AST201H1 – Stars and Galaxies – Winter 2009

Lectures: Convocation Hall, 4:00 PM on Tuesdays and Thursdays.

Tutorials: This year, we are holding extensive tutorials in relatively small groups once a week, on Tuesdays or Thursdays with a large selection of times. While the tutorials are not compulsory, you *MUST* sign up to a tutorial group as all hand backs will be done in your section. We **STRONGLY** encourage you to attend your tutorial every week. Each week, all tutorials will cover the same topics, with systematically-prepared common materials. This is a major initiative to improve your AST201 learning experience, and it is in your interest to participate.

Tutorial sign-up will be through Blackboard before and during the first week of classes. Specific tutorial dates are below.

Office Hours: After each lecture (Tuesdays and Thursdays 5:00 to 6:00 PM)

Office hours will be held by the professor teaching the lecture, or by appointment with individual instructors. Special office hours before assignments and exams will be organized as well.

Instructors

AST201 is being taught by Prof. Stefan Mochnacki and Prof. Marten van Kerkwijk from the Department of Astronomy & Astrophysics. They are being assisted by a crack team of 14 Teaching Assistants.

Contact Information and Quick Links

Before sending us an e-mail with a question you should check the FAQ pages to see if the question has already been answered.

To ensure all problems are dealt with properly, your point of contact for **all** enquiries is your tutorial TA. Ideally please speak to your tutorial TA after your tutorial. However, if you need to contact them by e-mail please use the following **addresses** (add **@astro.utoronto.ca** to the end of each)

Tutorial Group	E-mail Address
Tuesdays at 11:00	ast201_T11
Tuesdays at 12:00	ast201_T12
Tuesdays at 13:00	ast201_T13
Tuesdays at 15:00	ast201_T15
Tuesdays at 17:00	ast201_T17
Tuesdays at 18:00	ast201_T18
Thursdays at 11:00	ast201_R11
Thursdays at 12:00	ast201_R12
Thursdays at 13:00	ast201_R13
Thursdays at 14:00	ast201_R14
Thursdays at 15:00	ast201_R15
Thursdays at 17:00	ast201_R17
Thursdays at 18:00	ast201_R18

For any question you cannot ask your tutorial TA, or in case your e-mail does not get answered within a week, the head TA can be reached at ast201.

All emails will be activated from the first day of class until your final exam.

General Information and Course Aims

AST 201 is one of two independent courses in introductory astronomy offered by the Dept. of Astronomy & Astrophysics. In this class, we discuss the properties and life cycles of stars, galaxies, and the Universe as a whole. Our main aims are to give students a sense of their place in the grand scheme of things, and also to introduce them to the excitement and rapid pace of discovery of modern astronomy.

Note: This course is intended for students with no science or engineering background. This course cannot be taken for credit by those who are taking (or have previously taken) AST 221H, Civil 101H or any 100-level or higher-series Chemistry or Physics courses (with the exception of PHY 100H or CHM 200Y).

Textbook

The Cosmic Perspective, 5th edition, by Bennet, Donahue, Schneider and Voit (Addison-Wesley Longman, Inc.).

Note: we obtained a special deal on the book ($124.95 at the U of T Bookstore) that includes access to online tutorials (see below), an electronic version of the textbook, extra software, and a rebate for clickers. Elsewhere, the retail price for just the book is $152.00

Internet Resources

There are three websites you will be using throughout the course:

- `http://www.astro.utoronto.ca/~ast201/` is the course home page. You are reading this web page right now! This is the place to go to for the latest information on the course, announcements, etc.
- `http://portal.utoronto.ca/` gives access to the U of T Blackboard system, which is what we will be using for the online quizes. You will need to get a UTORid and a password in order to log in. For help on logins, etc, see Portal Help.
- `http://www.masteringastronomy.com/`. This 'Mastering Astronomy' website is linked to the textbook we will be using, and it has a large number of online tutorials, movies, summaries, and quizzes that help you learn and test your knowledge. You will have received an access code for the site if you bought a new book.

  Note: If you bought a used book, you can still get access to this website if you buy an access code. These can be obtained at the bookstore too (they are packaged up in a silly environmentally unfriendly form at the same place that the textbook is sold). While not absolutely essential, we found the Mastering Astronomy website to be a nice supplement to the textbook, so we do recommend you buy an access code for the site if you purchased a used textbook.

In addition, a fourth website you will need to visit is this website for registering your clickers. Please remember to use your UTORid for your student number!

Other Technology

We will be using "clickers" in class to get feedback from the audience. The clicker responses will be used to add a level of interactivity to the lectures, *but they will not not be used as a component of the grading scheme.* While we will not be organizing formal observing sessions, we will encourage those of you interested in looking through an actual telescope to attend one of the **free public astronomy tours** held by the Astronomy & Astrophysics department on the *first Thursday of every month.*

Common Courtesy Guidelines

For the benefit of your fellow students and instructors, you are expected to practice common courtesy, such as showing up for class on time, and not leaving early, or rustling papers in preparation for leaving. Also, please **turn off your cell phones** before class begins.

Course Outline and Lecture Notes

Date	Prof.	Subject	Chapter	Notes
Jan 6	MHvK	Introduction and Practicalities +		HTML, PDF
		Overview of the Universe	1	HTML, PDF
Jan 8	MHvK	History of the Universe +	1	HTML, PDF
		Science of Astronomy	3.4	HTML, PDF
Jan 13	SM	Physics of Astronomy I	4.1-4.4,orbits	PDF
Jan 15	SM	Physics of Astronomy II	5	PDF
Jan 20	SM	Telescopes	6	PDF
Jan 22	SM	Nature of Space and Time	S2	PDF
Jan 27	MHvK	The Sun	14	HTML, PDF
Jan 29	MHvK	Nearby Stars	15	HTML, PDF
Feb 3	MHvK	Star Birth	16	HTML, PDF
Feb 5	MHvK	Stellar Lives	17	HTML, PDF
Feb 10	MHvK	Stellar Corpses	18	HTML, PDF
Feb 12	–	Midterm Exam	All Above	
Feb 17	–	Reading Week	–	
Feb 19	–	Reading Week	–	
Feb 24	MHvK	Stellar Corpses	18	HTML, PDF
Feb 26	SM	Our Galaxy	19	HTML, PDF
Mar 3	SM	Our Galaxy	19	HTML, PDF
Mar 5	SM	Our Galaxy (concl.)	20	HTML, PDF
Mar 10	SM	Galaxies	20	HTML, PDF
Mar 12	MHvK	Lives of Galaxies	21	HTML, PDF
Mar 17	MHvK	Lives of Galaxies	21	HTML, PDF
Mar 19	MHvK	Dark Matter	22	HTML, PDF
Mar 24	MHvK	Dark Matter	22	HTML, PDF
Mar 26	SM	Beginning of Time I	23	HTML, PDF
Mar 31	SM	Beginning of Time II	23	HTML, PDF
Apr 2	SM	Beginning of Time III	23	HTML, PDF
Apr 7	SM	End of Time	–	HTML with PDF
Apr 9	SM	Review	All SM Above	HTML, PDF
Apr 9	MHvK	Review	All MHvK Above	HTML, PDF
TBD	–	Final Exam	All Above	

MHvK = Marten H. van Kerkwijk
SM = Stefan Mochnacki

We will try (hard!) to post lecture notes presented in class by the end of the day of class.

Tutorials

Date	Week	Topic
Jan 6/8	1	Course details, syllabus, and common misconceptions
Jan 13/15	2	Simple relationships (a.k.a. mathematics of astronomy)
Jan 20/22	3	Assignment 1 (how to present information, how NOT to plagiarize etc.)
Jan 27/29	4	Exam technique and critical thinking
Feb 3/5	5	Midterm prep. (large Q & A portion)
Feb 10/12	6	Observational astronomy (constellations, moon phases, planets)
Feb 24/26	7	Graph interpretation (esp. the HR diagram)
Mar 3/5	8	Scales (sizes of planets, stars, galaxies, and distances) between objects)
Mar 10/12	9	Assignment 2
Mar 17/19	10	Scientific Method
Mar 24/26	11	Order of magnitude
Mar 31/Apr 2	12	What you can see in the sky
Apr 7/9	13	Final prep.

Grading

Your final grade will be based on online quizzes (10%), assignments (20%), a midterm (25%), and a final exam (45%).

Detailed Explanation of Course Grading Scheme

Quizzes (10%) – Weekly online quizzes will be released every Thursday, and have to be done before the next lecture on Tuesday. There will be 11-12 quizzes in total, of which only the 9 best will be counted. Hence, you can afford to miss at least one quiz without penalty, but we recommend you keep this in reserve just in case you get sick, encounter computer problems, etc., as you will not be allowed to re-take quizzes. For each quiz, you can try up to three times (except for the first one, for which you can try as often as you want); we count the score of your last trial.

Assignments (20%) – There will be two assignments, completed outside class. We allow and encourage collaboration on these (within some well-specified guidelines). Note, though, that "collaboration" doesn't mean "copying," and we set harsh penalties on academic dishonesty. It also doesn't mean, "sitting on your posterior doing nothing while the other students do all the work." We try pretty hard to make the assignments thought-provoking (and fun, if you get into this sort of thing). Here are the assignment dates:

1. Assignment 1 will be made available on Jan. 13 and due Jan. 26.

2. Assignment 2 will be available Mar. 6 and due Mar. 20.

Midterm (25%) – The midterm will be a 45-minute test on February 12 at 4pm consisting of 30 multiple choice and 2 short-answer questions It covers all material dealt with before the date of the midterm. Because of the large numbers of students in the course the class will be subdivided into smaller groups and the midterm will be written in a number of different classrooms spread throughout campus.

Final (45%) – The final exam will be a two-hour test in the April exam period, consisting of 60 multiple choice and 4 short-answer questions, on all material covered in the course.

If your grade is better on the final than on the midterm, the final will be given a somewhat higher weight when computing your final course grade (the final will be worth 55% and the midterm 15%). This gives some opportunity to make up for a poorly written midterm.

Solution Sets for Assignments/Midterms

We will make solution sets for the assignments and the midterms available to you after these have been graded and handed back. Links to them will be placed in this section.

Assignment 1 Midterm Assignment 2

Policy on Late Submissions, Deferred Testing, and Academic Misconduct

Late assignments will have 10% subtracted for each work-day late. (In other words, if the assigment is initially graded at 70% but is 3 days late, the final assignment grade will be 40%). If you miss a test or exam, you must provide us with *documented evidence of having a serious illness or other legitimate reason for being unable to write the test/exam*. Minor/trivial maladies will NOT be accepted as reasonable grounds for missing tests; medical certificates must be comprehensive and they will be rigorously checked. All explanations for missing a midterm or final must be given within one week of the exam in order to take a make up test, and no student will be entitled to a second makeup test regardless of circumstances. Please refer to the relevant section of the academic handbook for other details.

A special message from your professors about internet plagiarism: Plagiarism really bugs us. In this course we are passionate about teaching you to think for yourselves. Long after AST201 is over, you (and the society in which you live) will continue to benefit from it, if you learn how to *think*. This is not to be confused with just spewing out other people's ideas. So please don't waste everybody's time by plagiarising from the internet. **Do not do dumb things like cut-and-paste** from websites without synthesizing things **in your own words** and/or attributing things properly. Honestly, just don't go there: when plagiarism is detected the consequences for the student's academic future range from mega-bad to catastrophic. The TAs who grade assigments also know how to use Google, and of course they check for plagiarism from websites. Although previous courses have not properly punished

students for plagiarism, rest assured that in AST201 this semester, the full punishment for all plagiarism will be issued.

If you don't know (or aren't sure of) what plagiarism is, here are a couple of good links at U of T:

How Not to Plagiarize

University of Toronto Policy on Plagiarism

Another good link to check out (although it is outside of U of T so specific details are obviously a little different) is the Rutgers Plagiarism Policy.

Can I Get the Grade I Want?

Sure...but it will depend on your effort! Your qualifications matter less than your willingness to work hard. Astronomy is fascinating, but demanding, and we will move quickly, with each topic building on material already covered. If you fall behind, you will find it hard to catch up, so your best bet is to avoid falling behind!

Some tips can be found in the preface of your textbook called "How to Succeed in Your Astronomy Course." It describes how much time you should expect to spend studying outside class and gives a number of suggestions about how to study efficiently. In general, try to do all the obvious things: don't miss class, and make sure you come to class prepared, having read the chapters that are to be covered. When you turn in assignments, make sure they are done clearly and carefully. Apart from that, enjoy the class!