# Astronomy 100 -- Principles of Astronomy -- Spring 2016 Imperial Valley College 

Instructor: Dr. Russell J. Lavery

Office: Rm. 2777 (2700 Building)
Phone: 355-6202 (ext. 6202)
E-Mail: Russell.Lavery@imperial.edu
Question Hours: Monday: 12:50 to 1:50 (Campus Hour) Tuesday: 11:30 to 12:30
On these Mondays, $3 / 21,4 / 18,5 / 16$, hours will be from 10:00 to 11:00 am)
Wednesday: 12:50 to 1:50 (Campus Hour) Thursday: 11:30 to 12:30
Appointments can also be made if you cannot make these office hours. I am usually in my office when I am not in class. You can always come by and check if I am in.

Class Meetings:

| CRN | Meeting Days | Meeting Times | Room |
| :---: | :---: | :---: | :---: |
| --------------------------------------------------------------------- | ------ | M-W | $11: 20-12: 45$ |
| 20020 | Tu-Th | $9: 40-11: 05$ | 2727 |
| 20021 | Tu-Th | $2: 00--3: 25$ | 2727 |
| 20022 | M | $6: 30 \mathrm{p}-9: 40 \mathrm{p}$ | 2727 |
| 20023 |  |  |  |

Course Description: This course is an overview of Astronomy from the earliest ideas of the heavens.to the modern theories of today. As we study the motions of various celestial objects (Planets, Stars, Galaxies, etc.), we will explore both our geometric and evolutionary place in the Universe.

Course Objectives: Aspects of this course incorporate and are designed to improve the five IVC Institutional Student Learning Outcomes skills of the students in this class:

Communication Skills
Critical Thinking Skills

* Develop the ability to apply the logic of scientific inquiry
* Use quantitative reasoning to solve problems and to interpret the results. Personal Responsibility
* Attend class regularly
* Complete assignments by due date
* Do your own work, not copy another assignment

Information Literacy
Global Awareness.

Student Learning Outcomes: With successful completion of this course, the student will be able to:

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

Textbook: Pathways to Astronomy, by Stephen Schneider \& Thomas Arny. ( any edition) ISBN: 987-0-07-726311-9 ( $4^{\text {th }}$ edition)

Course Grading: 3 Mid-term Exams (15\% each exam)
Final Exam
Homework Exercises
2 Written Assignments
5\% each
TOTAL
$\mathbf{4 5 \%}$ of final grade
$\mathbf{2 0 \%}$ of final grade
$\mathbf{2 5 \%}$ of final grade
$\mathbf{1 0 \%}$ of final grade
$\mathbf{1 0 0 \%}$

Exam Policy: If you miss an exam without prior approval, you must e-mail me or call me and leave a message AS SOON AS POSSIBLE! If you just wait until the next class meeting to talk with me, you will not be allowed to take the exam.

Homework Policy: Late homework (by next class) is worth half credit. No credit after next class. Do your own work! You can work with others, but DO NOT COPY ANYONE ELSE"S ASSIGNMENT! Copied assignments will be given ZERO! This will be true for ALL involved in copying.

Extra Credit: The ONLY form of extra credit is based on quizzes over constellations presented in the planetarium. You must attend the E-C meetings in the planetarium in order to qualify for the extra credit, not just take the quiz. The total extra credit that can be earned is $5 \%$ of the overall grade. There are no projects or papers for extra credit!

Attendance Policy: Regular attendance is REQUIRED; it does NOT earn a passing grade. Poor attendance or regularly missed classes will result in being dropped from class.

For M-W and Tu-Th classes, you will be dropped from this course if you miss THREE (3) consecutive class meetings!
For Monday evening classes, you will be dropped from the course if you miss TWO (2) consecutive class meetings! Roll will be taken TWICE!

Classroom Behavior: Politeness is important!! If you yawn, cover your mouth and keep quiet!
Talking while I am presenting course material should be kept at a minimum! Talking during group exercises and worksheets is required!

The classroom is NOT a lunch room. Water only! No slurping!
Cell phones should be turned off. If your cell phone goes off during an exam, you will be done with the exam and hand it in. So, turn it off!

Coats, backpacks, purses and other such things will be placed on the floor during class. Note-taking material should be on the desk, that's all.

Boyfriend-girlfriend: Hands to yourself. No squeezing during class. Expect not to sit next to each other during exams and quizzes.

Outside the Classroom: The general guide for a college level course is that students should spend TWO HOURS outside the classroom on the course for each hour in the classroom. As this course meets for 3 hours a week, this is SIX HOURS per week. If you are not spending at least 3 to 4 hours each week outside the classroom on this course, you are not meeting your responsibility as a student in this course. This is NOT just time on homework, but means reading, studying and reviewing!

Course Quotation: "The mind is not a vessel to be filled, but a fire to be kindled (ignited)." - Plutarch
"All hope abandon, ye who enter here." From Dante's Divine Comedy.
"Ah gravity, thou art a heartless bitch." Sheldon Cooper (TBBT)

Important Withdrawal Dates: Last day to withdraw without W on transcript: Sunday, Feb. $28^{\text {th }}$. Last day to withdraw with W on transcript: Saturday, May $14^{\text {th }}$.

Any student with a documented disability who may need educational accommodations should notify the Instructor and the Disabled Student Programs and Services (DSP\&S) Office as soon as possible. The DSP\&S Office is in Room 2117 of the Health Sciences Building (355-6312).

Course Webpage: $\mathrm{http}: / /$ spaces.imperial.edu/russell.lavery/ASTR100/front100.html

Astronomy 100 -- Spring 2016 -- Monday Night Syllabus

| DATE | SUBJECT | READINGS |
| :---: | :---: | :---: |
| --------- | --------------------------------------- | ------------------------------------------- |
| Feb 15 | Holiday |  |
| 22 | Introduction |  |
|  | Earth and Sky Coordinates | Unit 5 |
| 29 | Annual Motion of the Sun | Units 6, 7 \& 9 |
|  | The Reason for Seasons | Units 6, 7 \& 9 |
| Mar 7 | Phases of the Moon | Unit 8 |
|  | Solar and Lunar Eclipses |  |
|  | Early Astronomy | Unit 10 |
| 14 | Astronomical Revolution I | Unit 11 |
|  | Astronomical Revolution II | Unit 12 |
|  | Solar System Overview | Units 34 \& 35 |
| 21 | First Mid-Term Exam |  |
|  | The Earth in Detail | Unit 37 |
|  | The Moon in Detail I | Unit 39 |
| 28 | Spring Break |  |
| Apr 4 | The Moon in Detail II | Unit 39 |
|  | The Terrestrial Planets | Unit 38, 39 \& 40 |
|  | The Greenhouse Effect |  |
| 11 | Pluto and Charon | Units 48 |
|  | The Outer Satellites | Units 47 \& 48 |
|  | Light and Radiation I | Units 22, 23, 24, \& 25 |
| 18 | Light and Radiation II | Units 22, 23, 24, \& 25 |
|  | Our Friend, the Sun | Units 51, 52 \& 53 |
| 25 | Second Mid-Term Exam |  |
| May 2 | Basic Properties of Stars | Units 54, 56, 57 \& 58 |
|  | Basic Properties of Stars | Units 54, 56, 57 \& 58 |
|  | The H-R Diagram | Units 59, 60 \& 62 |
| 9 | Death of Low-Mass Stars | Units 63 \& 65 |
|  | Death of High-Mass Stars | Units 67 \& 68 |
|  | Black Holes | Unit 69 |
| 16 | Our Milky Way Galaxy | Units 71, 72 \& 73 |
|  | Dark Matter | Units 74 \& 79 |
|  | Cosmology | Units 77, 80 \& 81 |
| 23 | Third Mid-Term Exam |  |
|  | Cosmogony | Units 82, 83 \& 84 |
|  | Life in Other Places? | Units 85 \& 86 |
|  | Final Exam Preparation |  |
| 30 | Holiday |  |
|  |  |  |
| 6 | Final Exam |  |

