As stated in the course syllabus, the first midterm exam will be taken in class on Thursday, October 8. The examination will commence at the start of class, and you will have the full class period (1 hour, 15 minutes) to work on it. It will consist of 50 multiple choice questions.

→ Please see the more general “Midterm Exams Guide” in the Course Reader for general information about preparing for Midterm exams in this class, and for a complete exam study guide. This document will not repeat all of the general information given there, but will instead focus on the specific material relevant to this particular exam.

The exam protocol will be exactly as described in the “Midterm Exams Guide” document: i.e., wait outside the exam room until told to enter as a seating chart will be in effect, and be sure to bring a ParSCORE FORM No. F-289-PAR-L scantron form, a pencil, and one official “exam cheat-sheet” (removed from the back of the Course Reader) with anything you want written inside the box to the exam.

What Should I Study?

Put simply, your first midterm exam covers all of the information presented by the lectures and readings during the first 6 weeks of class. Specifically, the material that you are responsible for, and will thus want to review, includes:

1. **Textbook:**
   - Prologue: Sections 1, 2, 3, 4, 5, 6, 7 (through bottom of page 9), 9, 10.
   - Chapter 1: Entire chapter.
   - Chapter 2: Entire chapter.
   - Chapter 3: Section 3.7 only.
   - Chapter 4: Sections 4.1.4, 4.3.1, 4.4.1 and 4.4.2 only.
   - Chapter 8: Section 8.1.1 only.
   - Appendix 4
   - Appendix 5

2. **Course Reader:**
   - (a) **Required Reading:**
     - *A Mathematical Toolkit*
     - *Reading Graphs*
     - *A Few Mathematical Skills*
     - *Kepler & Newton*
     - *Angular Size*
     - *Other Worlds: An Introduction to the Solar System*
   - (b) **Selected Powerpoint Slides:**
     - Slide numbers 1 → 142.
   - (c) **Key Concepts, Terms, People and Ideas:**
     - All terms from “Star” through “ROYGBIV” that are listed in the last pages of the *Course Syllabus*.
   - (d) **Weekly Assignments:**
     - Weekly assignments for weeks 1, 2, 3, 4, 5, and 6.

3. **On-line reading quizzes:** “Quiz 1”, “Quiz 2”, “Quiz 3”, and “Quiz 4”. Full solutions to all four quizzes\(^1\) are available at the textbook website or from the course homepage.

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\(^1\)Solutions to “Quiz 4” will be available beginning at 12:05 AM, Wednesday October 7, on the textbook website.
Where Can I go for Help?

Assistance is available before the exam through:

- **My office hours**: Friday, October 2, from 12:00 – 2:00 PM.

- **TA help room hours** (Rm. 215, physics-astronomy building):
  → Hours to be announced (you can fill them in, below)!
  Monday: 12 – 1 PM; 5 – 6 PM
  Tuesday: 5 – 6 PM
  Wednesday: 12 – 2 PM; 5 – 6 PM
  Thursday: 2 – 6 PM
  Friday: 9 – 10 AM; 12 – 2 PM

→ Meeting with any of the teaching associates will be helpful. Note, though, that the teaching associates who are specifically associated with my sections of Astronomy 101 are in the Astronomy Help Room at the following times:

  Shimonee Kadakia: Tuesday 5 – 6 PM and Friday 9 – 10 AM
  Alex Burke: Friday 1 – 2 PM
  David Krogsrud: Wednesday 1 – 2 PM and 5 – 6 PM

Since Shimonee, Alex, and David are part of your course, they may be able to provide more specific guidance than other TAs about things related to this particular section, but you are of course encouraged to go to the Help Room whenever it is convenient for you – most of the other TAs have also been TAs for my sections in the past!

- **Class on Tuesday, October 6**. On Tuesday, October 6 (i.e., the class before the exam), class will be different from usual. Assuming that I have completely covered all of the prior week’s material (if not, then the first few minutes will be a continuation of Thursday’s lecture to finish up), the class will consist of a quick overview of all we have covered since the first day, followed by a “question and answer” session, where you can ask me any question you like. This is a great opportunity to get clarity on any topic that you have questions about, so, **bring all questions you’d like answered to Tuesday’s class**! My goal is to prepare you as well as possible for your first midterm exam, and so I’ll answer as many questions as time permits.²

²If you run out of questions (my guess is this is unlikely), I’ll just begin the next week’s lecture, so be sure to bring lots!

— Exam cover sheet and practice questions are given on the next two pages —
CLOSED BOOK, NO CALCULATORS

• Print your name and ID number on the SCAN-TRON FORM No. F-289-P AR-L.
• Mark all answers on SCAN-TRON FORM No. F-289-P AR-L. Use a #2 pencil. Completely fill in the appropriate bubble. Be sure to thoroughly erase all altered answers and stray marks! If the SCAN-TRON machine rejects your form for any (valid) reason, you will lose one point (of the 50 that are possible) from your test score.
• For true-false questions: mark bubble A if the statement is true, and bubble B if false.
• For multiple choice questions: mark the bubble corresponding to the single best answer.
• All questions carry equal weight. Read each question very carefully before answering.
• There is no penalty for guessing. Be sure to answer all questions! (Note that the SCAN-TRON machine will reject a form for which an answer is not recorded for every question.)
• Time limit: 75 minutes – budget your time appropriately! Don’t spend too much time agonizing over a tough question. Make a note of it on your exam (you may write in your exam booklet) and return to it after you have finished the others.
• Do not remove this exam booklet from the classroom. Failure to leave your test booklet on your desk will result in receiving a 0% grade for the exam.
• So: No stray marks, one answer per question, answer all questions, and leave the exam booklet on your desk when finished!

DO NOT OPEN THIS EXAM UNTIL TOLD TO DO SO!!

When you are finished, simply place the following THREE things in a stack on your desk:

• Test booklet (TOP of stack)
• Cheat-Sheet (MIDDLE of stack)
• SCAN-TRON (BOTTOM of stack)

GOOD LUCK!!!
Astronomy 101 – Sample Midterm Exam #1 Questions (answers at bottom)

Multiple Choice/True-False

Select the best answer for each of the following questions, and indicate your choice by filling in the appropriate bubble on your SCAN-TRON form. Be sure to read all answers before making a selection. For true-false questions, mark bubble A if the statement is true, and bubble B if it is false.

1. There are about 6000 stars in the entire celestial sphere that are bright enough to be visible at night without the aid of a telescope, and they are distributed roughly uniformly around the celestial sphere. Therefore, from any given point on Earth's surface, about how many will be visible in the night sky at one time? (Assume that the observation takes place at night in a dark location, far away from bright city lights.)
   (a) About 1,500.
   (b) About 3,000.
   (c) About 6,000.
   (d) This question can not be answered, even in a rough way, since the number depends critically on knowing the observer’s longitude.
   (e) This question can not be answered, even in a rough way, since the number depends critically on knowing the observer’s latitude.

2. T or F. Rebecca places two iron weights on identical scales, and finds that the first one weighs 10 pounds while the second one weighs 20 pounds. If both weights are sent sliding across the surface of a frozen pond at 10 miles per hour, the 20 pound weight will have MORE momentum than the 10 pound weight.

3. Which of the following statements about the nucleus of a typical atom (such as the carbon in your little finger) is FALSE:
   (a) The nucleus always has an overall positive charge.
   (b) The nucleus takes up a very small amount of space compared to the entire atom.
   (c) The nucleus can contain both protons and neutrons.
   (d) The electric charge of the nucleus repels the electrons, which move around it.
   (e) The nucleus contains most of the mass of the atom.

4. Star ‘A’ has twice the radius of star ‘B’. The ratio of the diameter of star ‘A’ to the diameter of star ‘B’ is equal to:
   (a) 1/2.
   (b) 4.
   (c) 2.
   (d) 2π.
   (e) 1.

5. Which one of the following lists planets in order of strictly increasing distance from the Sun (nearest to farthest)?
   (a) Mercury, Mars, Saturn, Neptune, Uranus.
   (b) Venus, Earth, Saturn, Jupiter, Neptune.
   (c) Venus, Earth, Jupiter, Uranus, Saturn.
   (d) Mercury, Earth, Jupiter, Mars, Uranus.
   (e) Mercury, Venus, Jupiter, Saturn, Neptune.

(Answers – 1: B; 2: A (True); 3: D; 4: C; 5: E.)