ASTRONOMY 101.002 (Call # 14181) Syllabus: Spring 2010

Instructor: Dr. Kent Morrison
Class Time: Monday, Wednesday, Friday 14:00-14:50
Location: Regener Hall room 103
Office Hours: Monday through Fridays 12:30 – 1:30 in my office (see below). Or just send email.
Phone: 277-0433
email: lkm@unm.edu
Office: Room 1115, Physics and Astronomy (panda) Building (corner of Lomas and Yale)

Text: Astronomy: A Beginner's Guide to the Universe, Chaisson and McMillan, 6th ed. The website accompanying our book has many useful auto-graded practice questions which will help you study for the tests. Each chapter has "Practice Questions", "True or False", "Labeling", and "Multiple Choice" to try. There is also a "Practice Problems" category, but these are too quantitative for this class.

Astronomy is the oldest of the sciences and also one of the most fascinating to people in general. This is a time of great discoveries about the universe that we all hear about in the press on a seemingly regular basis. One of the goals of this course is for you to become informed enough about the cosmos to understand how these discoveries have been made and what they really mean.

We have a big task in front of us this semester: a tour of the universe. There’s no prerequisite for this class besides an open mind and a desire to know what is out there. You will learn some physics and we will use a small amount of math (high school level algebra and trigonometry)

General: There is not time to do justice to every topic in the book, or in astronomy in general, especially in the lectures. However, you are generally responsible for all material in a chapter, whether I lecture on it or not. There are a couple of exceptions to this rule. First, the book has more equations than the lectures will have. You are only responsible for the equations you see in lecture. Second, you are only responsible for the More Precisely boxes, some of which have a lot of math, to the extent that I lecture on them in class. It will benefit you greatly to read the relevant chapter or sections before I discuss them in class. The lectures are used to reinforce the reading and to explain the more important concepts in some detail.

Webpage: My home page, http://panda.unm.edu/Courses/Morrison/Astro101.002Spring10/, will have electronic versions of all handouts (syllabus, test reviews, etc.) and occasionally other material.

Required Materials: i-clicker, course textbook including access code for the Mastering Astronomy website, and two number 2 pencils. NOTE: You will need to register your i-clicker at http://www.iclicker.com/registration/ following the directions provided and using your BANNER ID as your "Student ID".
Homework: There will be regular reading assignments and homework. Reading assignments should be completed BEFORE the class time. Homework assignments will be completed on-line through the Mastering Astronomy web pages. You will have to register at the Mastering Astronomy web site at http://www.masteringastronomy.com/site

Important notes for registering: The UNM Zip code is 87131. Our Course ID is MAMORRISONSPRING10SECTION002 (careful about the letter O versus the number 0! The letter O is in “Morrison” and “section” but the others are the number zero. When you register be sure to put in your BANNER_ID as your "Student ID”. You have to use your BANNER ID so that you will be able to see your clicker and test results (when they are posted) on the Mastering Astronomy web site. Due dates for homework are listed on the syllabus and the homework is due at 11:00 pm on the day indicated. For each hour that the homework is turned in late 1 percentage point will be taken off, so if you are 1 full day late you lose 24% of the credit.

Grading:

1) There will be four multiple choice tests, each worth 100 points. Each will test only on material since the last test (or, for the first test, since the beginning of the course). The last test (test 4) will be held at the scheduled final exam time for this class, which is Wednesday, May 12 at 3:00-5:00 pm. Note this test is NOT a final exam as such since it is equal to the other three and is not cumulative. There will be NO make-up tests given, but I will drop the lowest test grade of the first three tests. So you can miss one test and still obtain an A in the class. Bring several sharpened pencils to class on test days to mark your answer sheet. You must hand in both the answer sheet and the test booklet or you will receive a zero for the test. Your answer should be circled on the actual test and they should be bubbled in on the actual answer sheet that is machine graded. Your name and banner ID must be on both the test and the answer sheet. You need to write your seat number in the upper right hand corner of the answer sheet. Your banner ID should be bubbled in under “Identification Number” on your answer sheet. I will review all this in class before the test. If you mark a different answer on the test and the answer sheet, then the answer sheet will be the one that counts. Tests will not be returned, but you are welcome to come to my office and review your test and the answer sheet. I will post the test grades on Mastering Astronomy within a week after each test.

2) Homework: The on-line Mastering Astronomy homework will count 50 points, equal to one half a test.

3) Participation: The in-class iClicker participation exercises will count 50 points, also equal to one half a test. You will get credit for participating, not for getting the correct answer. However these iClicker questions may appear on the tests, so they are important.

4) Your final grade will be an average of your three test scores (test 4 plus the highest two of the first three tests), your homework score, and your iClicker score. The grades are not rounded. Test questions will be based on the lectures, the text and the homework.

Tutoring: Free tutoring for this class is available through CAPS. Go to http://www.unm.edu/~caps/.
Grading Scale: Depending on class performance, I may or may not grade according to a curve. Grading on a curve can only improve your grade; it cannot lower it. I will assign letter grades according to the following scale:

- A+ is 97.0-100
- A is 93.0-96.9
- A- is 90.0-92.9
- B+ is 87.0-89.9
- B is 83.0-86.9
- B- is 80.0-82.9
- C+ is 77.0-79.9
- C is 73.0-76.9
- C- is 70.0-72.9
- D+ is 67.0-69.9
- D is 63.0-66.9
- D- is 60.0-62.9
- F is below 60.0

Regarding grade disputes; if you feel your test grade is in error, please bring it to my attention no later than 2 weeks after receiving your graded test.

Make-up Tests: There are no makeup tests and I will not give the final exam earlier or later than it is scheduled.

Cell phones, Ipods, blackberries, etc.: keep them turned off and out of sight in class or preferably don't bring them to class at all. If a phone rings, I will stop lecturing and stare in the direction of the ringing until the problem goes away.

Lectures. The powerpoint lectures are be available here [http://panda.unm.edu/Courses/Morrison/Astro101.002Spring10/files/index.html](http://panda.unm.edu/Courses/Morrison/Astro101.002Spring10/files/index.html) The lectures are numbered but we will generally not cover all of a numbered lecture in one class. Here is the tentative schedule of topics covered and homework assignments, but this schedule may change.

### SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>TOPIC</th>
<th>READING</th>
<th>HOMEWORK Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 20</td>
<td>L1, Class Introduction, Tour of the Universe</td>
<td>none</td>
<td>Intro to MA due Feb 6, 11:00pm (practice, no credit)</td>
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<tr>
<td>22</td>
<td>L1/2, Tour+Exploring the Heavens, Foundations of Astronomy</td>
<td>Part I, Exploring the Heavens</td>
<td>HW#1 due Feb 4, 11:00 pm</td>
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<tr>
<td>25</td>
<td>L2, Exploring the Heavens, Foundations of Astronomy</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td>27</td>
<td>L3, The Copernican Revolution</td>
<td>Chapt. 1</td>
<td>same</td>
</tr>
<tr>
<td>29</td>
<td>L3/4, The Copernican Revolution, Light and Matter</td>
<td>Chapt. 2.1-2.4</td>
<td>HW#2 due Feb 6, 11:00 pm</td>
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<tr>
<td>Feb 1</td>
<td>L4, Light and Matter</td>
<td>same</td>
<td>same</td>
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<tr>
<td>3</td>
<td>L5, Atoms and Spectroscopy</td>
<td>Chapt. 2.5-2.8</td>
<td>same</td>
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<tr>
<td>5</td>
<td>L5/6, Atoms and Spectroscopy, Telescopes</td>
<td>Chapt. 3</td>
<td>HW#3 due Feb 9, 11:00 pm</td>
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<tr>
<td>8</td>
<td>L6, Review for Test 1</td>
<td>same</td>
<td>same</td>
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<tr>
<td>10</td>
<td>TEST 1</td>
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<tr>
<td>12</td>
<td>L7, The Solar System</td>
<td>Chapt. 4.1,4.3</td>
<td>HW#4 due Feb 17, 11:00 pm</td>
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<tr>
<td>Lecture</td>
<td>Topic</td>
<td>Chapter</td>
<td>HW Due Date</td>
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<tr>
<td>L7/8</td>
<td>The Solar System, The Earth</td>
<td>5.1-5.6</td>
<td>same</td>
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<tr>
<td>L8</td>
<td>The Earth</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td>L9</td>
<td>Our Moon and Mercury</td>
<td>6.1-6.4</td>
<td>Feb 25, 11:00 pm</td>
</tr>
<tr>
<td>L9/10</td>
<td>Our Moon and Mercury, Venus and Mars</td>
<td>6.5-6.8</td>
<td>same</td>
</tr>
<tr>
<td>L10</td>
<td>Venus and Mars</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td>L11</td>
<td>The Jovian Planets</td>
<td>7</td>
<td>Mar 4, 11:00 pm</td>
</tr>
<tr>
<td>L11/12</td>
<td>The Jovian Planets, Moons, Rings and Plutoids</td>
<td>8.4.2</td>
<td>same</td>
</tr>
<tr>
<td>L12</td>
<td>Moons, Rings and Plutoids</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td>L13</td>
<td>The Sun</td>
<td>9</td>
<td>Mar 9, 11:00 pm</td>
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<tr>
<td>L13</td>
<td>The Sun, review for Test 2</td>
<td></td>
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<tr>
<td>L14</td>
<td>Measuring the Stars</td>
<td>10</td>
<td>Mar 25, 11:00 pm</td>
</tr>
<tr>
<td>L14/15</td>
<td>Measuring the Stars, The Interstellar Medium, Star Formation</td>
<td>11</td>
<td>same</td>
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<tr>
<td>L15</td>
<td>The Interstellar Medium, Star Formation</td>
<td>same</td>
<td>Mar 30, 11:00 pm</td>
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<tr>
<td>L16</td>
<td>Stellar Evolution</td>
<td>12.1-12.7</td>
<td>same</td>
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<tr>
<td>L16/17</td>
<td>Stellar Evolution, Stellar Death/Explosions</td>
<td>12.4-12.7</td>
<td>Apr 15, 11:00 pm</td>
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<tr>
<td>L17</td>
<td>Stellar Death/Explosions</td>
<td>same</td>
<td>same</td>
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<td>L18</td>
<td>Neutron Stars and Pulsars</td>
<td>13.1-13.3</td>
<td>same</td>
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<tr>
<td>L18/19</td>
<td>Neutron Stars and Pulsars, Black Holes</td>
<td>13.5-13.8</td>
<td>same</td>
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<tr>
<td>L19</td>
<td>Black Holes</td>
<td>same</td>
<td>same</td>
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<tr>
<td>L20</td>
<td>Black Holes video</td>
<td>same</td>
<td>same</td>
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<tr>
<td>L21</td>
<td>Gamma-Ray Bursts</td>
<td>13.4-13.8</td>
<td>same</td>
</tr>
<tr>
<td>L21</td>
<td>Gamma-Ray Bursts</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td>L22</td>
<td>The Milky Way Galaxy, Galaxies</td>
<td>Chapt. 14</td>
<td>Apr 29, 11:00 pm</td>
</tr>
<tr>
<td>L22/23</td>
<td>The Milky Way Galaxy, Chapt 14 Galaxies</td>
<td>Chapt. 15.1-15.3</td>
<td>same</td>
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<tr>
<td>Date</td>
<td>Lecture/Reading</td>
<td>Chapters</td>
<td>Notes</td>
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<tr>
<td>23</td>
<td>L23/24, Galaxies, Active Galaxies</td>
<td>Chapt. 15.4-15.5</td>
<td>same</td>
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<tr>
<td>26</td>
<td>L24, Active Galaxies</td>
<td>Chapt 15/16</td>
<td>same</td>
</tr>
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<td>28</td>
<td>L25, Clusters of Galaxies</td>
<td>Chapt. 16</td>
<td>same</td>
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<tr>
<td>30</td>
<td>L25/26, Clusters of Galaxies, Cosmology</td>
<td>Chapt. 17.1-17.3</td>
<td>HW#12 due May 10, 11:00 pm</td>
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<td>May 3</td>
<td>L26, Cosmology</td>
<td>same</td>
<td>same</td>
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<td>L27/28, The End of the Universe, Life in the Universe</td>
<td>Chapt. 17.4-17.8</td>
<td>same</td>
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<tr>
<td>7</td>
<td>L28, Life in the Universe</td>
<td>same</td>
<td>same</td>
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</table>

**Final Week:**

**May 12**  
**Test 4, 3:00-5:00pm in Regener Hall room 103**

**Enjoy your Holidays!**