ASTRONOMY 100 SYLLABUS
FALL 2016

Course Description
ASTR100 is an introduction to astrophysical phenomena. We cover the basics of astronomy as it relates to daily life, delve into the history of astronomical discovery of the local universe, including how astronomers tracked and predicted planetary movements. We explore characteristics and motions of planetary systems, moons, and other celestial bodies in the Solar System, the birth and evolution of stars, properties of galaxies, and life in the Universe.

Course Meeting Times
Lecture: MWF 12-12:50pm 134 Temple Hall

Credit
3 credit hours. Credit not given to students with credit in ASTR 121/122 or ASTR 210. Students with credit in PHYS 211 are encouraged to take ASTR 210.

Prerequisites None.

Webpage
Course materials will be updated on Compass 2g
https://compass2g.illinois.edu
Packback Moderated Forum/Discussion Page
https://www.packback.co/
Office Hours
The Astronomy Building at Green & Gregory is accessible via Silver and Gold buses (Springfield & Gregory) and the Green (Green & Gregory)

Dr. Jessica Evans evans35@illinois.edu
When: Tuesday 3-5 pm or by appointment
Where: 231 Astronomy Building (2nd floor, east side)

Online Media/Textbook
There is no required textbook to purchase for this class; the textbook is only highly recommended. The entirety of reading and reference material is available free, online; a list of necessary readings can be found on the compass ASTR100 page. The online, open-source nature of these readings do not make them any less required! There are three primary sources of required reading:
(AN) Nick Strobel’s Astronomy Notes  www.astronomynotes.com
(WI) Wikipedia
(HP) HyperPhysics

The online material may be above the required level for this class. While the reading list is specified as much as possible, students wishing to purchase or rent a textbook may consider 21st Century Astronomy. The edition is not crucial; any updated material will be presented in lecture. Newer editions of the title may be rented for under $20, and some older editions may be purchased used for under $10. This textbook is highly recommended.
Grading Breakdown, out of 1000 points

**Exams - 350 points - 35%**
- 2 in-class midterms (9/23, 10/21) not cumulative, 10%
- Final, 3 hr (8:00-11:00am December 15), not cumulative, 15%

**Quizzes - 250 points - 25%**
- 12 compass2G multiple choice quizzes, due ~ Fridays
  2 lowest quiz grades dropped
  Quizzes open for ~6 days

**Semester Projects - 300 points - 30%**
- Night observing **(required)** 100 points 10%
- Solar observing **(required)** 100 points 10%
- Article Summary **(required)** 50 points 5%
- Planetarium trip (optional) 25 points extra credit
  Choose one **(required)**:
  - Stellarium Observations 50 (option 1 of 2) 50 points 5%
  - Interactive moon phase lab (option 2 of 2) 50 points 5%

**Attendance - 100 points - 10%**
- 100 points from Packback participation - $18 sign-up
  https://www.packback.co/
- iClicker lecture attendance - 2.5% extra credit
Semester Project Descriptions

Night Observing - student attends one scheduled night observing session with a worksheet to fill out about the session. Details of the scheduled sessions may be found:
http://www.astro.illinois.edu/academics/courses/nighthobs/

Solar Observing - student attends one scheduled solar observing session with a worksheet to fill out about the session. Details of the scheduled sessions may be found:
http://www.astro.illinois.edu/academics/courses/solarobs/

Stellarium Lab (option 1 of 2) - at-home lab using “observations” made in the free online sky simulator, Stellarium. Stellarium is available on all platforms (Mac OS X, Windows, Linux) and is installed on campus Nevada Lab computers (east of Foellinger on Nevada St.)
http://www.stellarium.org/

Interactive Moon Phase Lab (option 2 of 2)- student uses online simulations to gain insight on the physical nature of the moon phases

Science Article Summary - student will find a popular science article about astronomy and write a 1-page summary

Planetarium visit - (extra credit) student attends a Staerkel Planetarium session and brings their TA their signed ticket stub. Students must sign up before attending as space is limited. No worksheet or paper to fill out, just enjoy the session! Cost of show $3, please bring exact change. Scheduled sessions, sign-ups, and directions:
http://www.astro.illinois.edu/academics/courses/planetarium/
Class Policies

**General:** This course will follow all policies in the Student Code (http://www.admin.uiuc.edu/policy/code/).

**Attendance:**
- You are expected to attend lectures. *We will cover material in lecture that will not always be in the assigned readings or even on the lecture slides; such material is fair game for exams.* Class time is the most valuable for you if you come prepared, ready to actively engage the material.
- We will use iClickers in lectures to track attendance but they are *not required* and for extra credit only. Extra credit is earned for every lecture attended that uses an iClicker question for a maximum 25 points. Not all lectures will have an iClicker question.

**Working With Others:** Discussing course material with your classmates is encouraged, but each student is expected to do his or her own work. You may work in pairs on timed quizzes together and discuss the questions. For the observing session reports and labs, you may attend the session with a group, but each student must write and submit their own report. On the Upwells lab exercises, you are encouraged to make measurements with a partner or group but each student must turn in their own lab worksheet. Each student is responsible for understanding and participating in the collection of data, the analysis process, and the results from the exercise. If you
are in any doubt about whether something is allowed or not, ask your instructor.

Late Assignments: Homeworks, labs, and reports have due dates as posted on Compass2G. All assignments are to be submitted to Compass2G. Homework turned in late will be assessed a 15% penalty per calendar day it is late (excepting University holidays). For a well-documented excuse (such as illness) the penalty may be waived at the instructor’s discretion. No work will be accepted more than a week after the due date, regardless of medical excuse. In general, late assignments can only be submitted by e-mail to the instructor.

Make-up Midterms: Make-up midterms will only be offered if the student has good reason, in accordance with sections 1-501, 1-502, 3-201, and 3-202 of the Student Code. Advance notice and documentation are required for approved school events (e.g., athletic competition), religious observances, and other planned absences. In case of unforeseen circumstances that do not allow you to notify the instructor beforehand (e.g., sudden serious illness, family emergency), contact the instructor and/or the Student Assistance Center (http://www.odos.illinois.edu/studentassistance/, helpdean@illinois.edu, 217-333-0050) during business hours. If you are sick, notify the instructor as soon as possible, preferably before the exam, to work out an alternate exam.
Make-up Finals: Undocumented absence from the final exam will result in a grade ABS as per the student code section 3-201. You must notify the instructor of a conflict with the final exam date (e.g., three finals in one day) within one week of notification of the final exam date (section 3-2 intro).

Personal Issues: To insure that concerns are properly addressed from the beginning, students who require reasonable accommodations to participate in this class are asked to see the instructor as soon as possible. All accommodations will follow the procedures as stated in sections 1-107 and 1-110 of the Student Code.

When to Contact the Emergency Dean: It is not advised to contact the Emergency Dean to receive absence letters for exams or lectures. Instead please contact the Student Assistance Center during business hours:
(http://www.alinos.illinois.edu/studentassistance/, helpdean@illinois.edu, 217-333-0050). The Emergency Dean can be contacted after hours at 217-333-0050.
http://www.alinos.uiuc.edu/emergency/

For other assistance, please consider the crisis line or Dial-A-Nurse which are both available 24/7.
Crisis Line 217-359-4141
Dial-A-Nurse 217-333-2700

Academic Integrity: Any instance of academic dishonesty (including cheating and plagiarism) will result in a grade of 0 for that component and be documented in the student’s academic file. This includes copying written material from the Internet without proper attribution.
Please refer to sections 1-401 to 1-406 of the Student Code.

Decorum:
For the benefit of your fellow students and your instructors, you are expected to follow these basic rules of decorum.

1. Show up for class on time.
2. Mute your cell phone before class begins.
3. Use of electronic devices other than for looking at lecture slides/taking notes is discouraged.
4. Be respectful in class: do not use headphones, talk on your cell phone, read newspapers, or prop your feet up on chairs.
5. Be respectful in your interactions with your fellow students and your teachers.
## Schedule

<table>
<thead>
<tr>
<th>DATE</th>
<th>EVENT</th>
<th>DUE DATES</th>
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<tbody>
<tr>
<td><strong>WEEK 1</strong></td>
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<tr>
<td>8/22/2016</td>
<td>LECTURE 1: What is Astronomy?</td>
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<td>8/24/2016</td>
<td>LECTURE 2: Cosmic Scales</td>
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<td>8/26/2016</td>
<td>LECTURE 3: Naked Eye Astronomy: Earth's Rotation</td>
<td>Quiz 1 Due</td>
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<td><strong>WEEK 2</strong></td>
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<tr>
<td>8/29/2016</td>
<td>LECTURE 4: Naked Eye Astronomy: Earth's Revolution</td>
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<td>8/31/2016</td>
<td>LECTURE 5: Reason for the Seasons</td>
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<td>9/2/2016</td>
<td>LECTURE 6: Phases of the Moon</td>
<td>Quiz 2 Due</td>
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<td><strong>WEEK 3</strong></td>
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<td>9/5/2016</td>
<td>LECTURE 7: Eclipses</td>
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<td>9/7/2016</td>
<td>LECTURE 8: Models of the Solar System</td>
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<td>9/9/2016</td>
<td>LECTURE 9: Kepler's Laws</td>
<td>Quiz 3 Due</td>
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<td><strong>WEEK 4</strong></td>
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<td>9/12/2016</td>
<td>LECTURE 10: Newtonian Gravity</td>
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<td>9/14/2016</td>
<td>LECTURE 11: How Light &quot;Works&quot;</td>
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<td>9/16/2016</td>
<td>LECTURE 12: Multi-Wavelength Probes of the Universe</td>
<td>Quiz 4 Due, Due</td>
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<td><strong>WEEK 5</strong></td>
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<td>9/19/2016</td>
<td>LECTURE 13: Capturing Light: Telescopes</td>
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<td>9/21/2016</td>
<td>LECTURE 14: The Sun &amp; Solar Activity</td>
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<td>9/23/2016</td>
<td><strong>MIDTERM 1 Lectures 1-12</strong></td>
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<td><strong>WEEK 6</strong></td>
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<td>9/26/2016</td>
<td>LECTURE 15: Disciplines of Observational Astronomy</td>
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<td>9/30/2016</td>
<td>LECTURE 17: Terrestrial Atmospheres</td>
<td>Quiz 5 Due</td>
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<td><strong>WEEK 7</strong></td>
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<td>10/3/2016</td>
<td>LECTURE 18: Earth &amp; Lunar Geology</td>
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<td>10/5/2016</td>
<td>LECTURE 19: Jovian Planets</td>
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<td>10/7/2016</td>
<td>LECTURE 20: Jovian Moons</td>
<td>Quiz 6 Due</td>
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<td><strong>WEEK 8</strong></td>
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<td>10/10/2016</td>
<td>LECTURE 21: Asteroids</td>
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<td>10/12/2016</td>
<td>LECTURE 22: Comets</td>
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<td>10/14/2016</td>
<td>LECTURE 23: Our Solar Neighborhood</td>
<td>Planetarium Stub, Quiz 7 Due</td>
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<td><strong>WEEK 9</strong></td>
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<td>10/17/2016</td>
<td>LECTURE 24: Stars -- Births &amp; Basics</td>
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<td>10/19/2016</td>
<td>LECTURE 25: Stars -- Where are they?</td>
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<td>10/21/2016</td>
<td><strong>MIDTERM 2 Lectures 13-23</strong></td>
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<td><strong>WEEK 10</strong></td>
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<td>10/24/2016</td>
<td>LECTURE 26: Star Formation Afterthoughts:</td>
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Planets

10/26/2016 LECTURE 27: Finding Extrasolar Planets
10/28/2016 LECTURE 28: Stellar Evolution & the H-R Diagram

WEEK 11
10/31/2016 LECTURE 29: Stellar Death: Supernovae

WEEK 12
11/7/2016 LECTURE 32: Distant Galaxies & The Hubble Deep Field
11/9/2016 LECTURE 33: Galactic Cannibalism
11/11/2016 LECTURE 34: Special Relativity

WEEK 13
11/14/2016 LECTURE 35: General Relativity & Gravitational Waves
11/16/2016 LECTURE 36: The Most Energetic Particles: Gamma Rays!
11/18/2016 NO LECTURE, have a great break

WEEK 14  THANKSGIVING BREAK

WEEK 15
11/18/2016 LECTURE 37: The Big Bang
11/30/2016 LECTURE 38: Dark Matter
12/2/2016 LECTURE 39: Dark Energy

WEEK 16
12/5/2016 LECTURE 40: Life on Earth
12/7/2016 LECTURE 41: Life in the Universe
12/8/2016 READING DAY
12/15/2016 8am FINAL Lec 24-41

Final: 8-11:00am Dec 15th