Teaching Science EC-6_EDEE-3330_006

Welcome to EDEE 3330 course! This syllabus is designed to help you become successful while in class and after taking the course.

Instructor Information

Course Name	**Teaching Science EC-6**
Instructors' Name	**Dr. Mila Rosa L. Carden (she, her, hers)**
Office Location	**Matthews Hall 218-H**
Office Hours	**Monday: 8:00AM-10:00 AM; Thursday: 1:00-2:00PM (Zoom)**
Email:	**milarosa.carden@unt.edu**

About Me:

I created a short video (2:24 mins) about myself including educational background, professional experiences, scholarly works and personal information. Video link is available in Canvas.

Course Description

Teaching Science EC-6. Introduces students to the scope and sequence of science education in an elementary school setting, to lesson plans and lesson design inside both formal and informal learning settings, and to the contributions of scientists of from various backgrounds, race, ethnicities. Focuses on ways to make science accessible for all and use scientific knowledge to make informed decisions. Must be taken in Block A. Prerequisite(s): Admission to teacher education program. Corequisite(s): EDRE 3350 and EDEE 3340.

Course Structure

EDEE 3330-Teaching EC-6 a is a face-to-face, 15-week course, 2hrs and 50-minute long per session. All assignments have due dates; please refer to the course schedule included in this syllabus. All sessions will be at Matthews Hall, Rm 111 (change of venue will be promptly communicated). Each session includes one module with a focused topic that will last for a week. If there are meritorious reasons (e.g., suspension of classes), module coverage will be extended to the next session/s. All readings will be uploaded to Canvas.

Course Objectives:

Throughout the course, we will address an enduring goal of science education to develop an understanding of the nature of science through readings, research-based instructional activities such as the use of picture books, and participation in scientists' works (e.g., citizen science). These activities will help answer the question, **how is scientific knowledge constructed?** Each course requirement aims to explore students' science identity and to expand their own definition and ideas of science to make science education more humanistic and science accessible for all, thus answering, **who is science for?** You will have microteaching sessions to help you design and implement a 5E lesson plan emphasizing inquiry in science and teaching the nature of science (NOS). The 5E learning framework is a constructivist, inquiry approach

where you are supported to enhance your curiosity *(engage),* design your investigations *(explore),* create and analyze your own evidence/scientific ideas *(explain),* communicate and challenge your ideas with others (*elaborate),* and assess your understanding *(evaluate)* (Bybee, 2015). After your microteaching, your peers and I will provide feedback to help you reflect on **why and how you teach science.**

Learning Outcomes

By the end of this course, and with the support of your instructor, you will:

1. demonstrate professional skills, knowledge, and attitudes as outlined in the Texas Teachers Proficiencies
2. identify appropriate science materials, lessons, and strategies for your selected grade level to plan and teach Science Content in the Texas Essential Knowledge and Skills.
3. incorporate evidence-based science practices and safe science practices in lesson plans and implementations.
4. design/modify activities to support equitable and inclusive science learning.
5. demonstrate understanding of the nature of science through your 5E lesson plans and microteaching.

For laboratory activities, please be informed of the following safety procedures and guidelines:

While working in laboratory sessions, you are required to follow proper safety procedures and guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, handling chemical solutions and hot and cold products. Students should be aware that UNT is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. Students who are injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical facilities. If students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

To ensure that you understand safety measures, you will have to complete the Texas Education Agency Safety Training Course. See Canvas for details. In addition, you will read and sign the safety contract found in this link.

How to Succeed in this Course

I always start my class with “science and me” storytelling. Your stories provide me window to your past and present science learning experiences, including negative and positive attitudes toward science and apprehensions about teaching science. Knowing your stories will help me get to know you, thus help me better support your learning. As future science teachers, it is

important that you are confident how to teach science. To help you gain this confidence, you will be "lead learners' in class. My hope is that you will have a sense of self-value as a source of scientific knowledge in and out of the classroom. Throughout the course, I want you to not just learn and do science but learn *about* science. After the course, you should be able to address these questions: ***How is scientific knowledge constructed? Why do we teach science?***

One of the critical indicators of your success in this class is **communication**. I prefer to address your concerns about the class (e.g., assignments, readings) and/or personal concerns about this class during my consultation hours: **Monday: 8:00AM-10:00 AM; Thursday: 1:00-2:00PM (Zoom).** I will also allot the last 15-20 minutes of the class as Q and A session.

If these days and times don't fit your schedule, please email me and I will respond within 48 hours. If it is urgent, please indicate it in the SUBJECT of your email. I prefer an in-person meetings, but if unforeseen events happen and you cannot come for in-person consultation hours, you can set a Zoom meeting with me. For Zoom meetings, **make an appointment two days before yo**ur desired meeting. Please come on time during in-person and Zoom consultation/meetings.

Your success is important to me, so I HIGHLY encourage you to use these consultation hours for all your class-related concerns.

Guidelines for communicating online or face-to-face: Remember these tips when interacting with your peers and me.

- Treat your instructor and classmates with respect in email or any other communication.
- Always use your professors' proper title: Dr. or Prof., or if in doubt, use Mr. or Ms.
- Unless specifically invited, don't refer to your instructor by the first name.
- Use clear and concise language.
- Remember that all college level communication should have correct spelling and grammar (this includes discussion boards).
- Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you."
- Use standard fonts such as Ariel, Calibri or Times New Roman and use a size 10- or 12-point font.
- Avoid using the caps lock feature AS IT CAN BE INTERPRETED AS YELLING.
- Limit and possibly avoid the use of emoticons like :)
- Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or sound offensive.
- Be careful with personal information (both yours and other's).
- Do not send confidential information via email.

Source: Online Communication Tips (https://clear.unt.edu/online-communication-tips)

Attendance: This course is designed and organized to be highly collaborative and interactive. Our sessions will involve small and whole group activities and discussions. Therefore, your attendance and participation are essential to the learning of everyone in our course. It is very difficult to be enriched by discussions and collaborations if you are not physically present or prepared for class. Per university policy 06.039, an excused absence falls under the following categories:

- religious holy day, including travel for that purpose;
- active military service, including travel for that purpose;
- participation in an official university function;
- illness or other extenuating circumstances;
- pregnancy and parenting under Title IX; and
- when the University is officially closed.

Examples of absences considered extenuating circumstances include:

Temporary disability or injury
• Extended medical absence or hospitalization
• Illness of a dependent family member
• Major illness or death of a loved one, which may include immediate family members of the student, spouses/partners, and others as deemed appropriate by the Dean of Students office
• Car accident that takes away transportation
• Housing emergencies
• Significant mental health concerns

For absences related to significant illness or extenuating circumstances, faculty can request that verification/documentation of absence go through the Dean of Students office.

If you cannot attend a class for any reason (including those not listed above), please notify me **as soon as possible**. Likewise, for reasons not listed above where a missing class is unavoidable, please let me know so we can devise an alternate plan. ***It is my discretion to excuse absences for reasons not listed above***, and you must communicate with me.

Examples of extenuating circumstances considered to be a matter between the faculty member and student include:

- Professional school interviews
- Conference attendance
- Receiving academic awards such as scholarships or other academic honors
- Missing class due to being waitlisted (only applicable prior to census date)
- Personal travel
- Short-term illnesses and doctor appointments (Flu, covid, strep, cold, etc.)

Attendance and participation in this class are required. Our class time will consist of many small groups and a whole class discussion. You are a vital part of a learning community, and your contributions are part of the knowledge that we create in our classroom. Therefore, we need you here as often as you are able.

When you can't be in class, I expect you to let me know ahead of time if you can. Missing more than two class periods or missing any class without contacting the instructor will affect the participation portion of your grade and may warrant further administrative action. You are still responsible for turning in assigned work if you are absent.

0 – 1 unexcused absence 10 points
2 unexcused absences 7 points
3 unexcused absences 3 points
4 unexcused absences F in the course

You are also expected to arrive at class on time and not leave before the end of the course. **Three instances of arriving more than 15 minutes late or leaving 15 minutes early will result in one unexcused absence**. Coming to class late or leaving early for the reasons listed above for excused absences will be counted as excused. Again, be sure to communicate with me in those instances.

"A student is responsible for requesting an excused absence in writing, providing satisfactory evidence to the faculty member to substantiate excused absence and delivering the request personally to the faculty member assigned to the course for which the student will be absent. (Reference: 06.039 Student Attendance and Authorized Absences, p. 2)
"When an absence is excused, the faculty member will provide a reasonable time after the absence for the student to complete an assignment or examination missed." (Reference: 06.039 Student Attendance and Authorized Absences, p. 2) NOTE: Reasonable time means no fewer than 10 days.

Accommodation

Together with UNT, I am here to provide you accommodations you may need. Please do not hesitate to reach out.
"The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of

Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (http://www.unt.edu/oda). You may also contact ODA by phone at (940) 565-4323."

Supporting Your Success and Creating an Inclusive Learning Environment

We all come to this course with different perspectives influenced by our personal cultural background and diverse learning styles and level of abilities. Therefore, I expect each of you and including me to be respectful all the time. Below are my expectations and non-negotiable rules in class.

Use of Digital Devices (e.g., Laptop, cell phone, iPad)

- As a matter of professional courtesy, I require that *any cell phone(s) be set* in *silent mode* before class begins and keep them in this mode until class is over, no texting. If you need to take an emergency call, please step out of the room to take the call and let me know about it.
- The use of laptops may take your attention away from meaningful classroom experiences. Please be responsible when using your laptops and iPads.
- For your reference: I will use the traffic lights to indicate use of devices:
  GREEN: You can use your laptops/devises during class for online resources/ technology-based activities.
  RED: no devise needed

"UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and information on how you can be successful at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu."

Required Text: See Canvas

Course Requirements/Schedule

Course Requirements:

There are two major requirements in this course: Writing a nature of science (NOS) lesson within an inquiry approach and microteaching (teaching your lesson to your peers). To successfully accomplish these requirements, you will have to complete in-class assignments and home-based assignments (homework).

Lesson Planning and Microteaching

Lesson Plan is the teacher's "blueprint" of classroom instruction. It provides information about your topic, how you will teach it, and how your students can effectively learn about your lesson. Therefore, your lesson plan must be carefully design (inquiry-based with NOS integration) including appropriate and effective strategies to ensure meaningful student learning in your classroom. In this course, you are required to write a mini-lesson plan you will implement during the microteaching session. We will use the "Instructional Sequence Matters: Explore Before Explain for Grades 3-5" reference as your guide. A lesson plan template will be provided to you.

Microteaching is a research-based strategy to help preservice teachers to prepare for actual classroom instruction. It consists of planning (lesson planning), implementation, and reflection. In this course, you will implement the lesson plan you designed for 20-30 minutes. Then, you will teach this lesson to your peers at a designated time. After your microteaching, you will receive immediate feedback from your instructor and peers. Then, you will submit individual reflections about your microteaching.

Assignments

In-Class Assignment (IA): This assignment must be completed and submitted at the end of the class session. This may vary including individual, paired, or small group work. Most of the in-class assignments are completion assignment. You get a perfect score if you address the questions completely and appropriately. Some will be graded based on rubric.

Homework (HW): This assignment will be mostly individual work. You will be given a week or longer (as appropriate) to complete the task, therefore, due dates will vary. Description of homework will be posted on Canvas a week before for HW that can should be completed within a week. If HW requires more than a week, then description will be posted two weeks before and so on.

Late Assignments

You are expected to turn in quality work; therefore, if you need more time to work on your assignment, you can submit your work three (3) days after the due date. Please see me if you need more than the three-day allowance; so, we can discuss alternative options for you. NO late submission for in-class assignments unless we ran out of time during our class session. Please be responsible in managing your time. Set priorities and plan well.

Other UNT policies: Please read and absorb these important documents:

Student Support Services & Policies

Explore Navigate's Study Buddy (https://navigate.unt.edu) tool to join study groups. Maximize your learning with our coaching staff at the Learning Center.

Academic Integrity: *Students who use other people's work without citations will be violating UNT's Academic Integrity Policy. Please read and follow this important set of guidelines for your academic success (https://policy.unt.edu/policy/06-003). If you have questions about this, or any UNT policy, please email me or come discuss this with me during my office hours.*

Honor Code: "I commit myself to honor, integrity, and responsibility as a student representing the University of North Texas community. I understand and pledge to uphold academic integrity as set forth by UNT Student Academic Integrity Policy, 06.003 (https://policy.unt.edu/policy/06-003). I affirm that the work I submit will always be my own, and the support I provide and receive will always be honorable."

Table 2. **Course Assignments (next page)**

Course Learning Outputs	**Points Possible**	**% of Final Grade**
Science and Me Story (HW and completion assignment)	20 (pre) 20 (post)	5%
View of Nature of Science (VNOS-D+ and SUSSI) (Pre & Post) (IA and completion assignment)	20 (pre) 20 (post)	
Safety Training	50	
Science Learning Experience Survey	50	
Drawing and Narrative (Pre and Post)	10	
Other In-Class assignments (IA)		
Inquiry Project: Corn Project	25	
Science Content Quiz (5pts/biweekly)	35	
Session Debriefing Activity Worksheets (5-20 pts each)	70	
First Draft of Lesson Plan (HW and rubric based grade)	100	35%
Final Lesson Plan (HW and rubric based grade)	100	
FINAL EXAM	100	10%
Microteaching (Professor and Peers, rubric based grade)	100	35%
Student evaluates		
Class Participation/Professionalism (rubric based grade)	10	10 %
Attendance (UNT rubric)	10	
Total Points Possible	**740**	100%

Course Schedule: *Please note that this schedule may change to meet students' needs and unprecedented circumstances.*

Wk	**Date**	**Topic**	**Assignments:** [DUE DATES]
1	Aug 19	Course Introduction: Syllabus Discussion including course requirements	Drawing and Narrative [Aug 19, 5:30 PM] Survey (Aug 23 11:59 PM)
2	Aug 26	The Nature of Science (NOS)	• Views of the Nature of Science [Aug 26, 5:30 PM] • Science and Me Story [Aug 30, 11:59 PM]
3	Sept 9	• Chapter 1: Three-Dimensional Learning: Moving to "I Can Teach Like This" • 5E Learning Cycle (Engage and Explore, Evaluate)	• Safety Training Certificate [sept 6, 11:59 PM] • NSTA Safety Classroom Contract [Sept 9, 5:30 PM]
4	Sept 16	• Chapter 1: Three-Dimensional Learning: Moving to "I Can Teach Like This" • 5E Learning Cycle (Engage and Explore, Evaluate)	• Try it #1: Engage Lesson [Sept 16, 11:59 PM]
5	Sept 23	• Chapter 2: Competencies of Young Children: Bringing Out the Brilliance of All Children • 5E Learning Cycle (Explain and Elaborate, Evaluate)	• Try it #2: Explore Lesson [Sept 23, 11:59 PM]
6	Sept 30	• Chapter 2: Competencies of Young Children: Bringing Out the Brilliance of All Children • Intro to Citizen Science/Corn Project	
7	Oct 7	• Chapter 3: Intro to Scientific Investigation: Starting Strong with Investigation and Design • Socioscientific issues	• Try it # 3 and 4: Explain and Elaborate [Oct 7, 11:59 PM] • Start of Corn Project
8	Oct 14	• Chapter 3: Intro to Scientific Investigation:	• Try it #5: Evaluate [Oct 21, 11:59 PM]

		Starting Strong with Investigation and Design • Science and Engineering Practices	
9	Oct 21	• Chapter 4: Planning scientific investigation: Letting Children Lead During Investigation and Design • Engaging in Authentic Research	• Corn Project Culminating Activity • Draft of Full lesson Plan
10	Oct 28	• Chapter 4: Planning scientific investigation: Letting Children Lead During Investigation and Design • Microteaching	• Microteaching First Group (6 x 20 mins) Focus on Engage, Explore and Explain only • Microteaching reflection
11	Nov 4	• Chapter 5: Discourse in Science: All Together Now: Supporting Communication and Collaboration • Microteaching	• Microteaching Second Group (6 x 20 mins) Focus on Engage, Explore and Explain only • Microteaching reflection
12	Nov 11	• Chapter 5: Discourse in Science Assessments: All Together Now: Supporting Communication and Collaboration • Microteaching	• Microteaching Third Group (6 x 20 mins) Focus on Engage, Explore and Explain only • Microteaching reflection
13	Nov 18	• Chapter 6: Assessments: Revealing Learning through Assessments • Microteaching	• Microteaching Fourth Group (6 pairs x 20mins) Focus on Engage, Explore and Explain only • Microteaching reflection
14	Dec 2	• Chapter 7: STEM and other content areas: Everything Is Connected: Integrating Science and Engineering with Instruction in Other Subjects Teaching Engineering • Microteaching	• POST-NOS Survey • Drawing and Narrative
15	Dec 9-13	FINALS	• Core-EC-6 Practice Exam and Final Reflection • Final Lesson Plan [Dec 11, 11:59 PM]

Grading

A = 90%-100%
B = 80-89
C = 70-79
D = 60-69
F = below 60%

Course Evaluation

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course.

WELCOME TO THE CLASS!

DR. CARDEN