



## Basic Course Information

Semester:	<b>Spring 2022</b>	Instructor Name:	<b>Dr. Djemoui (DJ) Bouzidi</b>
Course Title & #:	<b>Astronomy 100</b>	Email:	<b>Dj.bouzidi@imperial.edu</b>
CRN #:	<b>20016</b>	Webpage (optional):	
Classroom:	<b>Online</b>	Office #:	<b>2775</b>
Class Dates:	<b>Feb 14 to Jun 10</b>	Office Hours:	<b>Mon.: 10:00—11:00 AM Tue.: 1:00—2:00 PM (ONLINE) Wed.: 10:00—11:00 AM Thu.: 1:00—2:00 PM (ONLINE)</b>
Class Days:	<b>Weekly Schedule</b>	Office Phone #:	
Class Times:	Online	Emergency Contact:	
Units:	3	Class Format:	Online

## Course Description

An introduction to the principles of astronomy, including physical evolution, tools of the astronomer, the sky, the solar system, the stars, the galaxies and the universe. (CSU, UC)

## Course Prerequisite(s) and/or Corequisite(s)

There are no prerequisites for this course.

## Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. comprehend the workings of the seasons around the Earth and their intrinsic cause. (ILO2, ILO5)
2. determine the phases of the Moon based on its location with respect to the Earth and the Sun. (ILO2)
3. conceptualize, both in physical size and in time of formation, the differences between the Solar System and the Universe. (ILO2)

## Course Objectives

Upon satisfactory completion of the course, students will be able to:



1. Demonstrate knowledge of the periodic motions of objects on the celestial sphere and their observable effects.
2. Demonstrate knowledge that astronomers locate objects in the sky through the use of a celestial coordinate system.
3. Demonstrate knowledge of the history and theories of Astronomy. The student will differentiate between the ideas of Brahe, Kepler, Galileo, Newton, and others.
4. Discuss the Sun as the center of our solar system, the scale of our solar system, and the origin of the solar system.
5. Describe the similarities and differences between the terrestrial and jovian planets, both as categories of planets and on an individual basis.
6. Describe the physical evolution of stars: their process of formation, their main-sequence lifetimes and means of energy production, and their final evolutionary processes which lead to the various types of stellar remnants.
7. Describe the basic components of the Milky Way galaxy and demonstrate knowledge of the different types of galaxies, to understand that galaxies are fundamental units of the universe, and the origins of galaxies.
8. Discuss the scientific theory for the physical evolution of the Universe, from its beginning in what is known as the "Big Bang" through to its ultimate fate of being "open" or "closed".

### **Textbooks & Other Resources or Links**

Pathways to Astronomy, by Stephen Schneider & Thomas Arny. (5th ed.) ISBN: 987-1-259-72262-2

Canvas Online: <https://imperial.instructure.com/courses/17382>

Stellarium software: <http://stellarium.org/>

### **Course Requirements and Instructional Methods**

#### **Assignments:**

1. Participation quizzes and assignments. You must participate in the course and answer or complete assignments to show full engagement in the course. This is a semester long assignment and must be completed throughout the entire course.
2. Two written short essays (1-2 pages in length), one involving the description of the retrograde motion of several objects in the solar system and the other either tracking a lunar activity for a whole cycle or using Stellarium software to track the position of the Sun and Arcturus over a whole solar year cycle.
3. In-class or online peer learning activities (3-4 pages in length) completed by the students working together with only modest instructor involvement

#### **Out-of-class:**

1. Assigned reading in textbook (10 to 30 pages per week), supplemental handouts and online course notes.



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2. Assignments involving mathematical relations covering, but not limited to the following: the changing altitude of the Sun (seasons); applications of Kepler's Laws of Planetary Motion; radio-isotopic dating (for the determination of the age of the Earth and Solar System); relationships involving temperature, wavelength, and energy of photons of light; applications of the mass-luminosity relation for stars determining the lifetimes of different mass stars.
3. Conceptual assignments involving the rising and setting times of various lunar phases, physical size of the Milky Way galaxy, and the expansion properties of the Universe.

*Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.*

### **What if I need to borrow technology or access to WIFI?**

1. To request a loaner laptop, MYFI device, or other electronic device, please contact the Student Equity & Achievement Program at 760-355-5733
2. If you'd like access the WIFI at the IVC campus, you can park in parking lots "I & J". Students must log into the IVC student WIFI by using their IVC email and password. The parking lots will be open Monday through Friday from 8:00 a.m. to 7:00 p.m.

Note: there maybe restrictions due to COVID19 pertaining to the above hours.

Guidelines for using parking WIFI:

- Park in every other space (empty space BETWEEN vehicles)
- Must have facemask available
- For best reception park near buildings
- Park only at marked student spaces
- Only owners of a valid disabled placard may use disabled parking spaces
- Only members of the same household in each vehicle
- Occupants MUST remain in vehicles
- Restrooms and other on-campus services not available
- College campus safety will monitor the parking lot
- Student code of conduct and all other parking guidelines are in effect
- Please do not leave any trash behind
- Please consult with the "IVC Campus Safety & Parking Control Department" or directly [gina.madrid@imperial.edu](mailto:gina.madrid@imperial.edu) for your parking permit needs.
- If you have any questions about using parking WIFI, please visit <https://www.imperial.edu/student-support/student-affairs/>.
- Emergency and safety on campus (760) 483-7411



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## Course Grading Based on Course Objectives

3 Mid-term Exams	50% of final grade
Homework Exercises	30% of final grade
2 Written Assignments	10% of final grade
Participation Quizzes/Assignments	10% of final grade
	TOTAL GRADE 100%

## Course Policies

1. Participation is required and graded.
2. No late work is to be accepted and graded. Please note that each assignment has a due date and time associated to it. Failure to submit your work on time can subject your assignment not to be graded. When an assignment has been graded, usually immediately after the assignment is due, any submission after that maybe ignored. There is no exception to this rule regardless of any excuse.
3. Academic integrity policies of the college are fully enforced in this class.

## Other Course Information

*[Optionally, include other necessary information.]*

## IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit <http://www.imperial.edu/studentresources> or click the heart icon in Canvas.



## Anticipated Class Schedule/Calendar

Week of 1st Day	SUBJECT	READINGS
Week 1	Introduction	
Feb. 14	Earth and Sky Coordinates	Unit 5
	Annual Motion of the Sun	Units 6, 7, and 9
Week 2	The Reason for Seasons	Units 6, 7, and 9
Feb. 21	Phases of the Moon	Unit 8
	Solar and Lunar Eclipses	Unit 8
Week 3	Early Astronomy	Unit 10
Feb. 28	Astronomical Revolution I	Unit 11
Week 4	Astronomical Revolution II	Unit 12
Mar. 7	Solar System Overview	Units 34 and 35
Week 5	The Earth in Detail	Units 37 and 38
Mar. 14	<b>First Mid-Term Exam</b>	
Week 6	The Moon in Detail	Unit 39
Mar. 21	The Greenhouse Effect	Unit 41
Week 7	Pluto and Charon	Unit 48
Mar. 28	The Outer Satellites, Comets	Units 47 and 49
Week 8	Light and Radiation I	Units 21 and 22
Apr. 4	Light and Radiation II	Units 23 and 24
Week 9	Our Friend, the Sun	Units 51, 52 and 53
Apr. 11	Basic Properties of Stars	Units 54, 56, 57, 58
Apr. 18	<b>Spring Break</b>	
Week 10	The H-R Diagram	Units 59, 60, and 62
Apr. 25	<b>Second Mid-Term Exam</b>	
Week 11	Death of Low-Mass Stars	Units 63 and 65
May 2	Death of High-Mass Stars	Units 67 and 68
Week 12	Black Holes	Unit 69
May 9	Our Milky Way Galaxy I	Units 71 and 72
Week 13	Our Milky Way Galaxy II	Units 72 and 73
May 16	Dark Matter	Units 74 and 79
Week 14	Galaxies in the Universe	Unit 75
May 23	Cosmology I	Units 77, 80, 81, 82
Week 15	Cosmology II	Units 81, 82
May 30	Cosmogony III	Units 82 and 83
Week 16	Cosmogony IV	Units 82 and 83
Jun 6	<b>Third Mid-Term Exam</b>	

**\*\*Subject to change without prior notice\*\*\***