

Dr. Frank L. Forcino Office: 335 Stillwell
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Office Hours: Before class begins

Class time: Oct 7 to Oct 18, 5pm-8pm

Purpose: Provide students with the appropriate background knowledge, techniques, training, philosophy, and ability to lead a successful inquiry science curriculum.

Objectives:

- Understand and take part in the nature of science
- Demonstrate an understanding of scientific inquiry and the ability to both use the process in personal inquiries and teach/facilitate the process
- To be able to self-critique teaching style, ability, and effectiveness in order to continue to be learn more about your own teaching throughout your career.
- Develop the ability to assess and evaluate the scientific understandings of students in ways that directly inform instruction.

Textbook: Harlen, Wynne (2015) *Teaching Science for Understanding in Elementary and Middle School*. Heinemann, Portsmouth, NH. ISBN 978-0325061597

Participation: Your attendance in class and participation in activities will play a large role in your success and will be significant part of your final grade. You are expected to attend every class prepared fully participate in the discussions and activities.

Grading: Your final grade will be based on a the following:

Lesson critique and idea journal	10%
Inquiry Lesson Plan	40%
Assessment Data Scientific Paper	30%
In class activities and participation	5%
Post-course inquiry journal	15%

Course Outline

Topics and dates are subject to change.

Oct 7	Introduction, assignments for the course Chapter 1: What is Science, Why is it important for everyone Why do you need to know how to teach science? Chapter 2: How do you do science? Intro to Inquiry
Oct 8	Chapter 2 cont. How do you do science with your materials and for your students? Chapters 3, 4, and 5 Assign science experiment lesson plan
Oct 9	The world around you (using important natural resources to study science) Environmental Education and Nature as a tool for science Inquiry lesson example by me Chapters 7 and 8 Meetings with groups about lesson plans and needs
Oct 10	Chapters 9 and 10 Inquiry lesson plan presentations and assessment data collection Lesson discussion and critiques
Oct 11	Inquiry lesson plan presentations and assessment data collection Lesson discussion and critiques
Oct 14	Inquiry lesson plan presentations and assessment data collection Lesson discussion and critiques
Oct 15	Inquiry lesson plan presentations and assessment data collection Lesson discussion and critiques
Oct 16	Analyzing data (together as a class and one-on-one)
Oct 17	Chapter 8 Scientific communication and critical thinking Time to write and feedback on assessment data paper Post face-to-face assignment will be assigned
Oct 18	5 min research presentations

Description of Major Assignments

Pre-course Survey Assignment:

Please answer the following questions, and email me the responses or complete the blackboard assignment, by October 3, 2019.

- 1) What are some things you want to learn about the world or your life or science, maybe even specifically something that will help you teach?
- 2) What are the science standards that you need to achieve in your class?
- 3) What natural resources do you have access to near your school (for example: rain, creek/river, plants/forests, rock outcrop, beach,)?
- 4) What is your experience in the sciences or what science courses have you completed?
- 5) Have you taught science to your students? If yes, what material do you typically teach and at what level (or age of the students)?

Additionally, please read chapters 1 and 2 of the Harlen textbook by the first day of class, October 7, 2019.

Inquiry Lesson Plan:

You will design and carry out an inquiry-based science lesson with a partner. You will be responsible for ensuring the class is engaged and discovering the information for themselves. It is best if this lesson is also something that you can use with your class. The goal is to have each group do a different topic, so that everyone in the class can see new methods on how to teach a variety of topics for a variety of grade levels.

Assessment Data Scientific Paper:

You and your partner will collect data during your lesson that you teach to the class. The data must be able to provide evidence to whether or not the students achieved the objective of the lesson. I will work with you and your partner to ensure you design an appropriate assessment. You alone will use those data to write a scientific-style manuscript. We will discuss this format during class. The end goal is for you (1) to learn new assessment techniques to use to ensure the students in your class are achieving your set objectives, and (2) to understand how to conduct a scientific investigation and write a scientific manuscript.

Post-course Assignment:

In the week following the completion of the face-to-face portion of the course, you will include an inquiry (or discovery if not a science course) lesson in your class. You will write a short reflection paper about the lesson, how the students reacted to the lesson, the effectiveness of the lesson, and anything you want to discuss about how anything from the course has influenced your teaching.

*You will receive additional details and grading rubrics for each of these assignments during class session.

Grading and Quality Point System:

Grade	Interpretation
A+	98%-100%
A	93%-97%
A-	90%-92%
B+	88%-89%
B	83%-87%
B-	80%-82%
C+	78%-79%
C	73%-77%
C-	70%-72%
D+	68%-69%
D	63%-67%
D-	60%-62%
F	0%-59%

Accommodations for Students with Disabilities: Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities and/or medical conditions. Students who require reasonable accommodations must identify themselves as having a disability and/or medical condition and provide current diagnostic documentation to the Office of Disability Services. All information is confidential. Please contact the Office of Disability Services at (828) 227-3886 or come by Suite 135 Killian Annex for an appointment.

Student Support Services: Student Support Services provides support to students who are either first-generation, low-income or those who have disclosed a disability with: academic advising, mentoring, one-on-one tutorial support, and workshops focused on career, financial aid and graduate school preparation. You may contact SSS at (828) 227-7127 or email sssprogram@wcu.edu for more information. SSS is located in the Killian Annex, room 138.

BrainFuse

BrainFuse is a free, online academic tutoring service for distance students. Please visit the link below for instructions on accessing this resource. <https://www.wcu.edu/apply/distance-online-programs/current-students/tutoring-support.aspx>

Jamaican Relevancy: This course focuses on how to conduct scientific investigations and use apply these techniques by having your students use inquiry to learn science. Students will be expected implement strategies discussed in class and report to the class the benefits and/or difficulties encountered when implementing a particular strategy with their students. The final evaluation for the class will include a question related specifically to whether the information presented during the course was 'relevant to Jamaican schools'.

Diversity Statement: Diversity in our society and schools is an important part of our history and a significant variable in discussions regarding the aims and purposes of education and schooling. The content of this course reflects a commitment to social justice and an emphasis on the necessity of preparing educators who will effectively meet the individual needs of ALL students. As such, issues related to race, gender, religion, sexual orientation and social class will be considered in this class. Students in this class teach in Jamaican schools. Jamaica is a diverse nation (the motto: "Out of many, one people" exemplifies a commitment to and respect for our varied backgrounds, beliefs and values).

Academic Honesty Policy: All work for this class should utilize APA Style for format and reference citations. Western Carolina University, a community of scholarship, is also a community of honor. Faculty, staff, administrators, and students work together to achieve the highest standards of honesty and integrity. Academic dishonesty is a serious offense at WCU because it threatens the quality of scholarship and defrauds those who depend on knowledge and integrity. Students are expected to adhere to the highest standards of academic honesty in all classes. Any questions regarding the use of citations and references should be brought to the attention of the instructor of the course. Academic dishonesty includes the following: Cheating, Fabrication, Plagiarism, and Facilitation of Academic Dishonesty. These terms and procedures for cases involving allegations of academic dishonesty are described in the current WCU Student Handbook. Any student in this class found guilty of academic dishonesty will automatically receive a failing grade in the class.

Course Evaluations: Since this is contract class, we don't have access to Course Eval. It is important for our reaccreditation that we receive this feedback, so we ask that instructors encourage students to complete this evaluation after each class. You will receive the aggregated data after the course has been completed and we've received the results from students: https://wcu.az1.qualtrics.com/jfe/form/SV_56H9QB4kAkzP7r7