

# Moravian College Bethlehem, PA 18018

## *Science in the Elementary Classroom*

Education 228E Fall 2006- Tu, Th from 6:30-10:00

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Office Hours: 30 minutes before class in Room 319

### Objectives:

1. Students will understand the nature of scientific inquiry and become scientifically literate.
2. Students will demonstrate fundamental facts and concepts in the major science disciplines that will help them teach science to children in K-8.
3. Students will make conceptual connections within the science disciplines, as well as to mathematics and technology.

### Attendance Policy:

You are strongly encouraged to attend class regularly. Class participation is essential and lack of attendance may lower your grade. It is your responsibility to notify the professor before class of your absence, so that materials may be obtained.

All assignments must be due on time, when absent. You must come prepared to discuss all topics listed in this syllabus each class period.

### Academic Honesty Policy:

The Moravian College policy on academic honesty will be followed. Please refer to the student handbook for this policy.

### Texts Required:

ScienceK-8 An Integrated Approach, Tenth Edition, Victor and Kellough, 2005

Sciencesaurus, A Student Handbook, Great Source, 2005

### References:

Science Content for Elementary and Middle School Teachers, Penelope Fritzer and Valerie Bristor, 2004

Teaching Children Science A Discovery Approach, Joseph Abruscato, 2004

Essentials of Elementary Science, Daniel Dobey, Beichner, and Jabot, 2004

Teaching Science to Children, An Inquiry Approach, Alfred Friedl, Kootz, 2000

### Grading:

94-100points=A

90-93points=A-

87-89points=B+

84-86points=B

80-83points=B-

77-79points=C+

74-76points=C

70-73 points=C-

67-69points=D+

64-66 points=D

60-63 points=D-

Your performance will be assessed  
in the following areas:

Learning Center/Work Job-5 points

In School Observation-10 pts

Interview with a child-5 points

Classroom Demonstration-15 points

Research Paper-20 points

Web Sites-3 points

Teacher Made Test-2 points

Exam # 1 – 20 points

Final Exam-20 points

Requirements:

**Learning Center-** This should be an activity oriented learning center for any grade level on any science topic. All materials should be provided at the station. The center should be attractive, inviting, fun, safe, and scientifically accurate. Attention should be given to at least 3 learning tasks. This center may be the same topic as your classroom demonstration. Clear instructions must be given. One or two students should be able to interact at the center. You may do this with a partner.

**In-School Observation-** You must observe a science lesson in any grade K-8. Plan to observe an experienced teacher and to fill out a form, as you observe the lesson looking for scientific accuracy, enthusiasm, content knowledge, safety, creativity, hands on and management. Plan to discuss this observation in class with colleagues. Write a one page summary of the lesson observed double spaced mentioning the above observations in your paper.

**Interview a Child-** Interview an elementary child and discuss his scientific knowledge, reflections, feelings, etc. Critique his/her interview and submit it on paper. This should be one page in length double spaced.

**Classroom Demonstrations-** Your colleagues will be your elementary students as you teach science content on a particular topic. A hands- on demonstration must be included in your lesson. You may work with a partner. A lesson plan must be provided. The lesson should be about 20-30 minutes in length. You may incorporate your learning center with your demonstration with a partner. Also, the teacher created test must be related to your demonstration topic.

### **Research Paper**

This is to be at least a five page typed research paper on an inventor or scientist or a career or careers in science. If you choose to do a scientist, it should be a biography. You must include a bibliography of at least 3 sites and a title page is required. Be prepared to discuss this paper with your colleagues.

### **Web Sites**

You must review 3 science web sites or science software and fill out the form provided. Be prepared to share the sites and software with the class.

### **Teacher Designed Test**

You must design a teacher made science test on the science topic you have chosen for your demonstration. You must include various forms of assessing such as multiple choice, labeling, matching, fill-ins, and essays.

### **Exams #1 and #2**

There will be two exams. They will both be essay questions with emphasis on methods and content. The final will also contain some multiple choice, matching, and a diagram to label. Study Guides will be provided.

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Class Meets every Tuesday and Thursday at 6:30 in Room 302 in PPHAC from August 29 through December 7, 2006

	<b><i>Topic</i></b> _____	<b><i>Texts</i></b> _____
August 29, 2006	Introduction Review Requirements Journal Entry Review Standards, Sign ups	Science K-8 Sciencesaurus
August 31, 2006	Hands on Experiments	Science K-8 Chapter 1-Teaching Science in Grades K-8
September 5, 2006  Objectives	Current Events Articles	Science –8 Chapter 2-Goals and  For K-8
September 7, 2006	Sciencing	Science-K-8 Chapter 3-Understanding the Nature of Science
September 12, 2005	Active Science Learning	Science-K-8 Chapter 4-Questioning
September 14, 2006	Inquiry Teaching	Science K-8 Chapter 5-Strategies to Help Children Learn
September 19, 2006	Technology	Science K-8 Chapter 6-Selecting and Using Media
September 21, 2006	Instruction of Science	Science K-8 Chapter 7-Planning for Science
September 25 or 27, 2006	Student Achievement	Science K-8 Chapter 8-Assessments
September 28, 2006	Learning Activities	Science K-8 Part Two Chapter 9 Lesson Observations Due

October 3, 2006	Exam # 1	Exam on Chapters 1-8 in Science K-8
October 5, 2006	Making the literature Connection	Lab-Children's Literature and Web sites due
October 10, 2006	No Class Fall Break	
October 12, 2006	Almanac, Science Timeline, Science Terms-Sciencesaurus	
October 17, 2006	Doing Science- <u>Sciencesaurus</u>	
October 19, 2006	Classroom Demonstrations and Learning Centers presented	
October 24, 2006	Doing Science- <u>Sciencesaurus</u>	
October 26, 2006	Classroom Demos and Learning Centers Presented	
October 31, 2006	Life Science-Sciencesaurus	
November 2, 2006	Classroom Demos and Learning Centers Presented	
November 7, 2006	Life Science-Sciencesaurus	
November 9, 2006	Lab-cooperative group time	
November 14, 2006	Earth Science- Sciencesaurus Interviews with a child due	
November 16, 2006	Classroom Demos and Learning Centers Presented Teacher Made Tests Due with Demos	
November 21, 2006	Earth Science-Sciencesaurus	

November 28, 2006	Physical Science-Sciencesaurus
November 30, 2006	Demonstrations and Learning Centers Presented Research Paper Due
December 5, 2006	Final Exam
December 7, 2006	Science, Technology, and Society-Sciencesaurus

\*This syllabus is subject to change.

All assessments are tied into the student outcomes

Also: Please expect 4-5 hours of course work per week.

If you have any type of disability, please notify the instructor immediately.