

**Santa Clara University**

**Department of Education**

**Summer Session, 2008, June 23-July 25**

**Education 262: Science Methods and Foundations**

Credit: 3 Quarter hours

Time: Tuesday and Thursdays, 5:00 p.m to 8:00 p.m.

**Location: Bannon 309**

**Text: Elementary Science Methods, current edition, Martin, Wadsworth 2007**

Instructor: Nancy Mansell-Wilcoxon

Office hours by arrangement

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**Course Description:** The science component of the elementary curriculum focuses on helping students discover and learn about their natural world. It involves understanding the basic concepts of generalizations through the strands of physical, earth, and life sciences, and how those concepts can be applied to the elementary and middle grades. A major part of the course will be on the processes of science and scientific inquiry. Students will leave the course with knowledge of the goals and objectives of science education, knowledge of the California Science Content Standards and the National Science Education Standards. They will understand how children construct science knowledge. They will develop an understanding of the principles of teaching science and alternative teaching strategies. Specific strategies that will be included are: the scientific method of problem solving, measurement skills, student learning centers and student lab activities. Class participants will be expected to apply the material presented in class to design their science lessons. The uses of technology including the identification and evaluation on Internet sites will be explored. Practical teaching ideas, classroom management strategies, timesaving strategies, and interest-generating ideas will be modeled by the instructor as well as the class participants.

**Course Objectives:**

1. Develop and implement alternative teaching approaches in science with the major **emphasis on hands-on-lab experiences.**
2. Identify strategies that implement specific California Content Standards and the National Science Education Standards

3. Enhance the ability to design effective science lessons using science apparatus and scientific problem solving strategies.
4. Learn and apply practical strategies for effective teaching, classroom management and organizing student lab groups.
5. Clarify basic understandings in the major areas of science.

### **Course Requirements:**

The major assignment for the course will be the development and implementation of three science lessons with the following elements:

1. The lessons should be in different content areas---one in physical science, one in life science, one in earth science.
2. Attempt to present a lesson in the grade level you are now student teaching or the grade level that you hope to teach.
3. One of the three lessons must involve a hands-on-lesson with the class participating and using materials. All three lessons may be of this type. Teacher demonstration lessons are also encouraged.
4. The lesson must include the integration of at least one other content area (math, reading, social studies, etc).
5. All the lessons should be tried out on age appropriate children. If this is not possible or very inconvenient, attempt to present your lessons to an adult for feedback.
6. Each class member will present an oral presentation of one of your lesson plans during the last day of class. Have copies available for students and instructor.

**Lesson # 1 due July 3<sup>rd</sup> Lesson #2 due July 10<sup>th</sup> Lesson #3 due July 17<sup>th</sup>**

### **Short Assignments:**

1. Development of 15 web sites for science instruction. Include at least five sentences for each site discussing how and why you might use this site and a brief description of the content of the site. This is due: July 15<sup>th</sup>.
2. Printed copies of the California State Science Standards K-8 are to be brought to class on our second class meeting. Have these standards with you throughout the remainder of the class.
3. Two lecture quizzes will be given.
4. Two chapter homework assignments.

## **Participation**

There are only ten class sessions. Your grade will be impacted if you miss any of these sessions. Late arrivals and early exits are not o.k.. The time is so limited to cover so much necessary material. If you have a medical emergency, please ask a classmate to deliver your assignments.

## **Evaluation**

1. Three written lesson: 150 points
2. The final lesson presentation: 100 points
3. Participation (late arrival and absences): 50 points
4. Two lecture quizzes at 25 points, each to total 50 points
5. Homework questions from text and website research at 25 points each, to total 75 points

90% + =A 80-89%=B 70-79%=C 60-69%=D 59%-=F

## **Reading Assignments**

June 24<sup>th</sup> to July 3<sup>rd</sup>: The Processes of Science: Chapter 3 Have this chapter read by July 1<sup>st</sup>. Your chapter three questions involving the processes of science will be due on July 3<sup>rd</sup>.

July 8<sup>th</sup>: Finish Chapter 7 and student assessment. Your text questions on this chapter are due July 10<sup>th</sup>.

July 15<sup>th</sup>: Finish Chapter 5 on student inquiry processes. Be ready for discussion.

July 22<sup>nd</sup>: Finish Chapters 6&8 on Learner Differences and the Elementary Science Classroom. Be ready for discussion.

## **ACADEMIC HONESTY**

Santa Clara University insists on honesty and integrity from all members of its community.

The standards of the University preclude any form of cheating, plagiarism, forgery of signatures, and falsification of data.

A student who commits any offense against academic honesty and integrity may receive a failing grade without a possibility of withdrawal. An offense may also dictate suspension or dismissal from the University.

In particular, it is each student's responsibility to understand the serious nature of plagiarism and the consequences of such activity. Plagiarism is the practice of claiming, or implying, original authorship of (or incorporating material from) someone else's written or creative work, in whole or in part, into one's own without adequate acknowledgement. Unlike cases of forgery, in which the authenticity of the writing, document, or some other kind of object itself is in question, plagiarism is concerned with the issue of false attribution.

see: <http://www.scu.edu/studentlife/resources/academicintegrity/>

### **DISABILITY ACCOMMODATIONS PROCEDURE**

To request academic accommodations for a disability, students must contact Disabilities Resources located on the second floor of Benson. Phone numbers are (408) 554-4111; TTY (408) 554-5445.

Students must register and provide documentation of a disability to Disabilities Resources prior to receiving academic accommodations.