ASTRONOMY LECTURE (ASTR1100) SYLLABUS – SPRING 2020 MCTC

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Office</th>
<th>Phone</th>
<th>Email</th>
<th>Office Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raquel Jarabek</td>
<td>S2330</td>
<td>612-200-5215</td>
<td><a href="mailto:raquel.jarabek@minneapolis.edu">raquel.jarabek@minneapolis.edu</a></td>
<td>Tu 2-2:30pm, Th 12-1:30pm, &amp; appt.</td>
</tr>
<tr>
<td>Korey Haynes</td>
<td>S2540</td>
<td>612-200-5407</td>
<td><a href="mailto:korey.haynes@minneapolis.edu">korey.haynes@minneapolis.edu</a></td>
<td>Tu 3-5pm &amp; appt.</td>
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<tr>
<th>Lecture Section</th>
<th>Day</th>
<th>Lecture Time</th>
<th>Location</th>
<th>Credits</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>Section 1, 2, 3</td>
<td>Tuesday &amp; Thursday</td>
<td>8:30 – 9:45 AM</td>
<td>S3400</td>
<td>3 of 4</td>
<td>Jarabek</td>
</tr>
<tr>
<td>Section 4, 5, 6</td>
<td>Tuesday &amp; Thursday</td>
<td>6:00 – 7:15 PM</td>
<td>S3400</td>
<td>3 of 4</td>
<td>Haynes</td>
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Please come to your assigned lab each week, starting the first week. Lab is 1 of the 4 credits of this class.

Class Website: http://mctcteach.org/astronomy  (everything except quizzes & grades)
Check here for course materials: class calendar, test dates, due dates, handouts, class presentations, grade calculator, office hours, contact information, syllabus, etc.

D2L Brightspace: https://minneapolis.learn.minnstate.edu/  Grades & weekly quizzes.

Free Online Astronomy Textbook

Get textbook here: https://openstax.org/details/books/astronomy
Get the textbook: view online, download a PDF, or get a printed copy from the college.

Course Description: This survey course introduces the objects and processes in the universe with particular emphasis on collections of ordinary matter like planets, stars, and galaxies; more interesting matter like pulsars, black holes, and dark matter; their interactions; and the human place in and responsibility to the environment and universe. You will explore stargazing, the scale of our universe, a brief history of astronomy, how astronomers know what they know, our solar system, comparative planetary environments, threats to our environment, the Greenhouse Effect, other solar systems, the birth, life and death of stars, dark matter and dark energy, and the origin and fate of our universe. This course includes two hours of required lab per week, which must be taken on campus.

Topical Outline:
1. Observing the day and night sky
2. The process of science and a brief history of astronomy
3. Waves, Spectra and the Doppler Effect
4. Our solar system
5. Birth, life and death of stars
6. Content, size, origin and fate of the universe

Learning Outcomes:
1. Illustrate, document, and explain various astronomical phenomena, collections of cosmic matter, motions, scaling, and sizes throughout the universe
2. Discuss the process of science, giving examples from both the history of astronomy and everyday life
3. Recognize, understand and explain types of spectra and different methods to measure speed and distance
4. Discuss the life and death of stars by outlining the current theory of how stars and planets form and the ways stars die
5. Give an overview of the Big Bang theory, how it explains the evolution of the universe and include supporting evidence
6. Clearly document and interpret procedures, data, and conclusions in the laboratory exercises

How to Succeed in this Course: Former students and experience tell me your best chance of success in this course occurs when you...

1. Limit your load (most important). Be careful not to take too many credits when working.
2. Put in 8 or more hours outside of class each week to learning the material.
3. Attend class and actively participate. Take notes. Ask questions.
4. Use flash cards to write out answers to all “Study Points” found in the slideshows.
5. Do the D2L Brightspace quizzes to learn the material and prepare for tests.
6. Use the instructor office hours and tutors in the Learning Center room T3200.
7. Form and participate in study groups. Discuss “Study Points” and answer them together.
8. Study daily not just the day before a test.
Grading: Methods of Evaluation

Your grade will be determined by the following:

1. **Observation Projects** (20% of your grade) (max of 100 points, 130 available):
   1. Earth-Sun Scale Model (10 points)
   2. Sunset Part 1 (10 points)
   3. Moon Phases (10 points)
   4. Planetarium (10 points)
   5. Moon Craters (10 points)
   6. Star Gazing (20 points)
   7. Telescopes (20 points)
   8. Sunset Part 2 (10 points)
   9. Write Astronomy News Report (20 points)
   10. Astrophysics Lecture or Write Report (10 points)

2. **Test 1** (20% of your grade): In-class lecture-based exam
   Topics: Observing the day and night sky & the process of science & a brief history of astronomy

3. **Test 2** (20% of your grade): In-class lecture-based exam
   Topics: Waves, Spectra and the Doppler Effect & Our Solar System

4. **Test 3** (20% of your grade): In-class lecture-based exam
   Topics: Birth, life and death of stars & Content, size, origin and fate of the universe

5. **Lab Grades** (weekly labs 10% & lab test 10% for 20% total)

6. **Final Test** Lecture-based (optional 20% of your grade, replaces test 1, 2, or 3): In-class exam on all lectures

Note: 6 grades become 5 by dropping one of the tests or the final.

Calculating your grade: A = 90-100%, B = 80-89%, C = 65-79%, D = 50-64%, F < 50%

Posting your grade: Grades will be posted on D2L Brightspace.

Grade calculator: A grade calculator is available on the class website to check different grade outcomes.

Borderline grades: Class activities, quizzes, picking up exams, being on time, etc. are used to decide borderline grades. *There are generally NO make-up tests, quizzes or activities. There is NO extra credit. There are NO late assignments.*

Respect: Please RESPECT your classmates, your instructor, the staff, your school, and yourself.

1. Be on time. Please be in your seat and ready when class starts. Do not disrupt class by coming late.
2. Wait until class ends to pack up. Do not disrupt class by leaving early.

Other Astronomy Resources: YouTube Search “Astronomy Crash Course” for a set of videos related to this class or use this: [https://www.pbs.org/show/crash-course-astronomy/](https://www.pbs.org/show/crash-course-astronomy/)


Missing Class: Please email the instructor if you miss 2 days in a row of lecture or 1 week of lab. If you miss class for two consecutive weeks, you may officially be withdrawn from the class, but you will still be required to pay the tuition. See the college website for the complete policy. If you need religious accommodations, you must notify the instructor during the first two weeks of the semester.

Incomplete: Courses with on-campus lab are not eligible for incompletes. See the college website for the complete policy.

Code of Conduct: Know your rights and responsibilities especially regarding plagiarism, cheating, and conduct, as well as the satisfactory academic progress required to remain a student at MCTC. Cheating or falsely stating work in this class can get you removed from college.

Accessibility Statement: MCTC is committed to providing equal access to education for all students. Students who have a disability, or believe they may have a disability, are invited to contact the Accessibility Resource Center as soon as possible to determine eligibility and/or request accommodations. Accommodations are determined on a case-by-case basis. Please contact the Accessibility Resource Center at 612-659-6730, accessibility@minneapolis.edu, or stop by T.2400 to request reasonable accommodations. For additional information, visit [www.minneapolis.edu/AccessibilityResources](http://www.minneapolis.edu/AccessibilityResources). The accommodations authorized on your forms should be discussed with your instructor. All discussions will remain confidential. Accommodations are not provided retroactively, so it is essential to discuss your needs at the beginning of the semester. Additionally, only accommodations approved by the Accessibility Resource Center will be provided. Minneapolis College is an equal opportunity employer and educator and member of the Minnesota State Colleges and Universities system.

Revised 9 January 2020