MONTGOMERY COLLEGE
Department of Engineering, Physical, & Computer Sciences
Course Syllabus (TR) Spring 2019
Astronomy 101 (ASTR101 - CRN 30173, 30218, 30227)

I. Contact Information

Instructor Dr. Carrie Fitzgerald
Office SC 436L 240.567.5415
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Office Hours Tuesday 10am – 1pm; Wednesday 11am – 1pm

II. General Course Information

ASTR101 INTRODUCTORY ASTRONOMY 4 Credit hours

Lectures	ASTR101, CRN 30173	TR 1p – 2.15p
Discussion	ASTR101D, CRN 30218	T 2.30 – 3.20p
Laboratory	ASTR101L, CRN 30227	R 2.30p – 4.20p

Course Description: A basic introduction to astronomy that emphasizes appreciation of the Earth's relationship to the universe. The basic laws of physics as they apply to astronomy are covered along with telescopes and data collection and analysis techniques utilized by astronomers. Also covered are the evolution of stars, the solar system, galaxies, and the origin and evolution of the universe. Laboratory sessions, both computer-based and other, give practical applications to material covered in lectures. (NSLD) PREREQUISITE: A grade of C or better in MATH 080, appropriate score on the mathematics placement test, or consent of department. Assessment level: ENGL101/101A. Three hours lecture, two hours laboratory, one hour discussion each week.

The instructor may alter the syllabus if necessary during the semester. Students will be notified in advance of any changes.

III. Common Course Student Learning Outcomes

- Describe the size and scale of objects in the universe.
- Explain our view of the sky from Earth, including how it changes over the course of a day, week, month, year, and over long time periods.
- Describe the motions of celestial objects using planetarium software.
- Explain how mankind's understanding of the universe has developed.
- Describe the basic physics that underlies celestial mechanics, including Newton's universal law of gravitation and Kepler's Laws.
- Describe the various bodies that are found in the solar system.
- Describe the importance of spectroscopy in the study of the universe and be able to solve simple problems dealing with Doppler shifts.
- Describe what a telescope is, how it works and how to use one.
- Describe the physical appearance and properties, of the Sun, and its composition, method of energy production, origin, life cycle and eventual fate.
- Describe how a Hertzsprung-Russell (HR) diagram is related to stellar evolution.
- Discuss the origin of stars, the interstellar medium, and the lifecycles of various classes of stars.
- Explain the structure and composition of the Milky Way Galaxy.
- Explain the expansion of the universe.
- Discuss possible fates of the universe.

- Distinguish science from non-science or pseudoscience.
- Identify reputable print and electronic sources of astronomical research and data.

IV. Textbooks, Workbooks, and Supplies

Required Text (Free) Astronomy by Openstax : https://openstax.org/details/astronomy

Required Text *Lecture Tutorials for Introductory Astronomy, 3rd edition*
by Prather et al.
Publisher: Pearson (2013)

V. Course Requirements

A. Course Grade

Tests (2)	20%	90%	A
Laboratories	20%	80% - 89%	B
Homework	20%	70% - 79%	C
Group Discussion	15%	60% – 69%	D
Lecture Tutorials (quizzes)	10%	Less than 60%	F
Comprehensive final exam	10%		
Participation/misc. assignments	5%		

B. Late and/or Make-up Policy for Coursework

ASSIGNMENTS, INCLUDING HOMEWORK, DISCUSSIONS, QUIZZES, AND TESTS WILL NOT BE ACCEPTED PAST THE DUE DATE. Please don't ask me to make an exception.

Only labs may submitted past the due date, but these assignments be given a maximum grade of 30%, assuming the work you turn in is perfect. Please make every effort to turn your work in on time.

Because the assignments are submitted online, please do not wait until the last minute to complete them! If your internet dies an hour before the assignment is due, I can't help you. Give yourself enough time to complete the work.

DO NOT ASK ME TO EXTEND THE DATE OF ANY ASSIGNMENT UNLESS YOU HAVE A VERIFIABLE CATASTROPHE (i.e. death of loved one, car accident, major illness.) If you have one of these, please contact me as soon as possible.

The reason I won't accept late work is because it is not fair to the students who turn their work in on time. Everyone here has jobs, family, and commitments. Please do not ask me to make an exception for you unless you truly need it.

C. Important Student Information Link

In addition to course requirements and objectives that are in this syllabus, Montgomery College has information on its web site (see link below) to assist you in having a successful experience both inside and outside of the classroom. It is important that you read and understand this information. The link below provides information and other resources to areas that pertain to the following: student behavior (student code of conduct), student e-mail, the tobacco free policy, withdraw and refund dates, disability support services, veteran services, how to access information on delayed openings and closings, how to register for the Montgomery College alert System, and finally, how closings and delays

can impact your classes. If you have any questions please bring them to your professor. As rules and regulations change they will be updated and you will be able to access them through the link. If any student would like a written copy of these policies and procedures, the professor would be happy to provide them. By registering for this class and staying in this class, you are indicating that you acknowledge and accept these policies. http://cms.montgomerycollege.edu/mcsyllabus/

VI. Additional Information

A. Getting Started

The first thing to do is to go to the Blackboard course website. The entry page is labeled "Course Content". You should see the modules for each week. Get started by clicking on the "Start Here and Welcome" module. This module contains several pages to welcome you to the course and delineate what is expected of you. Be sure to read through all the pages.

B. Technical Requirements & Technical Support

You will need regular use of a computer with Internet access. Expect to spend time online each week.

For technical assistance with college supported resources, call the Montgomery College IT Service Desk at 240-567-7222.

The HELP link on the left-hand course menu links to the MC Blackboard Online Support Center. Students can

1. Call the Support Center at 240-567-7222, or
2. Chat with a service representative, or
3. Submit a ticket.

The *My Support* link at the top of the Blackboard Online Support Center screen links to a history of one's correspondence with the support center.

System Downtime

The Office of Information Technology conducts computer network maintenance on Sunday morning from 12.01AM to 6.00AM each week. During this time you may be not be able to access My MC to login to Blackboard. Do not rely on this time to submit course work.

C. Use of Email

The best way to contact me is via email (carrie.fitzgerald@montgomerycollege.edu). When emailing me, please do the following or I may not be able to respond to your email:

1. Use your Montgomery College email account.
2. **In all correspondence, be sure to include your full name, and indicate which section you are in (Monday-Wednesday, Tuesday-Thursday, or online.)**
3. Use the subject line to indicate the purpose of your email.

D. Privacy

Electronic communications do not guarantee privacy. In addition to the instructor (me), technical staff or administrative personnel may also access the course. To respect your privacy, sharing personal information or posting photographs is voluntary, not required. The privacy policy for Blackboard can be found here: http://www.blackboard.com/footer/privacy-policy.aspx.

E. Accessibility

Blackboard is ADA compliant. Please see Blackboard's Accessibility Statement at the bottom of each course home page. The link can be found here: http://access.blackboard.com. The lectures were developed by the instructor. Accessibility is provided by lecture transcripts throughout the course lectures.

F. Withdrawal and refund dates

Available via MyMC

G. Final Exam Schedule: https://cms.montgomerycollege.edu/edu/department2.aspx?id=48071

VII. Course Schedule

I will do my best to keep to the schedule (below and next page). Occasionally the college will close for weather or other issues. If that happens, the schedule may be modified. (LT stands for *Lecture Tutorials for Introductory Astronomy* workbook.)

DATE	MODULE (READING)	DISCUSSION, LABS, AND QUIZZES
Week of 21-Jan-2019	Module 1 (Ch. 1 Science and the Universe)	Disc. 01: LT Star Charts, pg. 19-20)
	Module 1 (Ch. 1 Science and the Universe)	**Due Friday 25-Jan-2019: HW 01 (Mod. 01)**
Week of 28-Jan -2019	Module 2 (Ch. 2 Observing the Sky)	Disc. 02: LT Position, pg. 1-2; Motion, pg. 3-6; Seasonal Stars, pg. 7-9
	Module 2 (Ch. 2 Observing the Sky)	Lab 01: Introduction to Stellarium **Due Friday 1-Feb-2019: HW 02 (Mod. 02)**
Week of 4-Feb -2019	Module 3 (Ch. 3 Orbits and Gravity)	Disc. 03: LT Kepler's Second Law, pg. 21-24; Kepler's Third Law, pg. 25-28
	Module 3 (Ch. 3 Orbits and Gravity)	Lab 02: Observing the Night Sky LT Quiz : LT Newton's Law and Gravity pg. 29-32 **Due Friday 9-Feb-2019: HW 03 (Mod. 03), Lab 01**
Week of 11- Feb -2019	Module 4 (Ch. 4 Earth, Moon, and Sky)	Disc. 04: LT Cause of Moon Phases, pg. 81-83; Predicting Moon Phases, pg. 85-87
	Module 4 (Ch. 4 Earth, Moon, and Sky)	Lab 03: Mapping the Sky **Due Friday 15-Feb-2019: HW 04 (Mod. 04), Lab 02**
Week of 18-Feb-2019	Module 5 (Ch. 5 Radiation and Spectra)	Disc. 05: LT Blackbody radiation, pg. 59-62
	Module 5 (Ch. 5 Radiation and Spectra)	Lab 04: Neon Lights **Due Friday 22-Feb-2019: HW 05 (Mod. 05), Lab 03**
Week of 25-Feb-2019	Module 6 (Ch. 6 Astronomical Instruments)	Disc. 06: LT Types of Spectra, pg. 63-64; Light and Atoms, pg. 65-69
	Module 6 (Ch. 6 Astronomical Instruments)	In-class assignment: LT EM Spectrum of Light, pg. 47-49; Telescopes and Earth's Atm., pg. 51-53 **Due Sunday 1-Mar-2019: Lab 04**

Week of 4-Mar-2019		**Due Monday 4-Mar-2019: Test 1 Modules (1-6)**
	Module 7 (Ch. 15 The Sun: A Garden-Variety Star; Ch. 16 The Sun: A Nuclear Powerhouse)	**NO LAB**
Week of 11-Mar-2019	SPRING BREAK	
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Week of 18-Mar-2019	Module 8 (Ch. 17 Analyzing Starlight) (have students read 17.4)	Disc. 07: LT App. & Abs. Magnitudes, pg. 33-35; Luminosity, Temperature, and Size, pg. 55-58;
	Module 8 (Ch. 18 The Stars: A Celestial Census)	Lab 05: Magnitudes and Distances **Due Friday 22-Mar-2019: HW 06 (Mod. 08)**
Week of 25-Mar -2019	Module 9 (Ch. 19 Celestial Distances)	Disc. 08: LT Binary Stars, pg. 121-124
	Module 9 (Ch. 21 The Discovery of Planets outside the Solar System – Sec. 21.4, 21.5, 21.6	Lab 06: HR Diagram **Due Friday 29-Mar-2019: HW 07 (Mod. 9), Lab 05**
Week of 1-Apr-2019	Module 10 (Ch. 22 Stars from Adolescence to Old Age)	Disc. 09: LT The Parsec; Parallax and Distance pg. 37-43
	Module 10 (Ch. 22 Stars from Adolescence to Old Age)	In-class assignment: LT HR Diagram, pg.117-118; Star Formation, pg. 119-120 **Due Friday 5-Apr-2019: HW 08 (Mod. 10) , Lab 06**
Week of 8-Apr-2019	Module 11 (Ch. 23 The Deaths of Stars)	Disc. 10: LT Milky Way Scales, pg. 135-138 Galaxy Classification, pg. 139-142
	Module 11 (Ch. 24 Black Holes and Curved Spacetime)	Lab 07: The Milky Way **Due Friday 12-Apr-2019: HW 09 (Mod. 11)**
Week of 15-Apr-2019	Module 12 (Ch. 25 The Milky Way Galaxy)	Disc. 11: LT Dark Matter, pg. 143-148
	Module 12 (Ch. 26 Galaxies)	Lab 8 : Hubble's Law **Friday 19-Apr-2019: HW 10 (Mod. 12) Lab 07**
Week of 22-Apr-2019		**Due Monday 22-Apr-2019: Test 2 Modules (7-12)**
	Module 13 (Ch. 29 The Big Bang / Fate of the Universe)	NO LAB **Due Friday 26-Apr-2019: Lab 08**
Week of 29-Apr-2019	Module 13 (Ch. 29 The Big Bang / Fate of the Universe)	In-class assignment LT Hubble's Law, pg. 155-160
	Module 14 (Ch. 30 Life in the Universe)	In-class assignment: LT Exp. Of the Universe, pg. 161-162
Week of 6-May-2019	Finals Week	