

# Astronomy ASTA01

## Introduction to Astronomy and Astrophysics I:

### The Sun and Planets

Fall 2015

**Instructor:** *Prof. Kristen Menou*

**Office:** SW517A, Science Wing

**Phone:** 416-287-5060 (office)

**E-mail:** kmenou // at \\ utsc.utoronto.ca

**Web page:** <http://individual.utoronto.ca/kmenou/ASTA01.html>

**Office Hours:** Tuesday, 2-3 pm and by appointment

#### **LECTURES - TIME & PLACE:**

Tuesdays, 10am - 11am, SY110

Thursdays, 10am - 11am, SY110

#### **DESCRIPTION:**

The solar system has been thoroughly explored by astronomical instruments on Earth and in space. In addition, fundamental and exciting discoveries of the last two decades provide us with the basic knowledge about the existence and the orbital architecture of a large variety of planets in extrasolar planetary systems (i.e., around stars other than our Sun). This course will introduce you to both solar and extrasolar systems. This course considers astronomical bodies and their origin and evolution, as well as basic parts of physics, some chemistry, etc., required to observe them and understand their structure. As part of the history of the subject, we give an overview of the development of astronomy from ancient times to the age of modern Newtonian science. The course is suitable for both science and non-science students.

## **CONTACTING THE TEACHERS:**

Head Teaching Assistant: Ryan Cloutier, email: cloutier\_/AT\\_astro.utoronto.ca [change\_/AT\\_to @]

Obtain the contact information from your section's TA, and send him/her email about the course or tutorial materials.

Email the head TA with questions that your section's TA cannot answer, and Prof. Menou as a last resort.

Prof. Menou Office Hours: Tuesday, 2-3 pm and by appointment

## **TUTORIALS:**

Tutorials start on September 11.

7 sections as follows:

TUT0001	TH	12:00	13:00	BV 361
TUT0002	TH	13:00	14:00	BV 361
TUT0003	TH	14:00	15:00	BV 361
TUT0004	TH	15:00	16:00	IC 320
TUT0005	TH	09:00	10:00	AA 209
TUT0006	TH	11:00	12:00	AA 206
TUT0007	TH	16:00	17:00	AC 334

Your attendance at lectures and tutorials is expected. The lectures follow the textbook, but include some additional information, comments and perspectives.

## **TEXTBOOK (REQUIRED):**

Planetary science is developing very quickly. We are fortunate to have an up-to-date, fresh textbook taking into account some of the most recent discoveries:

**"ASTRO, 2ND Canadian edition"** by Shohini Ghose; Vesna Milosevic-Zdjelar; L. Arthur Read

ISBN-10: 0-17-653214-5

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

Our UTSC bookstore has the packages, which include (at modest extra cost) the access to electronic resource and learning site of the publisher called CNOW (required). This site will allow you to do the weekly quizzes. If you want to buy the book somewhere else that's fine, please talk to the bookstore staff and they can help you purchase the access to CNOW (which is necessary for the class) separately. It may be much more expensive than buying the package though.

## 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: E-X7FG4PL46YPJ9

## QUIZZES

Online quizzes will be available from the second week of the course. There will be one or two quizzes per week. Again, the quizzes and the deadlines will be posted on CNOW, to which you must register (if you haven't done it yet) using the **AxxxxName format, where xxxx are the 4 last digits of your student number, and Name is your last name.** It is your responsibility to check the information on CNOW as a primary source. Quizzes will start during the second to third week of lectures, when most of you have had a chance to register with CNOW.

Quizzes are either graded and non-graded. The graded ones, also called 'tests', have two accepted submissions (the second one earns marks reduced by 50%). This means you should retry a question only if you're sure you made a mistake and now you know the right answer. All tests together will earn 12% max contribution to the final course score.

The non-graded quizzes are for your education and enjoyment - they are of the form and difficulty level of the graded tests and exam questions. You can retry your submission up to 3 or more times. Use that educational resource!

## ABOUT THE EXAMS

Exams (midterm and final) will take place on dates to be determined.

The Final Exam will be 3 hours long. Remember to take a calculator and a student ID with you to each exam. The following UTSC rules apply. Cellphones must be off and in a bag that you will put away from your desk. You may leave the exam room (except in the final minutes of the exam) to be escorted to the washroom or for religious practices - but no extra exam time will be granted because of this.

The exams will consist of quiz (multiple choice) questions, and written problems. The quizzes on CNOW will give you a good notion of the types of questions you may expect on exams. As for the problems, they will sometimes require calculations of a simple, algebraic type (high school algebra, trigonometry, no calculus or university math required). Tutorials and written assignments will introduce you to the type of problems you will see in the exams.

Exams are closed-book (no books or notebooks allowed). During an exam you will be able to use note sheets of your own making, either typewritten, handwritten or copied. Two sheets of paper

(up to 4 pages normal size) of notes are allowed. This way, you won't have to memorize formulae or data. Also, the text of each exam will have a final section listing the physical and astronomical constants that may (or may not) be helpful in solving the problems. (Most will not be used as part of the solutions.)

What material is required knowledge for the exam? In general - the textbook and the lecture notes (slides), plus the skills developed in tutorials and written assignments. The midterm covers everything up to the midterm. Courses slides will be distributed through Blackboard.

Marking scheme of the course

Max. score = 100%, midterm = 20%, final exam = 44% (20% problems, 24% quiz), 4 sets of homework assignments = 24% (6% each), quizzes 12%.

Grading is standard: minimum percentage marks for letter grades (for orientation only, since grades are reported as percentages) A+ 90%, A 85%, A- 80%, B+ 77%, B 73%, B- 70%, C+ 67%, C 63%, C- 60%, D+ 57%, D 53%, D- 50%, F 49% or less.

## TUTORIALS

Tutorials and the Teaching Assistants (TAs) are your friends! Use this resource to the fullest extent possible. The TAs are graduate and undergraduate students familiar with both UTSC, its programs, and this course. They are your primary contact during the tutorials, and by email between tutorials. TAs will distribute any materials needed for the homeworks, gather and grade them. They'll also share their emails for contact with you. It is recommended to take a calculator to the tutorial.

## POLICIES ON PROBLEM SETS:

Due about one week later.

**Policy on collaboration:** You are welcome to discuss the problems with fellow students, but you must write your own solutions, individually.

**Policy on late problem set returns:** In order to be fair to those who turn assignments in on time, points will be deducted on assignments turned in late.

## APPROXIMATE SCHEDULE:

- Week 1: Introduction & Organization - The scale of the cosmos (Chapter 1)
- Week 2: Guide to the Sky: Patterns & Cycles (Chapter 2)
- Week 3: Guide to the Sky: Patterns & Cycles (Chapter 2)
- Week 4: The Origin of Modern Astronomy (Chapter 3)
- Week 5: The Origin of Modern Astronomy (Chapter 3)

- Week 6: The Origin of the Solar System (Chapter 12)
- Week 7: The Origin of the Solar System (Chapter 12)
- Week 8: The Origin of the Solar System (Chapter 12)
- Week 9: Extrasolar Systems (Chapter 12)
- Week 10: Comparative Planetology of the Terrestrial Planets (Chapter 13)
- Week 11: The Outer Solar System (Chapter 14)
- Week 12: Outer Solar System and Life on Other Worlds (Chapter 14 & 15)