Syllabus - EAS 171 002

ASTRONOMY + METEOROLOGY - 4 Credits
HAMILL, PA - FALL 2005

Days: T 05:00PM - 06:20PM Room: A 223
Days: T 08:30PM - 09:50PM Room: A 223


<table>
<thead>
<tr>
<th>Lab Hrs: 2</th>
<th>Lecture Hrs: 3</th>
<th>PCS: 1.1</th>
<th>Articulated: Y</th>
<th>How: H</th>
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<tr>
<td>IAI Core: P1 905L</td>
<td>IAI Majors:</td>
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Course Description:
An introduction to astronomy and meteorology. Topics include ancient astronomy, the solar system, stars, cosmology, extraterrestrial life, earth-sun relationships, weather, climatic phenomena, and current interest subjects. No scientific background is assumed.

Course Note:
Students cannot earn credit for both EAS 171 and EAS 180.

Course Prerequisite:
Credit or concurrent enrollment in MAT 091 or MAT 095.

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.

Course Outline:
I. Astronomy:
   A. Earth’s Place in the Universe:
      1. Ancient-Modern Astronomy
      2. 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
      Meteorologic Applications

Special Needs Statement:
McHenry County College offers support services for students with special needs. It is the student’s responsibility to meet with the Special Needs Coordinator and provide current documentation regarding his/her disability. Please stop in or call the Special Needs Department, room A-257, 815-455-8676, 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 me so you are able to fully 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:
The College 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 McHenry County College 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 of the College.

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

**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.
I. INSTRUCTIONAL MATERIALS:


D) Other Instructional Aids: Various models, charts, and instruments are used for demonstrations and laboratory exercises.

E) Specific objective sheets are provided for each of the individual units of study.

II. INSTRUCTIONAL METHODOLOGIES: 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.
III. EVALUATION TECHNIQUES:

A) Exams and Tests: Exams, a midterm, and a final comprehensive exam (including a comprehensive department final exam) are given.

B) Laboratory Exercises: Diligent participation as well as content and written summaries are considered in evaluating lab work.

C) Primary Grading Basis:

- Lab Work 20%
- Lecture Exams 30%
- **CLGs 10%
- Midterm Exam 20%
- Final Exam 20%

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

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

IV. ADDITIONAL REQUIREMENTS:

1. Class and laboratory attendance are 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 class to be marked present.

2. Two hours of study time should be invested outside class for each hour spent within class. Students should commitment approximately 10 hours a week for study and homework.

3. Any test, quiz, 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.

4. Office hours are for those students who attend class. The instructor will not repeat classroom instruction for non-attending students.
**Lab Schedule:**

Week #1: The Geographic Coordinate System
Week #2: The Horizon Coordinate System
Week #3: The Equatorial Coordinate System
Week #4: Phases of the Moon
Week #5: Time Phase Relationships and Using Star Charts / Take Home Lab #1
Week #6: Planetary Properties and Positions / Take Home Lab #2
Week #7: Introduction to Stars and Stellar Measurements
Week #8: Stellar Spectra and the H-R Diagram
Week #9: Atmospheric Composition Structure
Week #10: Earth-Sun Relationships
Week #11: Temperature, Pressure, and Air Masses
Week #12: Weather Measurements and Statistics
Week #13: Surface Weather Map Analysis 1: Station Model Interpretation
Week #14: Surface Weather Map Analysis 2: Frontal Zones and the Mid-latitude Cyclone

Teaching strategies and activities, but not content or course objectives, may be altered at any time by any instructor.