ASTRO 10: INTRODUCTION TO ASTRONOMY

COURSE AND INSTRUCTOR INFORMATION:

Semester: Spring 2023 (51001)
Title: Introduction to Astronomy
Units: 4.00 CEUs
Hours: 3 lecture, 2 lab hours
Time: Lecture Asynchronous, Lab Thursday 5:00 PM – 6:50 PM
Location: Lecture Hybrid and Online, Lab in PHY 70
Instructor: Kylee Jo Ford
Email: kylee.ford@reedleycollege.edu (Please give me 24 – 48 hours to reply)
Office Hours: Virtual and by appointment/email/Zoom only

COURSE DESCRIPTION:

This course covers the topics of planets, solar system mechanics, stellar evolution, and basic cosmology.

PREREQUISITES:

Advisories: Math 103 and English 1A or 1AH.

STUDENT LEARNING OUTCOMES:

- ✓ Develop sound reasoning skills as they are applied in astronomy.
- ✓ Learn to understand college-level publications written on introductory astronomy topics.
- ✓ Use introductory astronomy vocabulary.
- ✓ Conduct simple laboratory experiments and run simulation programs on computers that enhance their understanding of basic astronomical phenomenon.
- ✓ Learn to apply basic algebra skills to astronomical problems.

CSLOs:

ASTRO-10 SLO1: Apply reasoning skills regarding the science of the universe to solve mathematical and non-mathematical problems in astronomy.
ASTRO-10 SLO2: Read college-level publications written on introductory astronomy topics.
ASTRO-10 SLO3: Solve simple algebraic problems that apply to astronomy topics.

REQUIRED COURSE MATERIALS:

Textbook: OpenStax Astronomy available here: Astronomy (https://openstax.org/details/books/astronomy)

OTHER MATERIALS:

- iPad or Tablet: Lots of students these days are using iPads and tablets, which are great because your notes can be written digitally, expensive though.
- Traditional pencil and paper: I recommend having a notebook for notes and a pencil to take the notes!
- Scientific Calculator: A calculator is a nice tool to have and to be comfortable with. But there are other programs you can use when doing your homework such as:
  - Wolfram Alpha
  - Math is Fun
  - You can't use these other programs on the exam though, so practice using a calculator!

ATTENDANCE:
It is important to watch videos uploaded, as this will be the lecture portion. I will be taking attendance through Canvas and in person during lab. **Lab attendance is mandatory.**

Notes on Lab Attendance: You will not be allowed to make up labs without reasonable notification and credible supporting documentation of legitimate reasons (doctor's note, obituary, etc.). A missed lab can greatly affect your grade. ***Three missed labs = failing the course.***

DISCUSSIONS/QUIZZES/PARTICIPATION:
Each week there will be a Progress Quiz due (unless otherwise stated on the schedule). These quizzes are based on the lecture videos for the week.

HOMEWORK:
The homework assignments will be posted on Canvas and may require you to watch a video (ex. Crash Course Astronomy) and answering some questions on the material. There will also be reading guides and homework questions based on the required reading for each module. This reading will typically consist of sections of the textbook, but other sources may be used. Homework should be done by the **provided due date set on Canvas**. No late homework will be accepted.

LABORATORY REPORTS:
Lab is mandatory and will be done in class. Each lab is due **at the end of the class period**, unless otherwise stated. Complete all lab assignments neatly in **pencil** so that you can cleanly erase any mistakes. Show all your work, where relevant. Further instruction for each lab will be given in the modules and in class.

EXAMS:
There will be two exams and one cumulative final. They will be multiple choice with some simple algebra problems that are appropriate for astronomy. They will be based on lecture, quizzes, homework, and labs. More detailed information on exams will be provided as the exams get close.

COURSE POLICIES:
Communication:
If you ever need to reach me, consider one of the following options to do so. Please give me 24 – 48 hours to respond and I will respond as soon as I am able. When messaging me, please identify yourself with your full name and the course which you are enrolled (ex. "Kylee Ford, ASTRO 10").

- Message me using the "Inbox" tab on Canvas.
- Email me directly.
- Office Hours are virtual (through Zoom) and will be determined through a poll.

Attendance and Drop Policy:

- Module 0 (Introduction to the course) must be done by the due date to keep enrollment in the course. If you do not complete this module by the due date, you will be dropped you from the course.
- Attendance will be taken through the participation. Remember, **attendance is mandatory**, so if you do not participate in class and quizzes, it is as if you did not attend class.

- You must do all lab activities assigned. Attendance in lab is mandatory. Remember, **three missed labs = failing the course**.

Late Work Policy:

- Late work will only be accepted unless the student has a compelling reason AND has reached out to the instructor beforehand. Late work may be accepted with a documented and compelling reason.
- A 2-day late period will be accepted for Homework assignments, but at a reduced 10% per day it is late.
- There will be no late exams.
- Missing the final exam may result in a failing grade for the course.

STUDENT SUCCESS:

- Technology Support: https://www.reedleycollege.edu/campus-life/technology-help.html
- Tutoring Services: https://www.reedleycollege.edu/academics/tutoring-services/index.html
- COVID-19 information is uploaded to the Reedley College site: https://www.reedleycollege.edu/covid-19/index.html
- DSPS contact information:
  - Hours: Monday – Friday 8:00 am – 5:00 pm
  - Phone: 559-638-0332
  - See more DSPS information here: https://www.reedleycollege.edu/student-services/disabled-student-programs-and-services/index.html

GRADING:

Weighted Grades:

Object	Weighted Grades
Discussion/Quizzes	10%
Homework	20%
Laboratory	20%
Exams	30% (15% each exam)
Final Exam	20%
Total	100%

Grading Scale:

Grade	Percentage
A	90.0 – 100.0%
B	80.0 – 89.99%
C	70.0 – 79.99%
D	60.0 – 69.99%
F	<60.0%

Week	Date	Module Topic	Lab
Week 1	1/9 – 1/15	Module 0: Introduction to the Course Module 1: Overview, Scientific Method (Ch. 1)	**NO LAB**
Week 2	1/16 – 1/22	Module 2: Observing the Sky: The Birth of Astronomy (Ch. 2); ***Martin Luther King, Jr. Day (1/16) No Classes Held***	Lab 1 - Measurement
Week 3	1/23 – 1/29	Module 3: Orbits and Gravity (Ch. 3)	Lab 2 - Observing Basics
Week 4	1/30 – 2/5	Module 4: Earth, Moon, and Sky (Ch. 4)	Lab 3 - Scientific Notation
Week 5	2/6 – 2/12	Module 5: Radiation & Spectra (Ch. 5)	Lab 4 - Mystery Constellations
Week 6	2/13 – 2/19	Module 6: Astronomical Instruments (Ch. 6); ***Lincoln Day (2/17) No Classes Held***	Study for Exam 1
Week 7	2/20 – 2/26	Review for Exam 1; ***Washington Day (2/20) No Classes Held***	**Exam 1** (Module 1 - 5)
Week 8	2/27 – 3/5	Module 7: (Begin) Our Solar System - Inner, Planets (Ch. 7, 8, 9, 10)	Lab 5 - Modeling the Moon's Motions
Week 9	3/6 – 3/12	Module 7: Our Solar System - Inner, Rocky Planets (Ch. 7, 8, 9, 10)	Lab 6 - Scale of the Solar System
Week 10	3/13 – 3/19	Module 8: Our Solar System - Outer, Gaseous Planets & Satellites (Ch. 11, 12.1)	Lab 7 - My Solar System Online
Week 11	3/20 – 3/26	Module 9: Our Solar System - Rings, Moons, and Pluto, Debris of the Solar System (Ch. 12, 13)	Study for Exam 2
Week 12	3/27 – 4/2	Module 10: Cosmic Samples and the Origin of the Solar System (Ch. 14); Review for Exam 2	**Exam 2** (Module 6 - 8)
Week 13	4/3 – 4/9	***SPRING BREAK (4/3 – 4/7)***	**NO CLASS**
Week 14	4/10 – 4/16	Module 11: The Sun (Ch. 15, 16)	Lab 8 - Kepler's Laws
Week 15	4/17 – 4/23	Module 12: Analyzing Starlight (Ch. 17)	Lab 9 - Chemical Fingerprinting
Week 16	4/24 – 4/30	Module 13: The Stars: A Celestial Census (Ch. 19)	Lab 10 - Sun Observation
Week 17	5/1 – 5/7	Module 14: Stars from Adolescence to Old Age (Ch. 22)	Lab 11 - H-R Diagram/Blackbody Radiation (Online)
Week 18	5/8 – 5/14	Module 15: The Death of Stars (Ch. 23); Review for Final Exam	Study for Exam
Week 19	5/15 – 5/19	Finals Week	**Final Exam (Cumulative)**