

**LOCATION**

Tuesday and Thursday at 10-11 am (SW 309)

**DESCRIPTION**

This course is an overview of modern astrophysics beyond our Solar System and planets. We will learn about the **stars, galaxies and the Universe**, their origin, structure, evolution and fate. The questions to be addressed include: What are stars? How do stars evolve? What will happen to the Sun? What are galaxies? How do they organize themselves? What is the Big Bang model of the Universe? The course is suitable for both science and non-science students.

**INSTRUCTOR:** Professor Diana Valencia UTSC Office SW504B  
[dvalencia@utsc.utoronto.ca](mailto:dvalencia@utsc.utoronto.ca)

Office hours: Tuesdays 11:00am-12:00pm and by appointment

**TUTORIALS:** Tutorials are in place for your benefit and the Teaching Assistants are here to help you learn. Use this resource to the fullest extent possible. Tutorials are designed to help you consolidate concepts and practice your skills. Your TA is your main contact person for course, face-to-face during tutorials and by email outside of tutorials. Tutorials start on Thursday January 9th 2017.

**TEACHING ASSISTANTS:**

Ryan Cloutier - [cloutier@astro.utoronto.ca](mailto:cloutier@astro.utoronto.ca) [Head TA]

Faisal Usmani - [faisal.usmani@mail.utoronto.ca](mailto:faisal.usmani@mail.utoronto.ca)

Cindy Yang - [cindy.yang@mail.utoronto.ca](mailto:cindy.yang@mail.utoronto.ca)

**PREREQUISITES:** none in terms of classes. However, you will need basic mathematical skills such as arithmetic (addition, subtraction, multiplication, division, logarithms), and be able to interpret basic graphs.

**BOOKS:**

ASTRO 2st Canadian Edition by Shohini Ghose, Vesna Milosevic-Zdjelar, L. Arthur Read

ISBN-10: 0-17-653214-5

ISBN-13: 978-0-17-653214-7

For further reading: *Universe*, by Roger A. Freedman & William J. Kaufmann III

**CNOW:**

Intro to this online system will be provided by Barbara March, Nelson Publ. representative. Note that you're asked to include student number in your id/ registration and use a special format of the name (see below), or else we may not recognize you & may not be able to give you proper credit.

Class Key:

**ASSIGNMENTS:** There will be four assignments distributed throughout the course. In addition, there will be assigned readings and multiple-choice homework through CNOW for you to complete. The intent behind these assignments is to help you understand the material.

**QUIZZES:** Throughout the course there will be 4 pop-quizzes given in the tutorials. The goal is to help you assess how you are learning.

**MARKING SCHEME:**

Assignments .....	20% (5% each)
Pop Quizzes .....	10%
Online Quizzes .....	5%
Midterm .....	25%
Final Exam .....	40%

Term work or test missed because of illness requires a signed medical note. Please show me the original and provide me with a photocopy for my records. Also please inform me as soon as possible regarding the fact that you missed a PS deadline or test due to illness.

Info on academic integrity policies can be found here:  
<http://www.artsci.utoronto.ca/osai/students>

**APPROXIMATE SCHEDULE:** (we'll try to cover all topics listed time permitting)

- Light, matter and gravity: Chapter 5
- Observed properties of Stars: motion, brightness, masses, radii, spectra, H-R diagram: Chapter 6
- Star's structure and evolution: Chapter 7
- Star's death: Supernova, Neutron Stars and Black Holes: Chapter 8
- The Milky Way, galaxy classification: Chapter 9
- Groups and clusters of galaxies: Chapter 10
- Large scale structure of the universe: Chapter 11
- Expanding universe, the Hubble Constant, The Big Bang Theory: Chapter 11