This is an introductory course to astronomy, with more emphasis on active thinking than memorizing facts. The main points of this course are (1) a general understanding of astronomy, (2) what can be observed in the sky, (3) what we know about the stars and the Universe.

Lecture
Monday and Wednesday
Sections 1-2-3-4: 2:00-2:50     Sections 5-6-7-8: 3:00-3:50
(The two are not interchangeable, students must not come to the wrong section!)
Electronic devices must not be used during lecture.

Instructor
Dr. Tibor Torma, Department of Physics and Astronomy,
Lewis 208, 915-5627, ttorma@phy.olemiss.edu.

Office Hours
Monday and Wednesday 4:00 or call for appointment.

Textbook and lab manual
J. Bennett et al: The Cosmic Perspective.
(All editions, including electronic, are also acceptable, but only paper versions may be used during tests.)
The laboratory manual is available for purchase at Printing Services (Ole Miss Media).
(Printing Services are located on campus, in Sam's Hall, across the street from the University Police station.)

Course Home Page
http://www.phy.olemiss.edu/~ttorma/Astro/index.html
(Note: the ~ sign is found on the keyboard left of number 1. Watch for the capital A!)

Lectures: The lectures cover the material in the textbook from a different perspective. Lectures are based on Microsoft PowerPoint presentations. These presentations will be posted on the web right after class. The presentations do not give sufficient explanation by themselves - participation is necessary.

Computer/email requirement: Access to a computer with Microsoft PowerPoint on it is strongly recommended. It is possible but quite awkward/inconvenient to work with a smartphone only. Access to email is absolutely required. Read your email every day!

Homework: The lectures will not cover all of what is in the presentations. Students are expected to (i) review each presentation before next class, and (ii) study and learn all material in the presentations that has not been covered in class. This counts as homework. Textbook reading and internet search (usually Wikipedia) is needed for this. Note: it is possible to pass the course for students who do not do this additional studying, but achieving an A or B grade will not really possible without it.

Home Page: The course comes with a neatly maintained home page. Students need to check it regularly, including the links.

Quizzes: The presentations contain several short quizzes during every lecture. Students are required to take these quizzes, and turn in their scantrons at the end of each class. (Turning in another student's scantron constitutes cheating, do not do it!)
The questions will be based on the day's lecture, plus possibly a few review questions based on the last class. No advance preparation is needed except for the review questions.
For each class and for each in-person test, each student must bring a scantron # 16485. This adds up to about 25 scantrons per semester.
Tests:
• Three one-hour tests are given during the semester, on Sept. 16, Oct. 7, and Oct. 28, through Blackboard, remotely, all on Fridays. As much as it is technically possible, the test will be open from 2:00 pm to 4:00 pm (until 4:30 for those with SDS permission for extra time), but only 60 minutes (90 with SDS permission) may be used of this.
• Each student must pass another exam that consists of a large number of basic multiple choice questions. The questions and the correct answers are given out in advance and are available on the home page.
The test offered on Oct. 14, Friday at 2:00-3:00 pm for Secs. 1-2-3-4 and Oct. 14, Friday at 3:00-4:00 pm for Secs. 5-6-7-8, in person. Those who do not pass will be given two more chances to re-take it by the price of lost partial credit. Passing level is 90%, but once a student passed, the score does not count into the grade. **A student who does not pass this test even after makeups will fail the course.**

- The two hour final exam is comprehensive, in person in Lewis Hall 101. Note that the instructor does not have the right to give the final exam at a different time. The time is Dec. 5, Monday, 4:00-6:00 for Sections 1-2-3-4 and Dec. 8, Thursday, 4:00-6:00 for Sections 5-6-7-8.

Use of textbooks is allowed during the tests (except the pass/fail test), but internet use is considered cheating. **Laboratory and discussion:** All students must take the laboratory, and attend the section to which they are assigned. Lab is at night, according to a separate schedule for each section. Switching between sections of the lab will be difficult, and certainly not permitted after the first week of classes. Lab grades are awarded on the basis of the lab reports turned in by the students. There is a separate lab syllabus that clarifies the details. Each lab starts with a discussion of recent class material. Actively participating students receive discussion credit each time, which counts as extra into the test grades (which are not curved).

**Absences:** Missed quizzes, tests and labs in general cannot be made up. Each student will be given, gradually during the semester, three quizzes worth of free credit to compensate for medical emergencies or other excusable absences. In exceptional situations, in case of prolonged absences (such as a hospital stay or student-athletes’ game times), the part of the missed classes that exceed three quizzes or one lab will be replaced by the grade received for the final exam. In these situations **clear, verifiable** doctor's notes (or similar documents) will be required. Simple pharmacy receipts or medical bills not explaining directly and clearly the reason for a missed class will not be accepted. **Note:** any pleading for additional credit for missed quizzes (even with a doctor's excuse) will be ignored, as these are already replaced by the free credit mentioned above.

**Students with disabilities:** All reasonable measures will be taken to accommodate any special needs. Inform the instructor in advance of any such need during lecture, discussion, laboratory or tests. Affected students are responsible for requesting special arrangements in time. However, no extra time can be offered for the in-class quizzes (in case this causes a severe problem, individual remedies might be considered).

**Late enrollment:** Students who do not attend the first week but enroll later will lose the quiz credit for the missed classes.

**Grading:** The grades are determined by the weighted average as follows:

<table>
<thead>
<tr>
<th></th>
<th>REGULAR CLASS</th>
<th>HONORS SECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>First test</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Second test</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>Third test</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Final test</td>
<td>25%</td>
<td>19%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>30%</td>
<td>10%</td>
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<tr>
<td></td>
<td></td>
<td>Semester project 33%</td>
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In the honors section, a student who does not achieve at least 60% of full credit in the semester project will fail the course.

**Important notes:**
1. Anyone who fails the labs will fail the course, whatever his/her points would be otherwise!
2. Anyone failing the "pass and fail" test will fail the course, whatever his/her points would be otherwise!
Learning Objectives

- Students will learn about the Universe and humanities place in it.
- Students will acquire an overview on how the science of astronomy operates in practice, what funds are spent on it and how.
- Students will see in simplified mathematical models how astronomers use acquired information understand what the Universe is. This includes using basic mathematical skill.
- Students will have first-hand experience with basic astronomical observations and views of the night sky.
- Students will practice responsible behavior in terms of attendance, work ethic, organization of work/studies, and reliability.
- Students will learn how to distinguish between unfounded ‘urban legends’ and science.

Outline of the topics covered in class

- General concepts of astronomy
- Objects in the sky, magnitudes, constellations
- Telescopes
- Light and matter; spectroscopy
- The Sun
- Physics and evolution of stars
- Compact objects
- Star formation and interstellar matter
- The structure of the Galaxy
- Classification of galaxies, active galactic nuclei and black holes
- Distances in astronomy
- Cosmology and the Big bang
- Life and space travel