

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Undergraduate Programs	UUPC Approval <u>2/26/24</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department <u>Physics</u> College <u>Science</u>	

Current Course Prefix and Number <u>AST 2002</u>	Current Course Title <u>Introduction to Astronomy</u>
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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 <input type="checkbox"/> Remove <input type="checkbox"/> Change General Education Requirements***: Add <input type="checkbox"/> Remove <input type="checkbox"/> <small>*See <u>Definition of a Credit Hour</u>.</small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See <u>WAC Guidelines</u>.</small> <small>***GE criteria must be indicated in syllabus and approval attached to this form. See <u>Intellectual Foundations Guidelines</u>.</small>	Change description to: This course provides a comprehensive look at modern astronomy, emphasizing the use of the scientific method and the application of physical laws to understand the Universe including Earth and its environment. Throughout this course, students will develop the ability to discern scientific knowledge from non-scientific claims by using critical thinking. 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-).
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Effective Term/Year for Changes: <u>Fall 2024</u>	Terminate course? Effective Term/Year for Termination:
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Faculty Contact/Email/Phone Vicki Sarajedini / vsarajedini@fau.edu / 352-871-1202

Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UUPC Chair _____ Undergraduate Studies Dean _____ UFS President _____ Provost _____	Date _____ <u>01/26/24</u> <u>2/11/2024</u> <u>2/26/24</u> <u>2/26/24</u> _____ _____
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Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.



AST 2002-001
Introduction to Astronomy

T Th 11:00am – 12:20pm
3 credits

Spring, 2024

Prof. Vicki Sarajedini

Office: Science Building, room 432

Office hours: Tuesday 12:30pm– 1:30pm or appointment

Classroom: College of Nursing, room 113

Telephone: 561-297-3380

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Course Description

This course provides a comprehensive look at modern astronomy, emphasizing the use of the scientific method and the application of physical laws to understand the Universe including Earth and its environment. Throughout this course, students will develop the ability to discern scientific knowledge from non-scientific claims by using critical thinking.

Intellectual Foundations Program: This course is part of the Science and the Natural World category of FAU's Intellectual Foundations Program for all student degree programs. This category has the objectives to 1) understand the nature of science, including important principles & paradigms, 2) understand the current limits of scientific knowledge and of how knowledge changes, 3) understand the nature of scientific inquiry and its ethical standards, in particular how to pose questions and how to develop possible explanations, and 4) improve student abilities to discern claims based on rigorous scientific methods from those based on illogical or incomplete scientific methods.

Instructional Method

This course is taught in-person. Lectures will be given twice a week during the designated meeting times. Occasionally, lectures may be recorded and made available on the Canvas site in lieu of the in-person lecture. Students will be notified by announcement when these occur.

Prerequisites/Corequisites

None

Recommended Text

We will be using the open access astronomy textbook available for free at the link below:

<https://openstax.org/books/astronomy-2e/pages/1-introduction>

On the opening slide of each lecture topic, you will find relevant chapters/sections from the online textbook. Please read these sections of the book for further information on each topic.

Course Objectives/Student Learning Outcomes

The overall goal of this course is to give a general, modern view of the Universe & enhance skills in quantitative reasoning & critical thinking. We will also view the evolution & advancement of the science of Astronomy to show how the scientific method works.

- Students will define terms used to measure and describe the Universe.
- Students will explain the processes involved in the formation and evolution of celestial bodies over astronomical time according to different models and theories.
- Students will describe how scientific theories evolve in response to new observations and critically evaluate their impact on society.
- Students will formulate empirically testable hypotheses derived from the study of physical processes and phenomena.
- Students will apply logical reasoning skills through scientific criticism and argument to separate science from non-science.
- Students will gather and analyze astronomical data and communicate results in graphic and written forms.

Course Evaluation Method

Your grade for the course will be based on the following:

Semester Exams – (2 @ 24% each)	48%
Final Exam	28%
Participation	4%
Homework	20%

Examinations (76% of grade): Three examinations will be given through Canvas using Lockdown Browser and Respondus Monitor. Two exams will occur during the semester, each worth 24% of the grade. The final exam will be given during finals week and is worth 28% of grade. Most of the questions on the final will come from material covered after the previous exam, but a portion of the questions will be taken from earlier chapters. Each exam will consist of several multiple-choice questions. These exams will test content knowledge but will emphasize applying critical thinking skills.

To prepare for exams, I recommend **attending all lectures** and either **bringing printed copies of the provided lecture notes or bringing your laptop with the lecture notes** to class. During the lectures, you should **take notes (either by hand or on your computer)** to supplement the provided materials with information you learn during the lectures. This is very important because **these notes can be used during the exam**. All exams are open notes, but only hardcopies of the notes can be used due to the examination format with Lockdown Browser. The better you take notes, the better you will do on the exams. Only your own printed notes can be used during the exam - **you are not permitted to use any other outside materials or communicate with others during the exams**. Before each exam, there will be a lengthy review session where I will review material that will be covered on the exams and present several example questions. These questions will be very similar but not identical to those that will appear on the exams. Be sure to attend all review sessions for the exams for best results!

Please make note of the exam due dates and times. **The exams are not open all day and must be completed within a short window of a few hours.** Only the most extenuating circumstances will allow you to make up the exam. If you know you cannot complete the exam on the exam date, let me know immediately so that you can take it earlier. If you miss an exam and do not contact me by that date, you will not be permitted to retake the exam except for extreme circumstances.

Exams will be taken in Canvas using Lockdown Browser and the Respondus monitor. You will be prompted to download the software and install it when you take the practice test before the first exam. **You will need a webcam, microphone, reliable internet, and photo ID.** To function properly, Canvas requires a high-speed Internet connection (cable modem, DSL, satellite broadband, T1, etc.). The minimum Internet connection speed to access Canvas is a consistent 1.5 Mbps (megabits per second) or higher. It is recommended that you have an Internet connection with a speed of 4 Mbps or higher. Check your internet speed [here](#).

Homework (20% of grade): Homework will be assigned to facilitate and reinforce understanding the course material and encourage critical thinking. These will be assigned approximately every two to three weeks on Canvas. Due dates are listed on the course schedule at the end of the syllabus.

Participation (4% of grade): Throughout the semester, you will be given the opportunity to gain participation points by completing assignments designed to help you interpret astronomical data. These assignments will be made available on the Canvas site.

Class Participation and Office Hours:

- Students are encouraged to read the portions of the textbook and review slide notes that correspond to the lectures as they are presented.
- Students are especially encouraged to ask questions during the lectures. It is a big lecture hall but very few students typically ask questions. Remember that your questions help stimulate thinking which helps the entire class!
- Students are encouraged to come to my office hours for further discussion and questions, particularly encouraged before and after taking the exams.

Course Grading Scale

Letter Grade	% Points	GPA	Letter Grade	% Points	GPA	Letter Grade	% Points	GPA
A	>90	4.0	B-	77 - 79	2.67	D+	64 - 66	1.33
A-	87 - 89	3.67	C+	74 - 76	2.33	D	60 - 63	1.0
B+	84 - 86	3.33	C	70 - 73	2.0	D-	57 - 59	0.67
B	80 - 83	3.0	C-	67 - 69	1.67	E	< 56	0

Policy on Makeup Tests, Late Work, and Incompletes

Exams must be taken on the scheduled day unless a documented emergency occurs. Otherwise, I do not allow makeup tests. Please contact me ASAP on the date of an exam if such an emergency occurs. If you need to take the exam earlier than the scheduled date, that can usually be accommodated if I am given enough notice. Homework may be completed at any time before the final exam. However, I recommend completing homework on the due date to stay current with the topics and lectures.

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. In all cases, students must notify me before the missed class. 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

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.

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:

- If I believe 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 a problem, the matter is dropped.
- During this meeting, if you a) admit to offending behavior or b) cannot 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.”

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.

Course Topical Outline

Date in 2024	Lecture Topic/Exam date/HW due	Reading*
Jan 9	Syllabus & Introduction to Astronomy	Chapters 1, 2.1 & 4
Jan 11 & 16	The Birth of Astronomy	Chapters 2.2, 2.4 & 3
Jan 18 & 23	The Solar System	Chapters 7, 21.3 - 21.6
Jan 24	HW #1	
Jan 25	Earth and Moon	Chapters 4.6, 8.1 - 8.3 & 9.1 - 9.4
Jan 30	Terrestrial Planets	Chapters 9.5 & 10.1 - 10.6
Feb 1	Jovian Planets, Pluto, Rings & Moons	Chapters 11.1 – 11.3
Feb 5	HW #2	
Feb 6	Review for Exam 1	
Feb 7	Practice Test Due	
Feb 8	Exam 1 (open 11am to 4pm)	
Feb 13 & 15	The Properties of Light & Telescopes	Chapters 5 & 6.1
Feb 20 & 22	The Sun	Chapter 15
Feb 23	HW #3	
Feb 27 & 29	The Properties of the Stars	Chapters 17, 18 & 19.2
Mar 12 & 14	The Interstellar Medium	Chapters 20 & 21.1
Mar 19	Stellar Evolution	Chapters 21.2, 22 & 23.1 – 23.2
Mar 20	HW #4	
Mar 21	Review for Exam 2	
Mar 26	Exam 2 (open 11am to 4pm)	
Mar 28 & Apr 2	Neutron Stars and Black Holes	Chapters 23.4 & 24
Apr 4	The Milky Way Galaxy	Chapter 25
Apr 5	HW #5	
Apr 9	Normal and Active Galaxies	Chapters 26 & 27
Apr 11	The Evolution and Distribution of Galaxies	Chapter 28
Apr 16	Cosmology & The Big Bang	Chapter 29
Apr 18	Review for Final Exam	
April 30	HW #6	
April 30	Final Exam (open 10:30am to 6pm)	

*Reading assignments are in the open access astronomy textbook available at:
<https://openstax.org/books/astronomy-2e/pages/1-introduction>