



Astronomy 1050

Survey of Astronomy

Class: MWF, 9:00 - 9:50 am, Eng. Education and Research 251

Lab: M, 1:10 - 3 pm and 3:10 - 5 pm, Enzi STEM 180



Nikhil Patten — Instructor

npatten@uwyo.edu

<http://physics.uwyo.edu/~nikhil/Courses/ASTR1050/>

Office: PS122

Office Hours: Every day of the week, 12–1 pm.

Phone: (732)-618-6964



Megan Frank — TA

mfrank13@uwyo.edu

<https://physics.uwyo.edu/~meganf/>

Office: PS103 C

Office Hours: 12:00 – 1:10 pm Monday, STEM 180 and 9 – 9:50 am Tuesday, PS103.

The information in this syllabus, apart from grade and absence policies, may change (with notice) as we progress through the semester. These changes will be communicated to you in-person and on Wyocourses.

Course Description: Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors. Prerequisite: MATH 1000 or passing mathematics proficiency exam at Level 2.

Prerequisite: MATH 1000 or equivalent.

Note: A minimum grade of C is required in this course to pass.

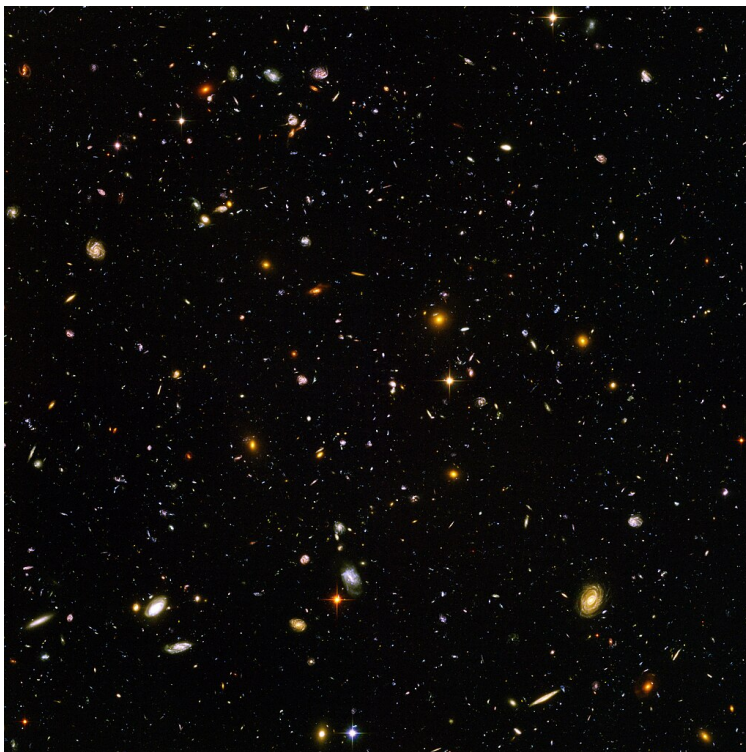
Credit Hours: 4

Text: *Astronomy 2e*

Available at: <https://openstax.org/details/books/astronomy-2e/>

Course Objectives:

Welcome to ASTR 1050! The goal of this class is to learn about our universe through the exciting science of astronomy. We will explore our Solar System, before venturing out to nearby stars, and finishing the course outside of our galaxy. We will study a whole range of exotic objects and phenomena known to inhabit our universe. Using math, we will see that we can understand so many strange objects like distant planets around other stars, pairs and triplet stars in multiple systems, black holes, neutron stars, and even entire galaxies.



This is the [Hubble Ultra Deep Field](#)— a zoomed in glimpse at a seemingly empty portion of the sky. This snapshot reveals innumerable distant galaxies and stars. By the end of this class, you will be able to explain several classes of the objects in this image, their colors, their origins, and their deaths!

Grade Distribution

1. **Participation (10%)** — All or nothing, based on classroom attendance and participation on Poll Everywhere questions. See **Attendance and Absence Policy** below.
2. **Labs (15%)** — Grade for the lab component of the class.
3. **Homework (30%)** — Average of the ten homework assignments. Homework will generally be assigned weekly and due Fridays at 11:59 PM.
4. **Exams (45%)** — Average of the three, in-class exams. See schedule below for more information.

Letter Grade Scheme:

>90	A
80 – 90	B
70 – 80	C
60 – 70	D
<60	F

Attendance and Absence

Attendance is required to receive full credit on the participation component of the grade. The participation component of your grade is all-or-nothing and everyone should get this credit. Let me know if you have to miss class.

Classroom Behavior Policy

Treat each other with respect. Learning is collaborative, and we should create a classroom environment in which all are encouraged to ask questions and participate. Phones and laptops are allowed in class, except when taking exams.

Classroom Statement on Diversity

The University of Wyoming values an educational environment that supports students of all backgrounds and viewpoints. Diversity of viewpoints is considered a resource for learning. Topics may be difficult, not only intellectually but emotionally; however, discussions are essential to meeting the course's student learning outcomes and assisting students in developing problem-solving and critical-thinking skills. During all conversations, respect and civility are of utmost importance.

University Disability Support Services

The University of Wyoming is committed to providing equitable access to learning opportunities for all students. If you have a disability, including but not limited to physical, learning, sensory or psychological disabilities, and would like to request accommodation in this course due to your disability, please register with and provide documentation of your disability as soon as possible to Disability Support Services (DSS), Room 128 Knight Hall. You may also contact DSS at (307) 766-3073 or udss@uwyo.edu. It is in the student's best interest to request accommodation within the first week of classes, understanding that accommodations are not retroactive. Visit the [DSS website](#) for more information.

Academic Dishonesty Policies:

Academic dishonesty will not be tolerated in this class. Cases of academic dishonesty will be treated in accordance with UW Regulation 2-114. The penalties for academic dishonesty can include, at my discretion, an "F" on an exam, an "F" on the class component exercise, and/or an "F" in the entire course. Academic dishonesty means anything that represents someone else's ideas as your own without attribution. It is intellectual theft – stealing - and includes (but is not limited to) unapproved assistance on examinations, plagiarism (use of any amount of another person's writings, blog posts, publications, and other materials without attributing that material to that person with citations), or fabrication of referenced information. Facilitation of another person's academic dishonesty is also considered academic dishonesty and will be treated identically.

AI Technology

Students are not permitted to use advanced automated artificial intelligence or machine learning tools on assignments in this course. Each student is expected to complete each assignment without assistance from automated tools.

Duty to Report

UW faculty are committed to supporting students and upholding the University's non-discrimination policy. Under Title IX, discrimination based upon sex and gender is prohibited. If you experi-

ence an incident of sex- or gender-based discrimination, we encourage you to report it. While you may talk to a faculty member, understand that as a “Responsible Employee” of the University, the faculty member MUST report information you share about the incident to the university’s Title IX Coordinator (you may choose whether you or anyone involved is identified by name). If you would like to speak with someone who may be able to offer privacy or confidentiality, there are people who can meet with you. Faculty can help direct you or you may find info about UW policy and resources at [this link](#). You do not have to go through the experience alone. Assistance and resources are available, and you are not required to make a formal complaint or participate in an investigation to access them.

Tentative Course Outline:

The weekly coverage might change as we progress through the class.

Week	Content	Lab(s)	Homework/Exams
Week 1 (08/25–08/29) Intro- duction	<ul style="list-style-type: none">Monday — Syllabus, introductionsWednesday — A tour of the universeFriday — The nature of science	NO LAB	<ul style="list-style-type: none">No home-work due
Week 2 (09/01–09/05) The Sky	<ul style="list-style-type: none">Monday — NO CLASSWednesday — Ancient astronomyFriday — The birth of modern as- tronomy	NO LAB	<ul style="list-style-type: none">Homework 1 due
Week 3 (09/08–09/12) The Sky (cont.)	<ul style="list-style-type: none">Monday — The Sky AboveWednesday — The laws of planetary motionFriday — Orbits in the Solar System	Lab 1: Plane- tarium	<ul style="list-style-type: none">Homework 2 due
Week 4 (09/15–09/19) The Inner Planets	<ul style="list-style-type: none">Monday — Phases and motion of the MoonWednesday — The Earth as a planetFriday — Mercury, Venus	Lab 2: Our Moon	<ul style="list-style-type: none">Homework 3 due
Week 5 09/22–09/26) The Outer Planets	<ul style="list-style-type: none">Monday — MarsWednesday — The gas giantsFriday — Pluto & Charon	Lab 3: Plan- etary orbits and Kepler's laws	<ul style="list-style-type: none">Homework 4 due
Week 6 (09/29–10/03) Planet- ary Sur- faces	<ul style="list-style-type: none">Monday — Planetary surfacesWednesday — Exam reviewFriday — Exam 1 (Covering weeks 1 –6)	Lab 4: Plane- tary Geology	<ul style="list-style-type: none">No home-work dueExam 1

Week	Content	Lab(s)	Homework/Exams
Week 7 (10/06–10/10) The Sun	<ul style="list-style-type: none"> Monday — Origin of the Solar System Wednesday — The structure and composition of the Sun Friday — Solar activity above the photosphere 	Lab 5: Parallax	<ul style="list-style-type: none"> Homework 5 due
Week 8 (10/13–10/17) Light	<ul style="list-style-type: none"> Monday — NO CLASS Wednesday — The brightness of stars, Colors of stars Friday — The spectra of stars 	NO LAB	<ul style="list-style-type: none"> Homework 6 due
Week 9 (10/20–10/24) Stars	<ul style="list-style-type: none"> Monday — The H-R diagram, The HR diagram and cosmic distances Wednesday — The main sequence Friday — Star formation 	Lab 6: HR diagram	<ul style="list-style-type: none"> Homework 7 due
Week 10 (10/27–10/31) Stars (cont.)	<ul style="list-style-type: none"> Monday — Further evolution of stars, The evolution of massive stars Wednesday — Exam review Friday — Exam 2 (Covering weeks 7–10) 	NO LAB	<ul style="list-style-type: none"> No homework due Exam 2
Week 11 (11/03–11/07) The Milky Way	<ul style="list-style-type: none"> Monday — Black holes Wednesday — The Architecture of the Milky Way Friday — The mass of the galaxy 	Lab 7: The structure of the Milky Way	<ul style="list-style-type: none"> Homework 8 due
Week 12 (11/10–11/14) Galaxies	<ul style="list-style-type: none"> Monday — Types of galaxies Wednesday — Galaxy evolution Friday — Quasars 	Lab 8: The inverse square law	<ul style="list-style-type: none"> Homework 9 due

Week	Content	Lab(s)	Homework/Exams
Week 13 (11/17–11/21) Cos-mology	<ul style="list-style-type: none"> Monday — The extragalactic distance scale Wednesday — Hubble Law Friday — The Big Bang 	Lab 9: Hubble Law	<ul style="list-style-type: none"> Homework 10 due
Week 14 (11/24–11/28) Thanks-giving	<ul style="list-style-type: none"> Monday — NO CLASS Wednesday — NO CLASS Friday — NO CLASS 	NO LAB	<ul style="list-style-type: none"> No home-work due
Week 15 (12/01–12/05)	<ul style="list-style-type: none"> Monday — Life in the Universe Wednesday — Exam review Friday — Exam 3 (Covering weeks 11-15) 	NO LAB	<ul style="list-style-type: none"> No home-work due Exam 3