Syllabus

The Teaching of Science
Middle School Science Methods (6-9)

Welcome!

Welcome to The Teaching of Science course. This course is also known as Middle School Science Methods. This online course will prepare you to teach middle school science in grade 6-9.

Pre-requisites

Admission to the School of Education; completion of prerequisite education courses and completion of all basic studies science courses.

Instructor Contact Information

Instructor: Dr. Angelia Reid-Griffin
Email: griffina@uncw.edu
Office Hours: TBA
Virtual Office Hours: TBA

Rationale

The purpose of the course is to prepare candidate for teaching middle school science in grades 6-9. Candidates will learn to develop a conceptual framework that addresses the current goals of science teaching; develop ideas and skills for teaching middle school science; and enhance expertise in planning, implementing, and assessing instructional activities. Candidates will demonstrate competencies of the National Educational Technology Standards for Teachers (NETS-T) by integrating technology in middle school science instruction. This course as a part of the core set of courses for K-12 teachers is designed to foster this growth through class discussions, readings, and projects. Middle School Science Methods is a required core course for all middle school science education majors.

Goals and Objectives

a. Students will be able to demonstrate leadership
   o By taking responsibility in the classrooms and for all of their students' learning.
   o By engaging in these roles in their schools and community
   o By demonstrating and upholding the ethical principles in schools and the community
b. Students will be able to establish learning environments that are respectful, engaging, safe and supportive for all students
   o through the location and utilization of school-based resources
   o by engaging in technology-based endeavors to extend student experiences.
o through the application of authentic, community-based informal science education resources and settings

c. Students will extend their knowledge of science **content** and **processes**
   o to demonstrate an understanding of basic concepts addressed in NC standards & National Science Education standards for their discipline.
   o by aligning their knowledge and comprehension of their discipline of interest with both the NCDPI course of study and the national themes and standards addressed in reform minded documents.
   o by incorporating authentic inquiry-based experiences grounded in students' understanding of the nature of the scientific endeavor.

d. Students will develop **skills to facilitate learning for all students** that support their science content instruction
   o through the use of traditional methodologies such as direct instruction, discovery learning, and cooperative learning in conducting laboratory instruction.
   o By engaging in inquiry-based methods.
   o by effectively utilizing multiple assessment strategies (formative and summative).

e. Students will develop skills that support **reflective practice**
   o by engaging in peer discourse and personal revision of effective lesson planning strategies.
   o through the accommodation and modification of curricular approaches for diverse and exceptional learners.
   o through seeking out professional literature, colleagues, and other resources to support his/her own development as a learner and a teacher.

f. Students will provide artifacts and reflections that suggest that the 21st Century and NC Middle school science standards have been addressed
   o By displaying completed assignment materials from teacher education courses in the E-portfolio management tool, Taskstream
   o By displaying select assignment materials from content area courses in the E-portfolio management tool, Taskstream

**Course Materials**

*Required:*


**Laboratory Kit Materials:** TBA by instructor.

Technology lab kit materials may be provided by instructor depending on your institution and resources. If not, you will be required complete loan application from Texas Instrument (TI Educator Loan Program) to borrow equipment and purchase lab items. You will be required to follow the guidelines of the loaning company and complete assignment for this course. In order to complete the technology activities, you will be required to borrow equipment from Texas Instrument via the Education Loan program. To ensure that you receive the equipment in time to complete the assignments you will need to order the materials at the end of Module 2 of this course.
The ordering information form is located at:  

You will need to order the following tools: TI Stainless Steel temperature probe (1); Graphing Calculator- TI 84 Silver (1); DataMate Program (1); CBL2 System with Light, Temperature & Voltage (1); USB connectivity kit (1)  
(Optional-CBL System Experiment Workbook & Fundamental Topics in Science)

Taskstream

A subscription to TaskStream: (http://www.taskstream.com) A web-based toolset enabling educators to design lessons and units, map and track standards, create rubrics, develop electronic portfolios and web pages, and compile and distribute shared curriculum resource collections.

- Purchase an account with Taskstream. ($39 for one year and $65 for 2 years).
- This serves as the text for the lab course and is cheaper than a text.
- You will want to enroll in Taskstream after you have purchased your account. If you need instructions on doing that, they are provided in this Course Information section.

Field Experience Video

The Field Experience portion of the course requires that you video yourself while teaching and later upload this video to the Blackboard course and to Taskstream. You will need to download a free copy of the video editing software, MovieMaker II, in order to edit your video.

Details on this field experience, plus links to all needed downloads is located under Course Information. Please read this carefully and contact the instructor if you feel you will have difficulty with this requirement.

Journal Access (Through Library or Own copy)

1. The Science Scope
   - The National Science Teachers Association publishes this journal for science educators. Their mission is to promote excellence and innovation in science teaching and learning. http://www.nsta.org

2. School Science and Mathematics
   - This is the official journal of the School Science and Mathematics Association. This peer reviewed journal addresses topics in "Science, mathematics, and connections between mathematics and science for grades K-graduate and teacher education..." Science specific articles of interest will cover various authors research concerning topics such as assessment, curriculum planning, and nontraditional forms of instruction to name a few.  
     - http://www.ssma.org/

Online Sources
1. **National Science Education Standards** (The National Research Council)  
   [http://www.nap.edu/readingroom/books/nses/](http://www.nap.edu/readingroom/books/nses/)  
   - This text is required for this class.
2. **Benchmarks for Scientific Literacy** (American Association for the Advancement of Science)  
   [http://www.project2061.org/tools/benchol/bolframe.htm](http://www.project2061.org/tools/benchol/bolframe.htm)
3. North Carolina Department of Public Instruction (NCDPI)  
4. North Carolina Professional Teaching Standards  
   - [http://www.ncptsc.org](http://www.ncptsc.org)
5. International Society for Technology Education (ISTE)  
   - [http://www.iste.org/standards/ncate/index.cfm](http://www.iste.org/standards/ncate/index.cfm)
   - National Educational Technology Standards for Students (NETS-S)  
   - National Educational Technology Standards for Teachers (NETS-T)

**Supplemental Texts: (not required to purchase)**

Hassard, J. (2005). The art of teaching science. -
Borich, G (2004). Effective Teaching Methods- [http://wps.prenhall.com/chet_borich_effective_5](http://wps.prenhall.com/chet_borich_effective_5)

*Additional readings may be assigned throughout course.*

**Assignment Formats**

Assignments completed for this course must be saved in MS Word format. All essays, summaries and projects must be typed, 12 point font size, Times New Roman font style and double spaced. Assignments must be uploaded to the appropriate assignment areas as denoted in modules by its posted deadline. Late submissions will not be accepted. There are no date/time extensions given to these deadlines so be certain to complete the work well in advance.

**Course Requirements**

This course takes place over 15 weeks and has 12 modules. All assignments and due dates are listed in the Course Schedule. Assignment details are provided under each module.

Below is a description of the types of assignments required in this course:

- **Readings** - Each week you will be responsible for reading assigned textbooks chapters and reviewing other online material or articles that may be provided.

- **Discussions** - There will be a discussion forum set up each week for you to use to ask questions of the instructor regarding any problems you are having with homework. Even if you do not have questions, it would be good to check into the forum area each week because your classmates may have questions that you can help them with. This will be helpful for you and for your classmates. In some weeks there will be a required discussion question which you must respond to. All students are expected to post in a responsible and courteous fashion.
Assignments requiring students to post correspondences on discussion board should be submitted on time. Postings of one or two short phrases are unacceptable. Posting should be complete sentences that represent complete thoughts and ideas about topics assigned. Only postings pertaining to course and topic should be discussed on this medium. You are expected to post a respond to your peers no less than two times for designated discussion assignments.

**Written Assignments/Labs**
There will be written assignments and lab activities in most modules of the courses. Details are provided in the modules.

**Log Book**
During the course of this semester you will be required to participate in a variety of professional or community events related to the teaching or the learning of science. You will be creating a logbook that lists each of these events. *(Required - 5 hours)*

**Field Experience (see complete details under Course Information)**

**Exam** - There will be a final comprehensive exam given online during the last week of the course.

*A copy of work submitted during the semester will be kept by the instructor. This work may be reviewed for departmental accreditation and research purposes.*

**Course Policies and Procedures**

Participation is **expected**! Your participation in class activities is necessary in order to be successful in the course. If you fail to participate you are advised to schedule an immediate conference with instructor to assess your performance in the course.

Your attendance, professionalism and participation in this course will be assessed and valued based on the following guidelines:

- Logging on to our course website and completing instructional modules, emailing work team members, etc.
- Offering helpful comments in online sessions
- Showing respect towards your fellow students, and instructor
- Participating in course activities with enthusiasm and interest
- Reading syllabus and assigned readings before each instructional module
- Turning in all assignments on time

**Late Work Policy**

Assignments must be completed on time. Late assignments (submitted after the due date) will result in lose of points (1/2 of the late assignment total points).

**Professionalism/ Performance Review Process**

Students are expected to act as professionals in this course and in all courses offered by the
university.

Behavior Guidelines

Manage Your Online Image

- Be personable
- Introduce yourself and share your experiences
- Review your posts before submitting them to see how they might come across
- Avoid sarcasm, displays of anger and annoyance, and whining

Manage Your Online Communication

- **Keep it Personable:** Use names when replying to a post and mention or quote pertinent things said in a post
- **Keep it Brief:** Stay focused, stick to the point, and make your posts no more than a paragraph or make paragraphs short.
- **Keep Your Voice Down:** USING ALL CAPITAL LETTERS online is the equivalent of yelling. Ouch! Instead, since you can't bold or italicize text in your postings, use *asterisks* around the text to be emphasized.
- **Avoid Sarcasm and Subtleties:** Stay aware of this when you write, and realize that it's sometimes easier to sound insensitive and hurt someone's feelings or have them miss the point when you're communicating through text only. To counter this, be clear and straightforward with your language.
- **Use Emoticons:** Some folks hate them, but these little icons can be actually quite effective in supplying primitive facial expressions to supplement your words. ;-) If you prefer, use other more direct ways of being sure your intentions are known, for example, by adding phrasing like "just kidding," "no offense intended," or "this is my opinion."
- **Be Positive:** It's good to express your opinions in discussions, but don't make disagreements personal. Keep your interactions with others friendly, especially when you're getting to know each other.
- **Think Before Posting:** Assume any comment you read that sounds abrasive wasn't proofed for tone, and wasn't meant to offend. If you're upset, wait before posting a too-hasty reply that you'll regret later. Unless the author specifically says they're angry, assume otherwise and ask for clarification of their intent.

Course Evaluation and Grading

All assigned work must be sufficiently completed or may result in student receiving an incomplete.

<table>
<thead>
<tr>
<th>Class Participation/Attendance/Professionalism (PAP)</th>
<th>20 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Assessment</td>
<td>10 pts</td>
</tr>
<tr>
<td>Regular contributions to the classroom discourse (miss one discussion = -5 points)</td>
<td>10 pts</td>
</tr>
<tr>
<td>Discussion Postings</td>
<td>100 pts</td>
</tr>
</tbody>
</table>
## Class Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discipline/Lab Safety Plan: Drawing of current classroom (10 pts); List of supplies (5 pts); Disaster/Emergency Contact Information (5 pts)</td>
<td>20</td>
</tr>
<tr>
<td>2. Probeware use quiz (10 pts) Technology Instructional Activity (20 pts)</td>
<td>30</td>
</tr>
<tr>
<td>3. Laboratory Reports</td>
<td>40</td>
</tr>
<tr>
<td>4. Unit Plan: Topic of Importance (Taskstream program) Include: Pacing Guide (10 pts)/Unit Concept Map (10 pts) Lesson Plans: Traditional (50 pts)</td>
<td>70</td>
</tr>
<tr>
<td>5. Assessment Plan</td>
<td>20</td>
</tr>
<tr>
<td>6. Diversity Assignment</td>
<td>10</td>
</tr>
</tbody>
</table>

## Innovations in Science Teaching Reports

<table>
<thead>
<tr>
<th>Reports</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal 1 and 2 reports</td>
<td></td>
</tr>
<tr>
<td>6th Grade Website reports</td>
<td></td>
</tr>
<tr>
<td>7th Grade Website Reports</td>
<td></td>
</tr>
<tr>
<td>8th Grade Website Reports</td>
<td></td>
</tr>
</tbody>
</table>

## Professional Experiences

<table>
<thead>
<tr>
<th>Product</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional artifact (20 pts)</td>
<td></td>
</tr>
<tr>
<td>Professionalism-community Service Log book (10 pts)</td>
<td></td>
</tr>
<tr>
<td>Field Experience Reflection (25 pts)</td>
<td></td>
</tr>
<tr>
<td>Video/Critiques (10 pts)</td>
<td></td>
</tr>
</tbody>
</table>

## Portfolio Product (Loaded on Taskstream or website)

<table>
<thead>
<tr>
<th>Portfolio Product (Loaded on Taskstream or website)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

## Total

<table>
<thead>
<tr>
<th>Total</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>450</td>
</tr>
</tbody>
</table>

### Grading Scale

- **A:** 450-400
- **B:** 399-349
- **C:** 348-298
- **D:** 297-247
- **F:** 246-below

### Special Needs

If for any reason you have needs for special accommodations to fulfill class requirements and succeed in this class, contact me between the first and second class in person, by phone, or email. Your special needs may be related to physical disabilities, learning disabilities, or any other special need you may have. If you would need special accommodations due to unexpected events in your personal life during the course of the semester, contact me as soon as possible. Refer to section of
the university's Student Catalogue.

**Academic Honor Code**

Familiarize yourself with the requirements of the honor code found in the university handbook. All students and faculty are held to the terms of the Academic Honor Code.

**Plagiarism**

I expect that you complete your own work. If you use ideas and excerpts from other people and/or resources you must cite and properly reference them in your work. Review the university's policy with respect to plagiarism.

You are expected to be professionals in our learning community.