

## MSED 252- Earth Science for Educators

### Catalogue Description:

This inquiry-based laboratory course, framed around state and national science education standards, is designed to give the future teacher a strong conceptual understanding of the earth science content he/she will be expected to teach as well as learning experiences from a variety of teaching and assessment strategies. Focus on the perspective of earth-systems education and interactions between the different topics, including major concepts from the areas of geology, hydrology, meteorology and astronomy.

You are expected to be ethical and professional at all times (in and out of class, in and out of schools etc.). Refer to the Department of Education Handbook and catalog, and the field experience handbook for further details. You are responsible for reading and abiding by these guidelines.

### Purpose of the Course:

The primary goal is to prepare preservice teachers to help children to: know and understand, explore and discover earth science; and still view science as an integrated discipline.

### Objectives:

Analyze the components of the solar system and universe and their interactions.

Includes the planets and their characteristics; interactions and movements of the earth, moon, and sun (e.g., seasonal changes, moon phases, eclipses); and theories of the origin and evolution of the universe.

Apply knowledge of geologic history and processes to the changing earth.

Includes theories of the origin of the earth; methods of determining the age of the earth and its features; processes of structural change in the earth's crust; the theory of plate tectonics; the effects of catastrophic phenomena on the earth and its inhabitants; important topographical features of the earth and their characteristics; types and characteristics of maps and map projections commonly used in science; the structure and composition of the earth and its layers; characteristics and methods of formation of rocks, minerals, and soils; and the rock cycle.

Describe the characteristics and properties of the hydrosphere.

Includes using the water cycle to explain the movement and renewal of ground water and of water in oceans, rivers, lakes, and watersheds.

Analyze the earth's atmosphere, weather, and climate.

Includes the structure and characteristics of the atmosphere; the processes and causes of atmospheric convection; air pressure and the movement of air in the atmosphere; cloud formation and precipitation; equipment and techniques used to monitor the weather; the interpretation of meteorological information; and techniques used to predict the weather and climatic change.

### Required Text:

Lutgens, F. K. & Tarbuck, E. J. (2005) Foundations of Earth Science, 5th ed., Upper Saddle River, NJ: Prentice Hall (contains a CD - also has a web site) HYPERLINK "<http://www.prenhall.com/lutgens>"

### Required Software:

Google Earth puts a planet's worth of imagery and other geographic information right on your desktop. View exotic locales like Maui and Paris as well as points of interest such as local restaurants, hospitals, schools, and more. HYPERLINK "<http://earth.google.com/download-earth.html>"

NASA's World Wind lets you zoom from satellite altitude into any place on Earth. Leveraging Landsat satellite imagery and Shuttle Radar Topography Mission data, World Wind lets you experience Earth terrain in visually rich 3D, just as if you were really there. Virtually visit any place in the world. Look across the Andes, into the Grand Canyon, over the Alps, or along the African Sahara. HYPERLINK "<http://worldwind.arc.nasa.gov/download.html>"

World Wind Guide, <http://worldwind.arc.nasa.gov/manual.html>  
Inspiration® helps students strengthen critical thinking, comprehension and writing skills across the curriculum using the proven power of visual learning. Students build graphic organizers to represent concepts and relationships and use the integrated outlining capability to further organize ideas for reports.  
<http://www.acs.nmu.edu/1/5.30.php>

#### Course Requirements:

You are expected to read assignments ahead of class discussion or laboratory. See the schedule guide below. (Note: If we are behind what is listed in the guide... this is only a guide.) Laboratory work is often done in small groups or pairs - working with a variety of people will enhance your skills as an educator. It is expected that you have read materials, looked at the CD and gone to the various web sites as mentioned in the book and in class.

#### Evaluation and Assessment:

Performance is evaluated formatively by in-class and cooperative work such as laboratory activities, classroom discussions etc. It should be noted that the formative evaluations occur daily. Summative evaluations will be tests and quizzes over material in the book and/or laboratory activities, classroom work, web or CD information, etc. that was assigned for the class.

Formative evaluations are weighted as 30% of the final grade. Diagnostic evaluations take place continually throughout the course.

Summative evaluations are weighted as 60% of the final grade. Summative evaluations are written exams/quizzes, (mostly constructed answer with a mix of objective test items), and/or projects.

#### Class Attendance

Attendance is weighted at 10% of the final grade. Students are expected to attend all class meetings of courses in which they enroll. Students who are absent from classes because of participation in university-sponsored activities will be excused. However, students are responsible for all class work whether or not their absence is excused.

#### DISABILITY SERVICES

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office at 2001 C. B. Hedgcock (227-1700; TDD 227-1543). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state and University guidelines.

#### APPROPRIATE CLASSROOM LAPTOP USE

Although having a laptop in class opens up new learning possibilities for students, sometimes students utilize it in ways that are inappropriate. Please refrain from instant messaging, e-mailing, surfing the Internet, playing games, writing papers, doing homework, etc. during class time.

Acceptable uses include taking notes, following along with the instructor on PowerPoint, with demonstrations, and other whole class activities, as well as working on assigned in-class activities, projects, and discussions that require laptop use. It is easy for your laptop to become a distraction to you and to those around you.

#### PLAGARISM:

The use of someone else's words or ideas as one's own is a serious academic offense and will result in a failing grade for the course; likewise, plagiarism may result in expulsion from the university. All instances of plagiarism will be reported to and filed with the Dean of Students' Office. Plagiarism will not be tolerated. All work from alternative sources must be documented in MLA style. No exceptions