THE TEACHING OF SCIENCE GRADES K-6 (EDN 336 BLOCK 2)
Education Building, Room 223 Fall 2011

Dr. Amy R. Taylor
Class Schedule: Thursday
9:30-12:15 pm (002)

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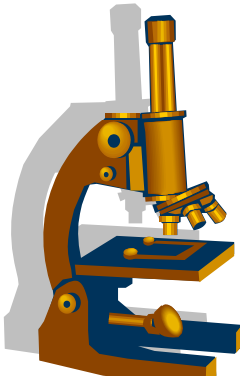
http://people.uncw.edu/taylorar/

Office Hours:
Wednesdays 12:30-3pm, Tuesdays and Thursdays 12:30-3pm, and online hours Fridays (9-12), or by appointment. Office in EB 260.

Our primary mode of communication will be through our Blackboard Learn (see below). I will ask you to visit this site often to check for emails, announcements, and to print class material.

https://learn.uncw.edu/webapps/login/

The primary mission of the Donald R. Watson School of Education at the University of North Carolina at Wilmington is to develop highly competent professionals to serve in teaching and other educational leadership roles in southeastern North Carolina, the state, and nation. The Watson School is committed to achieving excellence in teacher and administrator preparation in all of its programs.



COURSE OVERVIEW:
This course is designed to provide an opportunity for students to explore methods of teaching the biological, earth, and physical sciences. Students will focus on current issues and trends in science education; the development, implementation, and assessment of curricular materials; the evaluation and use of technology in the classroom as well as other effective instructional strategies to teach science in the elementary school. Block field experiences are required. **Prerequisites**: EDN 301 & two sciences.

COURSE PURPOSE:
The purpose of this course is to provide you with:

A. A conceptual framework that
- ✓ focuses on the teacher as decision maker and reflective practitioner
- ✓ emphasizes the current goals of science education
- ✓ addresses the issue of science anxiety and provide strategies for handling it
- ✓ identifies characteristics of exemplary programs
- ✓ examines curricular/instructional alternatives.

B. Ideas for teaching elementary school science to enhance your expertise in
- ✓ the selection, development and/or implementation of curricular materials resources
- ✓ the selection of instructional strategies
- ✓ the evaluation and assessment of students, teachers, and the curriculum
- ✓ communicating science concepts and ideas to a diverse student population
- ✓ fostering communication among students in order to enhance the learning of science.

C. After completing this course, you should be able to:
- ✓ develop a philosophy for teaching science in the elementary school.
- ✓ use instructional strategies that focus upon the acquisition of process skills, conceptual change/development, and integration with other subject areas.

- ✓ compare and evaluate the major curricular alternatives for teaching elementary school science.
- ✓ apply your knowledge of instructional strategies to your teaching of science.
- ✓ assess your effectiveness as a science teacher.
- ✓ use the Internet to enhance and supplement your science instruction.

The epistemology of **constructivism** will be used to develop understanding of how and what students learn. You will need to develop skills in listening to and understanding children as they experience science. Observations of teaching and learning in elementary classrooms and regular discussions with your colleagues will provide the forum for thinking about alternative ways of creating learning opportunities for ALL students.

A substantial factor of the level of your individual success is contingent on **YOU**! What you bring to the course and what you hope to learn from the interactions are very important. We will endeavor to provide many appropriate experiences based on your needs and the needs of your learners in years to come.

REQUIRED TEXT and MATERIALS:

Teaching Science (Custom Book) (2010). Pearson Education, Inc. (197 pgs.).
ISBN: 978055892531

Readings *on electronic reserve* at Randall Library. See complete list on our course homepage. Access the readings at: **http://library.uncw.edu/**

OTHER OPTIONAL SCIENCE RESOURCES:

Activities Integrating Math and Science (AIMS) Resource Books by AIMS Education Foundation. http://wwws.aimsedu.org/aims_store/Search-for-E-Activities-sp-5.html

AAAS, (1993). *Benchmarks for Science Literacy*. Oxford University Press, New York. www.project2061.org/tools/benchol/bolframe.htm

Delpit, Lisa. (1995). *Other People's Children: Cultural Conflict in the Classroom*. New Press, NY.

DPI standard course of study (science) 2004 www.ncpublicschools.org/curriculum/science/scos/2004/

Fredericks, A. (2008). *More Science Adventures with Children's Literature: Reading Comprehension and Inquiry-Based Science*. Teacher Ideas Press, 2008.

Great Explorations in Math and Science (GEMS) by Lawrence Hall of Science. http://www.lawrencehallofscience.org/gems/

National Research Council. (2000). *Inquiry and the national science education standards: A guide for teaching and learning.* Washington, DC: National Academy Press.

Liem, T.L. (1987). *Invitations to Science Inquiry.*

Louv, R. (2005). *Last Child in the Woods*. Algonquin Books of Chapel Hill.

Wong, Harry and Wong, R. (2005). *The First Days of School*. Harry Wong Publications, Inc, CA.

PROFESSIONAL DEVELOPMENT: (beyond the scope of EDN 336)

It is recommended that you join the National Science Teachers Association (NSTA) at the special student membership rate ($34/yr). You may find a membership form on blackboard in the Readings Folder. With membership you receive a monthly journal of your choice (such as Science and Children).

SPECIAL CONSIDERATIONS:

If you are a person with a disability and anticipate needing accommodations of any type in order to participate in this class, please notify Disability Services (Westside Hall, Ext. 7555), provide the necessary documentation of the disability and arrange for the appropriate authorized accommodations. Please identify yourself to me so that I can implement these accommodations.

ATTENDANCE AND PARTICIPATION:

Your promptness and active participation is expected at every class. **More than one unexcused absence will result in a one letter grade reduction (Ex: A- is reduced to a B-)**. If you have to miss a class session you are expected to email your professor **before** class. In the event of an absence during your Field Experience (a Monday or during your two week Mini-Internship), you must contact your teacher as soon as possible and make sure that all lessons/materials are made available and then contact your lead professor. Any missed time in the classroom must be made up. You will be responsible for making arrangements with your teacher. Three late arrivals to class will count as one absence. Please be sure to discuss any special circumstances with me directly.

All material submitted in class for grading must be neatly typed with one-inch margins with careful attention given to grammatical conventions. Otherwise, some assignments will be submitted electronically. Please discuss with me in advance (at least 2 days) if you experience any problems with complying with the due dates of assignments. If this is not done, ten percent will be subtracted from the grade received for each day the material is late.

****Since I will ask you to print material from Blackboard to bring to class…DO NOT use the first 10 minutes of class for printing in the computer lab. You will be considered tardy.****

You may use a computer during class for note taking, but please be considerate and do not check email or use the Internet (unless required for a class assignment). Also be respectful with use of cell phones. This can also affect your participation points.

Avoid Plagiarism! Visit the University Learning Center: Writing Services or go to http://www.edu/stuaff/uls/writing-plagiarism.htm

The Watson School of Education requires that all education majors enrolled in methods courses maintain an active account on TaskStream, a web-based curriculum builder and portfolio toolset. You are asked to maintain that account for the duration of your program with the Watson School of Education (www.taskstream.com). Students in these courses will use TaskStream to maintain a Professional Development Portfolio. This portfolio includes evidence of your work to demonstrate progress toward meeting exit requirements and professional standards.

ASSIGNMENTS AND COURSE REQUIREMENTS FOR SCIENCE METHODS:

This course is designed so that learning occurs through student engagement in learning strategies that illustrate or demonstrate a philosophy of science teaching, curriculum, and learning. Students will develop as thoughtful decision makers and reflective practitioners.

Assignment	Possible	Attained

1. Class Participation — 25 pts. _____

   Students are expected to participate in all class discussions and activities and readings assigned throughout the semester. Occasionally there will be homework questions, assigned readings, and other assignments.

2. Journal Reviews — Due: 9/8 — 25 pts. _____

   Read the article "Inquirize your Teaching" by Susan Everett from Science and Children found on electronic reserve. Select one other article from the journal *Science and Children* (found in a folder on the electronic reserves or other *Science and Children* articles from bound copies in Randall Library). Read both articles and summarize the content in relation to your desired grade level. Include in your review the positive and negative aspects of the article. Limit your remarks to one page per article.

3. Research Report — Due: 9/22 — 25 pts. _____

   Your "research team" will be expected to give an oral report of your Experimental Design research results. Your grade will be based on how well you have designed, conducted, and presented your research. Each person will be required to **individually** type a lab report for your research including identification of: problem, procedure, identification of variables, data table, results, analysis, graph, and conclusion. *If you took EDN 300 in the Fall of 2010 or after, then you will be responsible for also uploading this research report into Taskstream as one of your artifacts.*

4. Diverse Learners in Science — Due: 9/15 — 25 pts _____

   During your initial week of field experience, observe the types of diverse learners in your classroom. Take note of any adaptations your teacher utilizes in lesson planning. Complete the online module about diverse learners.

5. Micro Teaching — Due: 9/29 — 50 pts. _____

   You and a partner will be responsible for teaching a 25-30 minute 5 E-lesson of your choice to 10-12 of your classmates. AIMS, GEMS, or another approved lesson plan should be utilized. Remember you may use Taskstream to generate lesson plan formats. In your written lesson plan **include**: written objectives, materials/resources, ***detailed*** 5 E lesson plan, rubric for something within your lesson, description of possible assessment, description of how to adapt this lesson for a diverse learner of your choice, and safety concerns. This lesson plan should be very comprehensive and will be turned in the day you teach your lesson.

6. Discrepant Event Due: 10/13 25 pts. _____

   As a group, select one discrepant event to share with the class and use a brief Powerpoint or Prezi to help explain the science concept. **In addition**, as a group, write a one page summary describing the **science concept** behind the event, list of **questions** a teacher could utilize with this activity, and a description of the teaching unit that may include this activity. Be sure to include the source of the activity.

7. 6 Hour Elective Due: As completed or by 11/3 50 pts. _____

   You will be able to choose from a wide range of experiences designed to enrich your experiences in a non-traditional science setting. Such activities may include participating in the Project Wild Workshops (provided free of charge to our class…see signup sheets), serving as a science fair judge, attending a conference, assisting a park ranger or school during a science field trip, etc. This assignment must be approved by submitting a description of what you are going to do and the time involved. After completion of the **six-hour** elective you must **submit a reflection** on the impact of the project on you as a teacher of science. If you choose to participate in the workshops, choose one activity from the book you receive at the conclusion of the workshop and adapt it into a detailed 5 E lesson plan. If you do not complete the workshops, then see me for alternative assignments.

8. Technology in the Science Classroom Due: 11/30 25 pts. _____

   Complete the online module about interactive website evaluation and other types of technology within in the science classroom.

9. Quizzes (100 total points):

   One **Midterm Quiz** (50 points each) and a **final quiz** (50 points) will be administered to assess the extent to which you have mastered the concepts, principles and process skills outlined in the lab and lecture/discussion sessions for science.

10. Final presentation about Field Experience 50 pts. _____

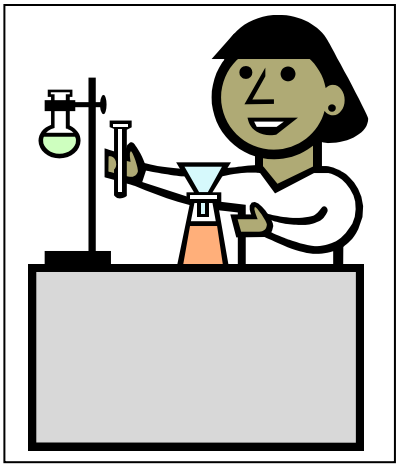
GRADING PROCEDURE:

During this course, it will be possible to earn a total of approximately 400 points. Your final letter grade will be determined based on percentage points from total:

$$\frac{\text{Pts. Received}}{400} = \% = \text{Final Grade}$$

Grading Scale

Grade	Equivalent Percentage
A	94- 100%
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D	60-69
F	59 and below



EDN 336 – 002 (Block) – Tentative Fall 2011 Schedule

DATE	Learning Module Topic	Readings	Assignment Due
8/25	**Welcome to EDN 336!** Nature of Science and Science Process Skills	Chapter 1 & Put a little science in your life	Information Sheet Bring Syllabus
9/1	Experimental Design Begin constructivism and 5 E Inquiry Model	Chapter 2 & The many levels of inquiry	
9/8	Conduct Experiments and Present Findings. Constructivism: Details of Writing 5 E lesson plans (objectives, assessment methods, and rubrics)	Chapter 4 & Ready, set, go! by Erin Morgan	Journal Reviews Bring Experiment Materials
9/15	***Week of Initial Field Experience:*** Diverse Learners in Science Class Safety in the Science classroom	Chapter 3 & Chapter 6 & Two articles by Steele	**Complete Online Module**
9/22	NCSCOS and National Standards. Science teaching strategies (Kits) Revise Microteaching lesson plan drafts		Lab Report
9/29	Micro-Teaching Lessons in small groups		5 E Lesson Plan
10/3	***Science Monday for Field Experience***		Reflection Oct 6
10/6	Concept Maps, Questioning and Discrepant Events	Bring examples of Discrepant events	***Monday Reflection***
10/13	Discrepant Event Presentations. Introduction to Misconceptions		Preconception list Midterm Evaluation ***Midterm Quiz***
10/20	NASA Presentation – Guest Speaker: Judy Walker		
10/27	Evolution ~ Guest speaker: Dr. Rich Huber Misconception Discussion continued	Living or Nonliving article by Britt Legaspi	
11/3	Science Integration & Science Notebooks	Chapter 5 & Implementing science notebooks	**Elective Reflection**
11/7-11/18	***Two week mini-internship***		
11/24	Thanksgiving Holiday Technology in the science class		**Online Module Due 11/30/11**
11/28	***Final Field Experience Presentations***		
12/1	Population Curriculum and other activities		
12/13	***Final Exam***		

Elective Dates

Project Wild, Aquatic Wild, Growing Up Wild (select **one** of the following) or an alternative experience

Growing Up WILD	Saturday	10/15	9:00-3:30	room 223
Growing Up WILD	Tuesdays	10/18 & 10/25	5:00-8:00	room 223
Aquatic Wild	Friday	10/21	9:00-3:30	room 223
Project WILD	Saturday	10/29	9:00-3:30	room 223

Religious Observance Policy

In accordance with NC SL 2010-211, you are entitled to two excused absences for religious observances **per academic year**. You must inform me in writing the first week of class if you will be missing any classes due to religious observance and using one of the two permissible absences for the academic year. In addition, please inform the Registrar the first week of class who will then confirm your intentions to miss class with the impacted course instructors. Any absence for religious purposes will be considered unexcused unless you submit the request in writing the first week to either me and the Registrar.

The UNCW Statement on Diversity in the University Community

As an institution of higher learning, the University of North Carolina Wilmington represents a rich diversity of human beings among its faculty, staff, and students and is committed to maintaining a campus environment that values that diversity. Accordingly, the university supports policies, curricula, and co-curricular activities that encourage understanding of and appreciation for all members of its community and will not tolerate any harassment or disrespect for persons because of race, gender, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, political affiliation, marital status, or relationship to other university constituents. Students with Disabilities information and resources available at http://www.uncw.edu/stuaff/disability/