Primary Topics that will be discussed are: Special and General Relativity, Introductory Quantum Mechanics, Nuclear Physics, Elementary Particles, and Cosmology.

Instructional Method
In-Person: Traditional concept of in person. Mandatory attendance is at the discretion of the instructor.

Prerequisites / Corequisites
Prerequisite: PHY 2049 and (MAP 2302 or MAP 3305)
Corequisite: MAP 2302 or MAP 3305

Course Objectives/Student Learning Outcomes

- To understand the concepts behind modern theories of physics, including the new views of the world which they bring
- To understand the experimental and theoretical need and basis for modern theories of physics
- To understand the simplest mathematical principles at the foundations of modern theories of physics, and be able to apply them
- To stimulate the curiosity of the student

Course Evaluation Method

- **Homework (30%)** – Collaboration on homework is permitted, even encouraged, but copying is of course not allowed.
- **Midterm Exam (20%)** – Will be in-class, and is open book and open note. No collaboration is allowed, but you can ask me questions.
- **Final Exam (30%)** – Will be take-home, and is open book and open note. No collaboration is allowed, but you can ask me questions.
- **In-class Group Projects (10%)** – If you cannot attend, make up is possible, though it is not guaranteed you will be able to work in a group in that case.
- **Presentation or Report on a Primary Source Article (10%) -** I will give a list of original articles in the foundations of modern physics, and you can choose from those, or you can suggest another. You will be required to either give a 10-20 minute in-class presentation on the chosen article or submit a 4-5 page (double spaced) report on it. The report or presentation should include a summary of the article contents and what you found surprising or interesting. You will be graded on how well you show that you understand the key point(s) of the article. I strongly encourage students to freely ask me for help always, but especially for this assignment – understanding articles can be difficult even for experts.

Course Grading Scale

>94%	A
90-94%	A-
87-90%	B+
84-87%	B
80-84%	B-
77-80%	C+
74-77%	C
70-74%	C-
67-70%	D+
64-67%	D
60-64%	D-
<60%	F

Policy on Makeup Tests, Late Work, and Incompletes (if applicable)

- **Make-up Policy:** Make-up exams are possible only with a documented, exceptionally good, excuse, with forewarning given me when possible.
- **Policy on Late Homework:** For each class period late, there will be a 15% penalty, up to a maximum 30% penalty. Late homework turned in after the final exam due date might not be accepted. (Thus, no matter how late the homework, as long as it is turned in by the final exam due date, not more than 30% will be taken off.)
- **Extra Credit:** I may designate certain homework problems or problems on exams as extra credit. This is the only extra credit in the course.

Classroom Etiquette Policy

University policy on the use of electronic devices states: "In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions."

Policy on the Recording of Lectures (optional)

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001.

Required Texts/Readings

- Serway, C. Moses, and C. Moyer, Modern Physics (Third Edition)

Course Topical Outline

Dates	Topic	Assigned Reading
Week 1	Special Relativity 1	Chapter 1
Weeks 2 and 3	Special Relativity 2	Chapter 2
Week 4	Quantum Theory of Light	Chapter 3
Week 5	The Particle Nature of Matter	Chapter 4
Week 6	Matter Waves	Chapter 5
Week 7a	Group Numerical Project	
Week 7b and 8a	Quantum Mechanics in 1D	Chapter 6, Secs 1-5
Week 8b	**Midterm Exam**	
Spring Break		
Week 9a	Quantum Mechanics in 1D	Chapter 6, Secs 6-8
Weeks 9b and 10a	Tunneling Phenomena	Chapter 7
Weeks 10b and 11	Quantum Mechanics in 3D	Chapter 8
Week 12	Atomic Structure	Chapter 9
Week 13	**Student Presentations**	
Week 14a	Elementary Particles	Chapter 15
Week 14b	Cosmology	Chapter 16
Final Exam		