FAU

FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Graduate Programs

Department Physics

College Charles E. Schmidt College of Science

Current Course Prefix and Number	PHY 6247	*Current* Course Title	Mechanics

Syllabus must be attached for ANY changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.
(none)

Change title to:

Change prefix

    From: To:

Change course number

    From: To:

Change credits*

    From: To:

Change grading

    From: To:

*Review Provost Memorandum

Change description to:

Change prerequisites/minimum grades to:
(none)

Change corequisites to:

Change registration controls to:

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.

Effective Term/Year for Changes:	Fall 2019	**Terminate course? Effective Term/Year for Termination:**	

Faculty Contact/Email/Phone Chris Beetle <cbeetle@fau.edu> 7-4612

Approved by		*Date*
Department Chair	_signature_	3/12/19
College Curriculum Chair	_signature_	3/12/19
College Dean	_signature_ Bob Stackman 2019.03.12 09:21:49 -05'00'	
UGPC Chair		
UGC Chair		
Graduate College Dean		
UFS President		
Provost		

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

GRADUATE COLLEGE

MAR 1 2 2019

Received

Syllabus: [Mechanics (PHY 6247)](http://www.physics.fau.edu/~wolf/Teaching/2018_grad_Mechanics) - Fall 2018

Class times and location: Tuesday and Thursday at 3:30-4:50PM, SE 319

Instructor: Wolfgang Tichy
Office: Science and Engineering (SE) 444
E-mail: wolf "at" fau.edu (be sure to put PHY 6247 in the subject line)
Phone: 7-3380

Class Website: http://www.physics.fau.edu/~wolf/Teaching/2018_grad_Mechanics

Office Hours: Tuesdays 5:00-6:00 PM, Thursdays 5:00-6:00 PM

Catalog description:
Mechanics (PHY 6247) 3 credits
Classical mechanics from the advanced standpoint: Hamilton's principle, Lagrange's and Hamilton's equations, canonical transformations, Hamilton-Jacobi equations, and integral invariants.

Textbook: Classical Mechanics, 3rd Edition, H. Goldstein, C. Poole and J. Safko

Other books:
Mechanics, L. D. Landau, E. M. Lifschitz

Course objectives:
This class provides a formal introduction to classical mechanics. It introduces tools such as the Lagrangian and the Hamiltonian and shows how the equations of motion can be derived from them. It's emphasis is on solving problems. Examples cover central forces, rigid bodies and small oscillations.

Topics covered:

1. Survey of Elementary Principles of Mechanics
2. Variational Principles, Lagrange's Equations and Hamilton's Principle
3. Central Forces
4. Rigid Bodies
5. Hamiltonian Equations of Motion
6. Canonical Transformations
7. Hamilton-Jacobi equation
8. Oscillations or Field Theory (if time permits)

Homework: Homework problems and their due dates will be posted on the class website. You will loose about 10% of the maximum score for each day your homework is late.
Homework policy: You must solve the problems yourself. This is the optimal way to learn the material. If you are stuck on a problem you may discuss it with other students or the instructor. However, this discussion should be limited to understanding the essential point(s) so that you can go ahead and solve most of the problem yourself. In particular, do not use solution sets from problem/solution books, or any other sources where you can simply look up your homework problems!

Grades will be based on the following:

Activity	Percentage
Homework	15%
Class Participation	5%
Midterm Exam 1	25%

Midterm Exam 2	25%
Final Exam	30%

Tentative exam dates:
Midterm Exam 1: Tuesday 9/25/2018 in class
Midterm Exam 2: Tuesday 10/30/2018 in class
Final Exam: Thursday 12/6/2018 from 1:15pm - 3:45pm in SO 370

Exam Make up policy:
In general any missed exam will count as if the student has obtained zero points. If the student can convince the instructor that the exam was missed for a good reason, the student's grade will be computed from the remaining exams and homework.

Additional information:

Course outline:
The course consists of 2 week blocks of topics. These blocks together with their block number are listed above under "Topics covered". The lecture time spent on each block will be 2 weeks, i.e. 4 lectures of 80min per block. Each block is accompanied by a homework.

Dates	Topics	Activities
week 1	Survey of Elementary Principles of Mechanics	2 lectures of 80min, read Chap 1 of textbook, Homework 1 (see web page)
week 2	Survey of Elementary Principles of Mechanics	2 lectures of 80min, read Chap 1 of textbook, Homework 1 (see web page)
week 3	Variational Principles, Lagrange's Equations and Hamilton's Principle	2 lectures of 80min, read Chap 2 of textbook
week 4	Variational Principles, Lagrange's Equations and Hamilton's Principle	2 lectures of 80min, Homework 2 (see web page)
week 5	Central Forces	2 lecture of 80min, read Chap 3 of textbook
week 6	Central Forces	2 lectures of 80min, Homework 3 (see web page)
week 7	Rigid Bodies	2 lectures of 80min, read Chap 3 and 4 of textbook
week 8	Rigid Bodies	2 lectures of 80min, Homework 4 (see web page)
week 9	Hamiltonian Equations of Motion	2 lectures of 80min, exam 2 on 10/24, read Chap 8 of textbook
week 10	Hamiltonian Equations of Motion	2 lectures of 80min, Homework 5 (see web page)
week 11	Canonical Transformations	1 lecture of 80min, read Chap 9 of textbook
week 12	Canonical Transformations	2 lectures of 80min, exam 2 on 10/23, Homework 6 (see web page)
week 13	Hamilton-Jacobi equation	1 lecture of 80min, read Chap 10 of textbook, Homework 7 (see web page)
week 14	Hamilton-Jacobi equation	2 lectures of 80min, Homework 8 (see web page), final exam on 12/5

week 15	Field theory	1 lecture of 80min, read Chap 13 of textbook, Homework 9 (see web page)

FAU policy statements:

Attendance policy statement: 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.

Disability policy statement: 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/ .

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/

Code of Academic Integrity policy statement: 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. If your college has particular policies relating to cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.