FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Undergraduate Programs

Department Physics

College Science

UUPC Approval 4/29/24
UFS Approval
SCNS Submittal
Confirmed
Banner Posted
Catalog

***Current* Course Prefix and Number**	***Current* Course Title**
PHY 3221	Classical Mechanics

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:
From: PHY 2048 AND MAP 3305

To: PHY 2048 AND (MAP 3305 OR MAP 2302)

Change corequisites to:

Change registration controls to:

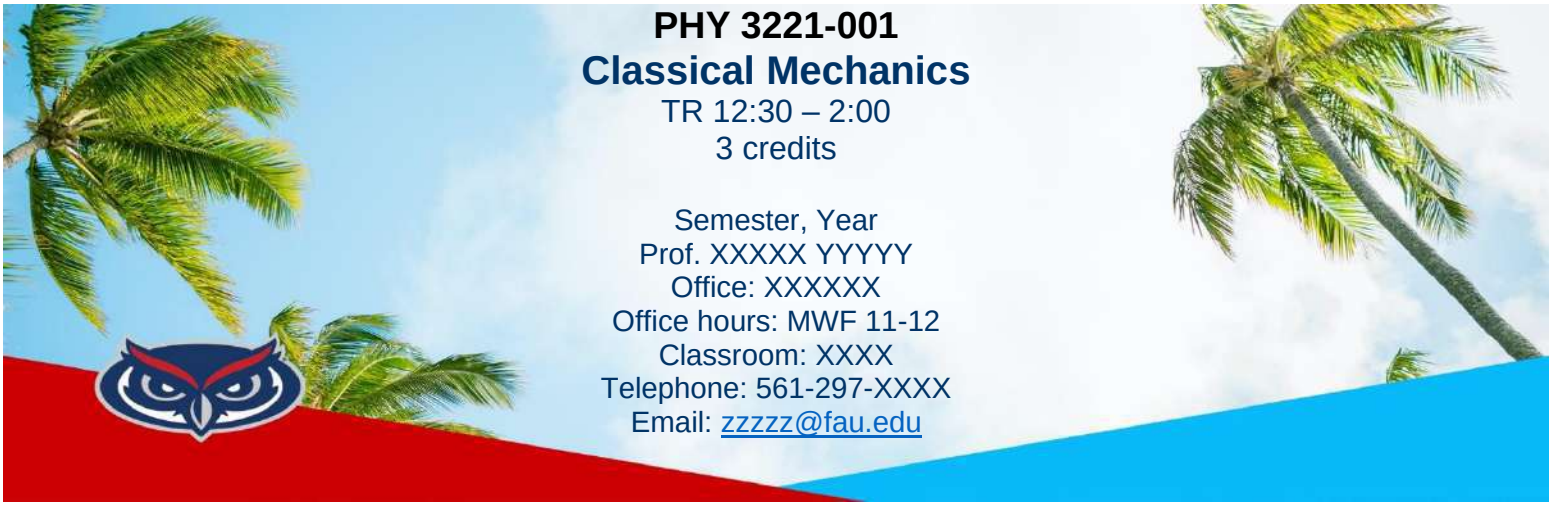
Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).

Effective Term/Year for Changes:	**Terminate course? Effective Term/Year for Termination:**
Fall 2024	

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

Approved by	***Date***
Department Chair	4/9/24
College Curriculum Chair	4/9/24
College Dean	4/17/24
UUPC Chair Korey Sorge	4/29/24
Undergraduate Studies Dean Dan Messroff	4/29/24
UFS President	
Provost	

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



PHY 3221-001
Classical Mechanics

TR 12:30 – 2:00
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

Course Description

This course covers analytical mechanics in the Lagrangian and Hamiltonian variational formalisms. It emphasizes problem solving in applications to central-force and rigid-body motion as well as small oscillations.

Instructional Method

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

Prerequisites / Corequisites

Prerequisite: PHY 2048 and (MAP 2302 or MAP 3305)

Course Objectives/Student Learning Outcomes

This course serves as an important bridge from the lower-division to the upper-division physics. In general physics, we have already learned the most important concepts of Newtonian mechanics. In this course, we shall sharpen our problem-solving skills – i.e., expect a lot of problems to be solved, and at the same time, we will introduce the Lagrangian and Hamiltonian formulations of mechanics. Although these formulations do not provide any new "physics" to the Newton's laws of motion, they do form a conceptual framework upon which modern physics, quantum mechanics, in particular, is built. After completion of the course, a student should have a broad exposure to the conceptual, as well as the mathematical, formulation of classical mechanics and its applications. The course is also designed to train students to solve physics problems (creatively), and to build in the student a sense of mathematical competence.

Course Evaluation Method

- **Homework (20%)**
- **Midterm Exams (20% each)**
- **Final Exam (40%)**

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)

If a student cannot attend an exam or hand in homework on time because of a legitimate problem, for example, because of a significant health, he or she can make up the respective assignment.

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."

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

- Thornton and Marion, "Classical Dynamics of Particles and Systems" (Fifth Edition)

Supplementary Texts

- Landau and Lifshitz, "Statistical Physics" (Third Edition)
- SG Rajeev, "Advanced Mechanics, from Euler's Determinism to Arnold's Chaos"

Course Topical Outline

Dates	Topic	Assigned Reading
Week 1	Review of Newtonian Mechanics	Chap 1.14, Chap 2
Week 2	Newtonian Mech (cont)	Chap 2, Chap 5.1 and 5.2
Week 3	Oscillations	Chap 3
Week 4	Intro to Lagrangian Form	Chap 7
Week 5	Lagrangian (cont)	Chap 7
Week 6	Review and Exam	
Week 7	Calculus of Variations	Chap 6
Week 8	Action and Conservation	Chap 7
Week 9	Hamilton's Equation	Chap 8
Week 10	Central Force	Chap 8
Week 11	Review and Exam	
Week 12	System of Particles	Chap 9
Week 13	Rigid Body Dynamics	Chap 11
Week 14	Rigid Bodies (cont)	Chap 11
Week 15	Coupled Oscillations	
Final Exam		