FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Undergraduate Programs

Department Physics

College Science

UUPC Approval 3/27/23
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

***Current* Course Prefix and Number**	PHZ 3151C	***Current* Course Title**	Computational 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: 4 **To:** 3

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:

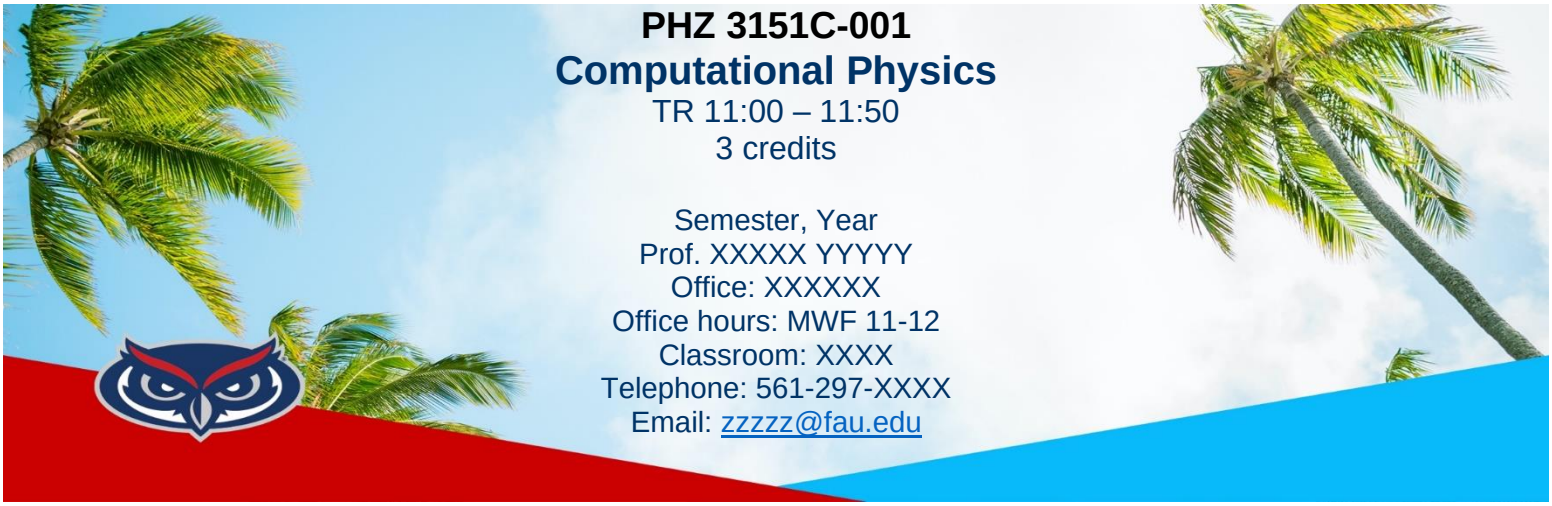
Change registration controls to:

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

Effective Term/Year for Changes:	Fall 2023	**Terminate course? Effective Term/Year for Termination:**	
Faculty Contact/Email/Phone	Korey Sorge / ksorge@fau.edu / 7-3380		

Approved by	***Date***
Department Chair	3/16/23
College Curriculum Chair	3-16-23
College Dean	
UUPC Chair Ethlyn Williams	3/27/23
Undergraduate Studies Dean Dan Mecroff	3/27/23
UFS President	
Provost	

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



PHZ 3151C-001
Computational Physics

TR 11:00 – 11:50
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
The course covers selected topics in numerical computation and computer-assisted analysis, with applications to physical systems.

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

Prerequisites / Corequisites
Prerequisites: MAC 2313 and PHY 3101C

Course Objectives/Student Learning Outcomes
The course will give an overview of computational physics methods. No physics background is required. This is going to be a very hands-on course in which students will write their own computer programs. While the course is self-contained, some prior knowledge of computer programming will be very helpful. By the end of the course the successful student should have the skill to attack any computational problem.

Course Evaluation Method
- Homework (90%)
- Class Participation (10%)

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 the Recording of Lectures

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

- M. Newman, "Computational Physics"

Supplementary/Recommended Readings

- Books
    - S Gerlach, "Computerphysik: Einfuhrung, Beispiele und Anwendungen"
    - WH Press, SA Teukolsky, WT Vetterling, and BP Flannery, "Numerical Recipes in C" (2nd Edition)
    - WT Vetterling, SA Teukolsky, WH Press, BP Flannery, "Numerical Recipes Example Book in C" (2nd Edition)
- Computational
    - https://cvw.cac.cornell.edu/Cintro
    - https://www.tutorialspoint.com/cprogramming
    - http://www.cprogramming.com/tutorial/c-tutorial.html

Course Topical Outline

Dates	Topic
Week 1	Computers, Machine Language, And Operating Systems
Week 2	Unix / Linux, Important Shell Commands, and Remote Login
Week 3	Programming in C
Week 4	Numerical Errors
Week 5	Numerical Integration and Differentiation
Week 6	Solving Linear Equations
Week 7	Solving Non-linear Equations
Week 8	Visualization using Python
Week 9	Ordinary Differential Equations
Week 10	Partial Differential Equations
Week 11	Parallelization
Week 12	Random numbers and Monte Carlo Methods
Week 13	Spectral Methods
Week 14	Galerkin Methods