University of North Texas at Dallas

School of Education

Syllabus for EDEE 4330, Spring 2024
Teaching Science EC-8

Department of Teacher Education and Administration	**School of Education**

Instructor Name:	**Dr. Ratna Narayan**
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Office Hours:	**Wed/ Thur 3-5 pm, Sat 10am- 2 pm via zoom/ phone**
Classroom Location:	Dal 1 248
Class Meeting Days & Times:	**Thursday, 5:30pm – 8:30 pm**
Course Catalog description	This course will explore the pedagogical techniques, instructional methods and materials needed for teaching science in the K-8 grades. Emphasis will be laid on hands-on activities, scientific inquiry and standards-based teaching and learning.
Prerequisites:	Acceptance into the UNTD SOE Teacher Education Program.
Required Text:	**Readings from the NSTA position statements: https://www.nsta.org/about/positions/**
Additional Learning Resources:	UNT Dallas Library: phone: (972) 780-1616 web: http://www.untdallas.edu/library email: library@untdallas.edu UNT Dallas Bookstore: phone: (972) 780-3652 web: http://www.untdallas.edu/bookstore e-mail: untdallas@bkstr.com

Course Goals or Overview: The goals of this course are as follows -

The goal of this course is to provide teacher candidates with the knowledge, skills, and dispositions as a basis for making decisions in respect to teaching elementary/middle school science.

The knowledge, skills and dispositions developed in this course are delineated in a variety of ways, including student learning outcomes, assessments, assignments, and various course activities. They are also developed in a manner consistent with recommendations of the National Research Council's National Science Education (NSES) and National Science Teachers Association (NSTA) Standards, and the requirements of the Texas State Board for Educator Certification (TEKS).

Learning Objectives/Outcomes: At the end of this course, students will be able to:

SLO 1	Students will articulate, develop, and refine personal understandings of science and science teaching **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard IV**

SLO 2	Students will use reflective analysis to improve their teaching. **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard IV**
SLO 3	Students will demonstrate their understanding of the nature of science and science process skills (basic & integrated) **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard VI**
SLO 4	Students will demonstrate their understanding of the science TEKS, vertical alignment of the science content, & correlation to the National Science Education Standards (NSES) **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standards, VII, IX, X**
SLO 5	Students will demonstrate their understanding of managing safety issues to promote science learning in the lab, field and in the classroom **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standards I, II**
SLO 6	Students will apply their understanding of the scientific method to design and conduct a science fair project with a testable hypothesis and variables **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard IV**
SLO 7	Students will learn about the role and types of scientific inquiry and design and teach inquiry-based science activities and lessons **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard III**
SLO 8	Students will be able to demonstrate the use of instructional strategies and teaching activities to teach the science content knowledge included in the TEKS in laboratory, and classroom settings. **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard IV**
SLO 9	Students will learn about the use of formal and informal assessments relevant to science instruction at the elementary / middle school level laboratory, field (outside), and classroom settings **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard V**
SLO 10	Students will construct science lessons and hands-on experiences that address the needs of a variety of student populations including English language learner, special needs students, and gifted and talented students **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard IV**
SLO 11	Students will identify and explain the recurring themes and unifying concepts at the elementary / middle school level and relate how these components relate to each other and the environment **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard XI**
SLO 12	Students will develop an understanding of controversial issues in science and their relevance to social ethics **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standard VII**
SLO 13	Students learn about the contribution of diverse scientists and their impact on society and STEM careers **TExES Core Subjects, EC-6 Science, TExES 4-8 Science, Standards VI, VII**

Suggested Course Outline

This schedule is subject to change by the instructor. Any changes to this schedule will be communicated in class or via class email or Canvas announcement. Additional readings and activities may be added, these will be noted in the Readings and Activities/Assignments sections.

Week	Topic	Suggested Assessments
1 18th Jan	What is science, science process skills, relevance of science to everyday life	*Assessments:* Pre reflection due 18th Jan Science in your everyday life assignment due 25th Jan https://padlet.com/ratnarayan/eclipse-2024-z34f6q71cqspzts3
2 25th Jan	Nature of Science and Science Process skills The solar eclipse class discussion & expectations You will work with your partners on your lower elem science activity presentation	*Assessments:* All documents pertinent to the Lower elem science activity presentation due Feb 1st
3 Feb 1st	The Lower elem science activity presentations, reflections, and class discussions	*Assessments:* Individual lower elem science activity presentation reflections due Feb 8th
4 Feb 8th	The science TEKS and NSES Fruit/ vegetable/ nut?	*Assessment:* Reflection 1: the Science TEKS and me due Feb 15th
5 Feb 15th	Safety in the lab, field, and classroom	*Assessment:* Safety in the classroom assignment due Feb 22nd
6 Feb 22nd	The scientific method, hypothesis testing and variables	*Assessments:* Reflection 2: Linearity and the scientific method Feb 29th The Science Fair Project framework: question, hypothesis, method, materials Due Feb 29th
7 Feb 29th	Scientific inquiry and its implementation in Elementary /middle school Classroom	*Assessments:* Reflection 3: Scientific Inquiry and me due Mar 8th
8 Mar 7th	Science Fair Presentation	*Assessment:* Science Fair Reflection due Mar 10th

9 Mar 14	UNT Dallas Spring Break 2024 Mar 11-16th	
10 Mar 21st	Informal and formal Assessments in Science Assignment and presentation	*Assessments:* Formal Science Assessment Assignment (Due Mar 21st)
11 Mar 28th	Lesson planning in the science classroom (workshop)	*Assessments:* Framework for the key assignment lesson plan (Apr 4th)
12 Apr 4th	Recurring themes and concepts in Physical science	*Assessments:* Designing a working science model of a Physical science concept and reflection due Apr 11th
April 8th Solar eclipse solar eclipse assignment due Apr 20th		
13 Apr 11th	Recurring themes and concepts in Earth science	*Assessments:* Water cycle assignment and reflection due Apr 18th
14 Apr 18th	Recurring themes and concepts in Life science	*Assessments:* Adaptation Assignment relation between structure and function and reflection Due Apr 25th
15th Apr 25th	Diverse Scientists and their impact	*Assessments:* Diverse Scientists assignment Due May 5th
16 May 2nd	Key assignment Lesson plan presentation	*Assessments:* Key Assignment Lesson plan and accompanying documents due May 2nd and reflection due May 5th
	Final Reflection	Due May 8th

Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Suggested Assignments	Points	Due Date
Pre-Reflection	10 points	Jan 18th
Reflection 1: The Science TEKS and me	10 points	Feb 15th
Reflection 2: Linearity and the Scientific Method	10 Points	Feb 29th
Reflection 3: Scientific Inquiry and me	10 Points	Mar 8th
Science in your house and surroundings	20 points	Jan 25th
Lower elementary lesson plan (20 presentation, 30 documents, 30 reflection)	80 points	Documents Feb 1st Reflections Feb 8th
Science Safety Assignment	45 points	Feb 22nd
The Science Fair Project	35 points	Framework Feb 29th Presentation Mar 8th Reflection Mar 10th
Informal science assessment Assignment	20 points	Mar 21st
Designing a working science model of a Physical science concept and reflection	20 points	Apr 11th
Water cycle assignment and reflection	20 points	Apr 18th

Adaptation Assignment relation between structure and function and reflection	20 points	Apr 25th
Key Assignment Lesson Plan (50 documents, 50 presentations, 50 reflection)	150 points	Framework Apr 4th Documents May 2nd Presentation May 2nd Reflection May 5th
Scientist of diversity	10 points	May 5th
Solar Eclipse school Placement assignment	30 points	April 20th
Final Reflection	10 points	May 8th
Total	500 points	

GRADE DETERMINATION:
A = 90% or better
B = 80 – 89 %
C = 70 – 79 %
D = 60 – 69 %
F = less than 60%

Classroom attendance and participation
There are NO excused absences unless accompanied by a medical certificate / doctor's note.
Three absences in the class will result in a drop of one final letter grade regardless of your total.
If you have more than three absences, please plan to take the course again in a semester where attending the class consistently is more convenient to your schedule.
Constantly being tardy to class is disrespectful to your classmates and will result first in a warning and then points will be deducted for every subsequent tardy.

Late assignments:
Assignments submitted a week past the due date will not be graded and get zero points.
For everyday an assignment is late you will lose 10% of the total points for the assignment

University Policies and Procedures

Students with Disabilities (ADA Compliance):
Chapter 7(7.004) Disability Accommodations for Students:

The University of North Texas at Dallas makes reasonable academic accommodation for students with disabilities. Students seeking accommodations must first register with the Disability Services Office (DSO) to verify their eligibility. If a disability is verified, the DSO will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, DSO notices of 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 accommodation for every semester and must meet/communicate with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of 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 see Disability Services Office. You may also contact them by phone at 972-338-1777; by email at UNTDdisability@untdallas.edu or at Building PL, room 1104.

Disruptive Behavior in an Instructional Setting:

Students are expected to engage with the instructor and other students in this class in a respectful and civil manner at all times to promote a classroom environment that is conducive to teaching and learning. Students who engage in

disruptive behavior will be directed to leave the classroom. A student who is directed to leave class due to disruptive behavior is not permitted to return to class until the student meets with a representative from the Dean of Students Office. It is the student's responsibility to meet with the Dean of Students before class meets again and to provide the instructor confirmation of the meeting. A student who is directed to leave class will be assigned an unexcused absent for that class period and any other classes the student misses as a result of not meeting with the Dean of Students. The student is responsible for material missed during all absences and the instructor is not responsible for providing missed material. In addition, the student will be assigned a failing grade for assignments, quizzes or examinations missed and will not be allowed to make up the work.

The Code of Student's Rights, Responsibilities, and Conduct (Policy 7.001) describes disruption as the obstructing or interfering with university functions or activity, including any behavior that interferes with students, faculty, or staff access to an appropriate educational environment. Examples of disruptive behavior that may result in a student being directed to leave the classroom include but are not limited to: failure to comply with reasonable directive of University officials, action or combination of actions that unreasonably interfere with, hinder, obstruct, or prevents the right of others to freely participate, threatening, assaulting, or causing harm to oneself or to another, uttering any words or performing any acts that cause physical injury, or threaten any individual, or interfere with any individual's rightful actions, and harassment. You are encouraged to read the Code of Student's Rights, Responsibilities, and Conduct for more information related to behaviors that could be considered disruptive.

Canvas Instructure Accessibility Statement:
University of North Texas at Dallas is committed to ensuring its online and hybrid courses are usable by all students and faculty including those with disabilities. If you encounter any difficulties with technologies, please contact our ITSS Department. To better assist them, you would want to have the operating system, web browser and information on any assistive technology being used. Canvas Instructure Accessibility Statement is also provided.

NOTE: Additional instructional technology tools, such as Turnitin, Respondus, Panopto, and publisher cartridge content (i.e. MyLab, Pearson, etc.) may NOT be fully ADA compliant. Please contact our Disability Office should you require additional assistance utilizing any of these tools.

Course Evaluation Policy:
Student's evaluations of teaching effectiveness is a requirement for all organized classes at UNT Dallas. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider students' evaluations to be an important part of your participation in this class.

Assignment Policy: (According to the instructor's discretion while working in concert with the division/program's guidelines).

Exam Policy: (Online exams and the ability to retake is solely at the instructor's discretion). NOTE: Online exams may be proctored on campus per instructor's discretion.

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of Academic Integrity policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to UNT Dallas' Student Code of Academic Integrity for complete provisions of this code.

Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabrication of information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

Web-based Plagiarism Detection: Please be aware in some online or hybrid courses, students may be required to submit written assignments to Turnitin, a web-based plagiarism detection service, or another method. If submitting to Turnitin, please remove your title page and other personal information.

We are discussing the AI policy …

Classroom Policies

Online Attendance and Participation:
The University attendance policy is in effect for this course. Class attendance in the Canvas classroom and participation is expected because the class is designed as a shared learning experience, and because essential information not in the textbook will be discussed in the discussion board. Online presence and participation in all class discussions is essential to the integration of course material and your ability to demonstrate proficiency.

Attendance for this online or hybrid course is considered when you are logged in and active in Canvas, i.e., posting assignments, taking quizzes, or completing Discussion Boards. To maintain financial aid award eligibility, activity must occur before the census date of the session or term of the course. Refer to UNT Dallas' Registrar for specific dates. If you are absent/not active in the course shell, it is YOUR responsibility to let the instructor know immediately, upon your return, the reason for your absence if it is to be excused. All instructors must follow university policy 7.005 covering excused absences; however, it is the instructor's discretion, as outlined in the course syllabus, of how unexcused absences may or may not count against successful completion of the course.

Inclement Weather and Online Classes: Online classes may or may not be effected by campus closures due to inclement weather. Unless otherwise notified by your instructor via e-mail, online messaging, or online announcement, students should assume that assignments are due as scheduled.

Online "Netiquette":
In any social interaction, certain rules of etiquette are expected and contribute to more enjoyable and productive communication. Emails, Discussion Board messages and/or any other forms of written communication in the online environment should use proper "netiquette" (i.e., no writing in all caps (usually denotes yelling), no curse words, and no "flaming" messages (angry, personal attacks).

Racial, ethnic, or gender slurs will not be tolerated, nor will pornography of any kind.

Any violation of online netiquette may result in a loss of points or removal from the course and referral to the Dean of Students, including warnings and other sanctions in accordance with the University's policies and procedures. Refer to UNT Dallas Student Code of Conduct. Respect is a given principle in all online communication. Therefore, please be sure to proofread all of your written communication prior to submission.

Diversity/Tolerance Policy:
Students are encouraged to contribute their perspectives and insights to class discussions in the online environment. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Dean of Students as the instructor deems appropriate.

Technology Assistance: In order to successfully access the materials in an online or hybrid course, UNT Dallas advises that your computer be equipped with the minimum system requirements listed on the first page of the syllabus.

If you experience difficulty accessing or using components of the course, try using Google Chrome browser. If you still experience technical difficulties, first, notify your instructor.

If the problem is still not resolved, call Student Assistance (Distance Learning) at the phone number listed on the first page of the syllabus. Also, no matter what browser you use, always enable pop-ups. For more information see:

- UNT Dallas Canvas Technical Requirements
- Canvas Instructure Supported & Unsupported Operating Systems