ASTRONOMY + METEOROLOGY  
EAS 171-   Section: 004

Credit Hours:  4.00  Lab Hours:  3.00  Lecture Hours:  3.00
IAI Core:    P1 905L  IAI Majors:
Semester: Spring  Course Begins: 1/14/2014  Course Ends: 5/08/2014
Days: T  Times: 11:30AM-2:20PM  Room: A223

Instructor: Paul Hamill  
E-mail: phamill@mchenry.edu  
Phone: 815-455-8698  
Office Hours: http://www.mchenry.edu/faculty/phamill/schedule.pdf  
Office Location: B252  
Website: http://www.mchenry.edu/faculty/phamill/EAS171Honors/eas171honors.html

Required Course:  
Supplies: Various models, charts, and instruments are used for demonstrations and laboratory exercises.  
PowerPoint slide shows are used in lecture.

Course Description:  
Astronomy and Meteorology is an introductory course that covers ancient astronomy, the solar system, stars, cosmology, extraterrestrial life, earth-sun relationships, weather, climatic phenomena and recent developments in the field. No scientific background is required.

Course Prerequisite: Credit or concurrent enrollment in MAT 075 or MAT 095.

Course Note: Credit cannot be earned for both EAS 171 and EAS 180. This course requires intermediate reading, intermediate writing and intermediate math.

Section Notes:  
The course will include some night observations for telescopic viewing.

Course Objectives:  
Cognitive:  
1. Demonstrate a familiarity with the basic vocabulary of astronomy and meteorology.  
2. Apply the basic principles and concepts of astronomy and meteorology to laboratory and field exercises.  
3. Analyze astronomical concepts as they relate to celestial body classification, sky chart interpretation, and cosmological studies.  
4. Apply the concepts of meteorological analysis to atmospheric phenomena classification, weather map interpretation and prediction, and climatological studies.  
5. Demonstrate an ability to examine astronomical and meteorological information through critical reading and discussion.  
6. Employ the scientific method of inquiry to investigations in the laboratory and the field.

Affective:  
1. Appreciate the astronomical processes and the magnitude of the universal forces that govern the Earth, the Solar System, and the Milky Way.  
2. Appreciate the meteorological processes and the magnitude of the atmospheric forces that transform the Earth's landscape.  
3. Accept responsibility for pursuing an increased awareness of the uniqueness of the Earth and its importance as a biosphere.
4. Recognize the influence of both historical and present discoveries in astronomy and meteorology to our daily lives.

Manipulative:
1. Demonstrate skill in field observations and the recording of data.
2. Apply the astronomical tools of lab and field instruments, sky maps, graphs, tables, and models to the examination and analysis of the celestial sphere.
3. Apply the meteorological tools of lab and field instruments, weather maps, graphs, tables, and models to the examination and analysis of the atmosphere.

The instructional format for the lecture section of the course will include formal lectures, group discussion, review sessions, cooperative learning groups, and occasional demonstrations. Laboratory sessions are more informal with direct interaction between students and between student and instructor. A semi-discovery approach is used in laboratory assignments.

**Course Outline**

I. Astronomy:
   A. Earth's Place in the Universe:
      i. Ancient-Modern Astronomy
      ii. Earth-Sky Relations
   B. The Moon, Celestial Observations, and the Sun
   C. The Solar System
   D. Beyond Our Solar System: Stellar Classification / Evolution
   E. Cosmology, Space Exploration, and E. T.

II. Meteorology:
   A. Atmospheric Composition, Structure, and Temperature.
   B. Moisture in the Atmosphere, Condensation, Clouds, and Precipitation
   C. Air in Motion, Air Masses and the weather
   D. Special Atmospheric Disturbances
   E. Human Impact on the Atmosphere, Meteorological Applications

**Lab Outline**

Lab #1: The Geographic Coordinate System
Lab #2: The Horizon System
Lab #3: The Equatorial System
Lab #4: Phases of the Moon
Lab #5: Time Phase Relationships of Moon Phases and Star Chart Analysis
Lab #6: Planetary Properties and Positions
Lab #7: Introduction to Stars and Stellar Measurements
Lab #8: Stellar Spectra and the H-R Diagram
Lab #9: Atmospheric Composition and Structure
Lab #10: Earth-Sun Relationships
Lab #11: Temperature, Pressure, and Air Masses
Lab #12: Weather Measurements and Statistics
Lab #13: Surface Weather Map Analysis 1: Station Model Interpretation
Lab #14: Surface Weather Map Analysis 2: Frontal Zones and the Mid-Latitude Cyclone
Lab #15: Review for final exam
Assignments and Grading Criteria

A) **Exams and Tests:** Exams, a midterm exam, and a final comprehensive exam are given.

B) **Laboratory Exercises:** Lab grades are based upon diligent completion of all lab questions.

C) **Primary Grading Basis:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Lab Work</td>
<td>25%</td>
</tr>
<tr>
<td>Star Practical</td>
<td>5%</td>
</tr>
<tr>
<td>*Lecture Exams</td>
<td>30%</td>
</tr>
<tr>
<td>*CLG's</td>
<td>10%</td>
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<tr>
<td>Midterm Exam</td>
<td>15%</td>
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<tr>
<td>Final Exam</td>
<td>15%</td>
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* The instructor will drop the lowest lab, lecture exam, and CLG from the total point accumulation, therefore any lab, lecture exam, or CLG missed due to an absence from the class will be used as your dropped score. Any lecture exam, CLG or laboratory exercises missed due to an unexcused class absence cannot be made up. You may obtain a missed CLG or lab for learning purposes, but the score will not count.

D) **Grading Scale:** The components of the primary grading basis will be totaled to determine your cumulative grade. The grades awarded will be determined on the following scale:

- A – 90%
- B – 80%
- C – 70%
- D – 60%
- F – below 60%

Policies

**Attendance policy:** Laboratory attendance is required. If a student has two unexcused absences from lab, their grade for the entire course will be lowered one full letter grade. You must be on time and in attendance during the entire lab to be marked present.

**Late work/make-up policy:** Deadlines for all course material is due by the dates specified by the instructor. Materials turned in late will have grades lowered accordingly.
### Weekly Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week 1</strong></td>
<td>1/13 – 1/17</td>
<td>Introduction to Class. Go Over Syllabus. Chapter 21 “Origins of Modern Astronomy”</td>
</tr>
<tr>
<td><strong>Week 2</strong></td>
<td>1/20 – 1/24</td>
<td>Chapter 21 Continued Chapter 22 “Touring our Solar System”</td>
</tr>
<tr>
<td><strong>Week 3</strong></td>
<td>1/27 – 1/31</td>
<td>Exam 1 (Chapter 21) Chapter 22 Continued</td>
</tr>
<tr>
<td><strong>Week 4</strong></td>
<td>2/03 – 2/07</td>
<td>Chapter 22 Continued</td>
</tr>
<tr>
<td><strong>Week 5</strong></td>
<td>2/10 – 2/14</td>
<td>Exam 2 (Chapters 22) Chapter 23 “Light, Astronomical Observations, and the Sun”</td>
</tr>
<tr>
<td><strong>Week 6</strong></td>
<td>2/17 – 2/21</td>
<td>Chapter 23 Continued</td>
</tr>
<tr>
<td><strong>Week 7</strong></td>
<td>2/24 – 2/28</td>
<td>Exam 3 (Chapter 23) Chapter 24 “Beyond our Solar System”</td>
</tr>
<tr>
<td><strong>Week 8</strong></td>
<td>3/03 – 3/07</td>
<td>Chapter 24 Continued</td>
</tr>
<tr>
<td><strong>Week 10</strong></td>
<td>3/17 – 3/21</td>
<td>Midterm Exam (Chapters 21-24) Chapter 16 Continued Chapter 17 “Moisture, Clouds, and Precipitation”</td>
</tr>
<tr>
<td><strong>Week 12</strong></td>
<td>3/31 – 4/04</td>
<td>Exam 5 (Chapter 16) Chapter 17 Continued Chapter 18 “Air Pressure and Wind”</td>
</tr>
<tr>
<td><strong>Week 13</strong></td>
<td>4/07 - 4/11</td>
<td>Exam 6 (Chapter 17) Chapter 18 Continued</td>
</tr>
<tr>
<td><strong>Week 14</strong></td>
<td>4/14 – 4/18</td>
<td>Exam 7 (Chapter 18) Chapter 19 “Weather Patterns and Severe Storms”</td>
</tr>
<tr>
<td><strong>Week 15</strong></td>
<td>4/21 – 4/25</td>
<td>Chapter 19 Continued</td>
</tr>
<tr>
<td><strong>Week 16</strong></td>
<td>4/28 – 5/02</td>
<td>Exam 8 (Chapter 19) Course Wrap-up Review for Final Exam</td>
</tr>
<tr>
<td><strong>5/06/14</strong></td>
<td></td>
<td>Final Exam (Chapters 16-24) Time: 12:30PM – 2:30PM</td>
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</tbody>
</table>
Withdrawals: The last day to drop this course is 4/10/14. Failure to attend class does not constitute official withdrawal. If students are considering a withdrawal, they should consult directly with the instructor and an academic advisor. Students may withdraw from a class through the Registration Office, either in person or by fax: (815) 455-3766. In their request, students should include their name, student ID number, course prefix, number and section, course title, instructor, reason for withdrawing, and their signature. Withdrawal from a course will not be accepted over the telephone.

Please refer to the following link for other important college dates: www.mchenry.edu/academiccalendar.asp

General Education Goals:
1. Critical Thinking: To identify, define, analyze, synthesize, interpret, and evaluate ideas.
2. Information Literacy: To locate, evaluate, and use resources effectively.
3. Effective Communication: To develop, articulate, and convey meaning.
4. Ethical Awareness: To identify and make responsible choices in a diverse world.
5. Technological Literacy: To use tools skillfully.

Assessment:
Some student work may be collected for the purpose of assessment, including student competency in the general education goals, the program, or the course.

Effective Fall 2014: Student E-Portfolio:
The instructor of the course will designate at least one graded assignment for possible inclusion in the student E-portfolio. Students applying for an AA, AS, AFA, AES, or AGE degree must document their learning outcomes with a graded assignment for each of the five general education goals by the time of graduation. These five assignments and a cover letter will be in the student E-portfolio in Canvas.

Special Needs Statement
McHenry County College offers support services for students with special needs. It is your responsibility to meet with the Special Needs Coordinator and provide current documentation regarding a disability. Please call or stop by the Special Needs Department, (815) 455-8676, Room A260, as soon as possible if you would like more information about the accommodations that are available. In addition, it is important for you to discuss those accommodations with your instructor so you are fully able to participate in this course.

Academic Integrity
As an educational community, McHenry County College values the pursuit of academic excellence and integrity. In accordance with this philosophy and Chapter 10, Act 5 of the 1994 Illinois Community College Act, academic dishonesty in any form, including cheating, plagiarism, and all other acts of academic theft, is considered intolerable. Appropriate sanctions, up to and including suspension from the College will be imposed by authorized College personnel.

Copyright Policy
MCC will maintain current procedures and guidelines to ensure that all staff and students comply with applicable copyright laws and other intellectual property protection laws. The College will encourage staff and students to engage in the development of intellectual property and facilitate ownership protections with respect to such development of intellectual property.
The College expects that staff and students will act responsibly and ethically in a manner consistent with all copyright laws and College copyright procedures and guidelines. This policy authorizes the College to adopt and maintain such procedures and guidelines necessary to ensure compliance with copyright laws and to facilitate ownership protection with respect to the development of intellectual property.

**Student Code of Conduct and the Judicial Process**
Consistent with the MCC mission is an expectation that students will govern themselves in terms of appropriate behavior with emphasis on self-respect and respect for others. It is the practice of the College to respect the properly exercised rights of its students. The College recognizes a student’s rights within the institution to freedom of speech, inquiry and assembly; to the peaceful pursuit of education; and to the reasonable use of services and facilities at MCC.

MCC has adopted a Student Code of Conduct and judicial process to maintain a learning environment of respect, civility, safety, and integrity for all members of the MCC community.

Whenever possible, sanctions for violations of the Student Code of Conduct may be educational in nature. However, violations affecting the health and safety of members of the MCC community are deemed to be the most serious. Therefore, acts of violence, threats or dangerous behavior are most likely to result in a suspension from the College. Violations of the academic dishonesty policy may also result in suspension or expulsion from the institution and/or reduced or failing grade.

**Children on Campus**
For the safety of children on campus, children (i.e., less than 16 years of age) are not permitted on campus unattended by a parent/guardian, except when they are attending classes offered by MCC for children. The College requires that no children be allowed into a classroom/laboratory environment, including the Testing Center, Learning Center and computer labs, solely for the purpose of a parent/guardian to provide direct supervision of his/her child.

**Teaching Schedule**
The scheduling of the activities and teaching strategies on this syllabus, but not the objectives or content, may be altered at any time at the discretion of the instructor.

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**Resources**
The following are useful resources available to you as a student at McHenry County College:

- **Advising and Transfer Center:**
  Phone (815) 479-7565; Office A257
  www.mchenry.edu/ATC/Index.asp

- **Counseling:**
  Phone (815) 455-8765; Office A257
  www.mchenry.edu/counseling

- **Financial Aid:**
  Phone (815) 455-8761; Office A262
  www.mchenry.edu/financialaid

- **Library:**
  Phone (815) 455-8533; Office A212
  www.mchenry.edu/library

- **Special Needs:**
  Phone (815) 455-8676; Office A260
  www.mchenry.edu/specialneeds

- **Tutoring and Study Skills (Sage Learning Center):**
  Phone (815) 455-8579; Office A247
  www.mchenry.edu/sage