Planet, Stars, and Galaxies: AST1002

Professor: Dr. Daniel Sega. Room 205. M/W 1:00 – 2:30pm Final Exam M:12:30-3:00pm
Office Hours: 2nd Floor, Faculty Wing, or Room 309. 12:15 – 12:45 pm. M to F.
Class webpage **(lab guides, and homework are there):** astrosega.github.io/teaching/

Course Description: This course presents the general concepts of astronomy and the scientific method, as well as the history of how we progressed to our current understanding of the Universe. By the end of this course, you will have the background to understand news on the latest advances in astronomy and have the means to assess the validity of a scientific claim. The course consists of lectures and workshop days when Stellarium and World Wide Telescope apps will be used. These allow us to simulate looking at the sky and navigating the Solar System.

Required Text: OpenStax Astronomy-2e

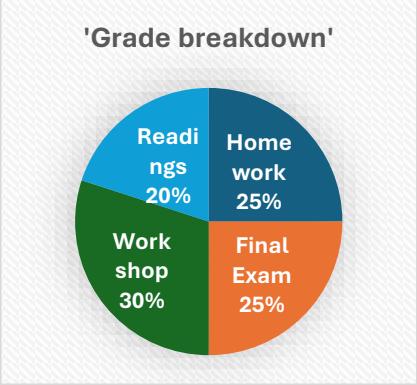
Required Equipment Bring your laptop to the classes where Stellarium and World Wide Telescope are used! You will need to install Stellarium. Stellarium is a free virtual planetarium software, designed for educational purposes. **Download it for free here**: https://stellarium.org. Stellarium has a web version, and a phone version, but they lack the features of the full computer program, and the guides are written to take advantage of these features.

World Wide Telescope, is a virtual 3D solar system and 2D Milky Way that uses real research data for its presentation of the universe. Unlike Stellarium, it can fully be used in the browser via their web client: https://www.worldwidetelescope.org/webclient/

Course Learning Objectives In this course, science and non-science majors will (1) learn about our solar system, (2) the birth and death of stars (including our own Sun), (3) the nature of black holes and galaxies, and (4) the structure and evolution of the entire universe. (5) We will discuss what astronomers know today about each of these things, how we know it, and what we still don't yet know.

Grading Assignments:

- Stellarium and WWT workshops (30 %)
- Homework (25 %)
- Final Exam (25 %)
- Annotated textbook reading (20 %)



One (1) homework is dropped for the final grade. Annotated readings are not dropped. The Final exam is cumulative (it tests you on all the content of the course). The number to letter grade key is as follows:

	A (93 and up)	**A–** (90 to 93)	**B+** (87 to 90)	**B** (83 to 87)
B– (80 to 83)	**C+** (77 to 80)	**C** (73 to 77)	**C–** (70 to 73)	**D+** (67 to 70)
D (63 to 67)	**D–** (60 to 63)	**F** (below 60)		

Stellarium and World Wide Telescope Workshops: These are in-class activities that are due the next class. They can be turned in the day of the activity, but are due the next class in case the students need more time to finish. They consist of a workbook-type sheets that need to be completed and turned in physically in class. The worksheets can be found on the class webpage and will be provided physically the day of the activity. Students

must make sure they can run the software on their computers before each activity, as there is no time for troubleshooting in class. Email me, or come to my office hours with your laptop if any issues arise.

LIBERAL STUDIES STATEMENT
This course has been approved to meet FSU's Liberal Studies Natural Sciences requirement and helps you become an effective interpreter of scientific results and a critical analyst of claims about the natural world. This course has a philosophy of science component that further reinforces critical thinking skills.

UNIVERSITY ATTENDANCE POLICY
Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

ACADEMIC HONOR POLICY
The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "…be honest and truthful and… [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy)

AMERICANS WITH DISABILITIES ACT
Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all individuals with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

ACADEMIC SUCCESS
Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Dean of Students office to learn more.

EMOTIONAL AND WELLNESS RESOURCES
FSU Panama believes firmly in the importance of mental health and has taken significant steps to support students. Dr. Maria Claudia Uribe, alumna and former professor of FSU, brings over two decades of experience as a psychotherapist and is here to enhance the well-being of our campus community. She will be offering on-site and online counseling, referrals, and additional resources upon request.

Dr. Uribe will be on campus during the first week of classes, and she will introduce herself. Her office will be room 301, which has been converted into a Wellness Room. **A telehealth service** has also been added to our array of support tools, and more information about it will be provided by the Director of Student Affairs, Dr. Adam Tratner (**atratner@fsu.edu**), and Dr. Uribe (**m.uribe@fsu.edu**). Finally, several Wellness Workshops are organized every semester. The Workshops cover important topics on mental and physical health, academic success, study habits and tools, and many others.

Tentative Schedule (see also the detailed schedule on the webpage)

Week	Monday	Wednesday
1	Scales of the Universe. What is astronomy all about? (Chp. 1)	Scales of the Universe. What is astronomy all about? (Chp. 1)
2	Humans' relation to the sky (Chp. 2)	Orbits and Gravity (Chp. 3)
3	Orbits and Gravity (Chp. 3)	Earth, Moon, and Sky (Chp. 4) Ch. 4 notes and highlights due Stellarium Worksheet 1: Introduction to Stellarium
4	Earth, Moon, and Sky (Chp. 4)	Radiation and Spectra (Chp. 5) Homework 1 due
5	Astronomical Instruments (Chp. 6)	Solar System (Chp. 7) Ch. 7 notes and highlights due WWT Worksheet 1: Introduction to WWT
6	Earth (Chp. 8)	Moon and Mercury (Chp. 9) Ch. 9 notes and highligths due Stellarium Worksheet 2: Retrograde Motion
7	Venus and Mars (Chp. 10) Homework 2 due	The Giant Planets (Chp. 11)
8	February 24: Ring, Moons, and Pluto (Chp. 12) Ch. 12 notes and highlights due	Comets, Asteroids, and Meteorites (Chp. 13 & 14) Homework 3 due.
9	Spring Break	
10	Here comes the Sun (Chp. 15)	The Sun has all the power (Chp. 16) Ch. 16 notes and highlights due Homework 4 due.
11	Stars (Ch. 18)	Distance Ladder (Ch. 19) Homework 5 due.
12	Gas, and Dust (Ch. 20)	Star Formation (Ch. 21)
13	The Life of a Star (Ch. 22) Ch. 22 notes and highlights due Stellarium Worksheet 3: The H-R diagram	The Death of a Star (Ch. 23)
14	Black Holes (Ch. 24) WWT Worksheet 2: Stellar Remnants	The Milky Way: not in equilibrium (Ch. 25) Homework 6 due.
15	Galaxies I (Ch. 26)	Galaxies II (Ch. 28)
16	The Big Bang (Ch. 29) Homework 7 due. WWT Worksheet 3: How Hubble discovered the Universe is expanding	Final Exam Review
17	Final Exam: 9-11:30	

Legend: WWT = Worldwide Telescope

I strive to provide a supportive learning environment for everyone, and it's always helpful for me to hear what works best for you. Have a great semester!

"The answers you seek can be found in the syllabus."