FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Undergraduate Programs

UUPC Approval 3/25/24
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

Department Physics

College Charles E. Schmidt College of Science
(To obtain a course number, contact erudolph@fau.edu)

Prefix AST **Number** 3019	*(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)* **Lab Code**	**Type of Course** Lecture	**Course Title** Astronomy and Astrophysics
Credits *(See Definition of a Credit Hour)* 3	**Grading** *(Select One Option)* **Regular** ◉ **Sat/UnSat** ○	**Course Description** *(Syllabus must be attached; see Template and Guidelines)* Survey of astronomy and astrophysics for physical science, engineering, or mathematics majors. Covers a broad range of astronomical topics from orbital mechanics to cosmology. Focuses on explaining astrophysical processes through observation and theoretical models.	
Effective Date *(TERM & YEAR)* Fall 2024			

Prerequisites, with minimum grade*	**Corequisites**	**Registration Controls** *(Major, College, Level)*
AST 2002 and (PHY 2053 or PHY 2048) All with "C" or higher	(PHY 2053 or PHY 2048)	

Default minimum passing grade is D-. Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course

WAC/Gordon Rule Course

☐ Yes ☑ No

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

Intellectual Foundations Program (General Education) Requirement *(Select One Option)*

None

General Education criteria must be indicated in the syllabus and approval attached to the proposal. See Intellectual Foundations Guidelines.

Minimum qualifications to teach course

M.S. in Physics or related field

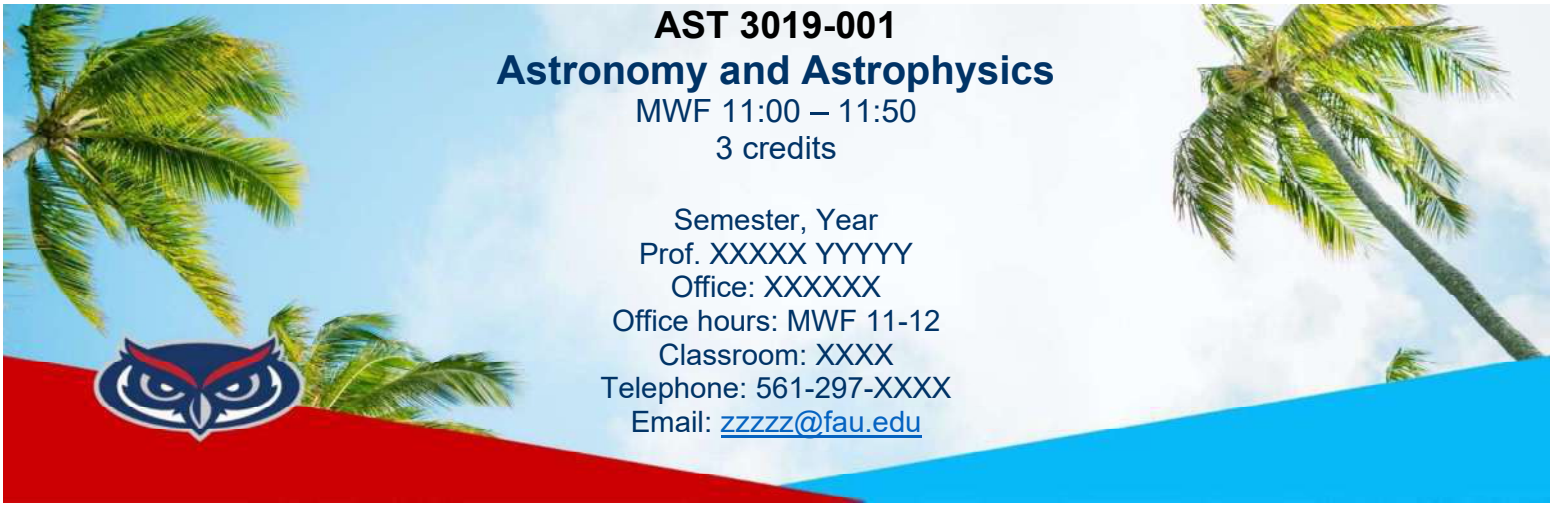
Faculty Contact/Email/Phone

Ata Sarajedini / asarajedini@fau.edu / 352-281-4281

List/Attach comments from departments affected by new course

Approved by	***Date***
Department Chair _____	3/11/24
College Curriculum Chair _____	3/13/24
College Dean _____	3/13/24
UUPC Chair Korey Sorge	3/25/24
Undergraduate Studies Dean Dan Mesoff	3/25/24
UFS President _____	
Provost _____	

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



AST 3019-001
Astronomy and Astrophysics

MWF 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

Catalog Description

Survey of astronomy and astrophysics for physical science, engineering, or mathematics majors. Covers a broad range of astronomical topics from orbital mechanics to cosmology. Focuses on explaining astrophysical processes through observation and theoretical models.

Course Description

This is an introductory course in Astronomy and Astrophysics designed for students majoring in physics, math, or engineering. This course begins with a brief overview of historical astronomy then continues with orbital mechanics, the nature of light and matter, stellar astrophysics, the interstellar medium, stellar remnants, our Milky Way galaxy, normal and active galaxies, and cosmology.

Instructional Method

In-Person. There is no remote option for this course.

Prerequisites

- AST 2002 and
- (PHY 2053 or PHY 2048)
- All prerequisites with a "C"or higher.

Corequisites

- (PHY 2053 or PHY 2048)

Course Objectives/Student Learning Outcomes

- To provide students with a detailed overview of stellar astrophysics, galactic and extragalactic astronomy. Students will be able to define common astronomical terms and explain basic concepts and theories for a range of astrophysical phenomena. This will be accomplished through lectures and weekly reading assignments. Assessment will occur through exams and homework assignments.
- To teach students the scientific process and how we can understand the Universe using basic physical laws. Students will gain an understanding of how the scientific method is applied to the field of astronomy. This will be accomplished through lectures and in-class discussions as well as homework assignments. Assessment will occur through exams and homework assignments.
- To teach scientific reasoning or the use of logic, observations, and critical thinking to interpret observations of the Universe. This will be accomplished through in-class discussions. Assessment will occur through homework assignments and the computational project.

Course Evaluation Method

Exams: 1 mid-term (30% of your grade) and 1 final exam (30% of your grade) will be given in this class. All exams will take place in the lecture room.

Homework: Five (5) homework assignments will be given throughout the semester (each worth 4%). Working in groups is accepted, although each student is required to show all work and hand in separate homework solutions. Homework assignments must be submitted on time to receive full credit. Please write clearly or type assignments for full credit. While use of the internet is acceptable for looking up terms, constants, etc., it is NOT acceptable to copy solutions to problems found there.

Computational Project: There will be one assignment that will include a computational component involving galaxy interaction and collision simulations. Instructions will be given in class. This assignment is worth 15% of your grade and will be due during the second half of the semester.

Attendance: Attendance is worth 5% of your grade. Attendance will be taken at various times during the semester but no less than 8 times. If you are in attendance at least 75% of the time, you will receive full credit for the attendance points.

Course Grading Scale

total points	90-100	87-90	84-87	80-84	77-80	74-77	70-74	67-70	64-67	60-64	57-60	<60
grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Policy on Makeup Tests, Late Work, and Incompletes

Students are expected to complete all requirements by the specified due dates. If a student misses class or an assignment due to circumstances beyond their control and provides the instructor with timely notification, they will be allowed a reasonable time to make up the missed work. The format of a make-up test/exam will be at the discretion of the instructor.

Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical / theatrical performances, or debate activities. These students will be allowed to make up missed work without any reduction in the student's final course grade. Reasonable accommodation will also be made for students participating in a religious observance. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of "I" will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU's University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade must be made in writing with supporting documentation, where appropriate.

Policy on the Recording of Lectures

Because of a new Florida Statute in 2021, the following model language is suggested for inclusion in course syllabi, at the discretion of individual faculty:
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.

Academic Integrity Policy Clarification for this Course:

In this section I would like to clarify points that may not be obvious in the previous section.

- If I feel that academic irregularity has occurred, we will schedule a meeting. You will have a chance to give your side of the story. If you can convince me that there is not problem, the matter is dropped.
- During this meeting, if you a) admit to offending behavior or b) can't convince me of your innocence, the University Registrar will be contacted to put a mark on your record. There may be additional penalties as well.
- You will follow the guidelines in University Regulation 4.001 to appeal the mark on your transcript (and/or additional penalties) if you feel you are innocent.
- As is listed in (4).(C) of University Regulation 4.001… "a repeat offense, even if the notation of violation of the Code of Academic Integrity from the first offense had been expunged from the official transcript as a result of successful completion of the peer counseling program, the student will be expelled from the University."
- The penalties for cheating and violations of the Code of Academic Integrity escalate quickly and are severe. Do not ignore this warning.

Required Texts/Readings

"Foundations of Astrophysics", Ryden and Peterson

Course Topical Outline

- Early and Modern Astronomy
- Orbital Mechanics
- Light and Matter
- The Sun
- Properties of Stars and Stellar Atmospheres
- Interstellar Medium
- Stellar Evolution and remnants
- The Milky Way Galaxy
- Normal and Active Galaxies
- Cosmology
- History of the Universe