University of North Texas at Dallas
Spring 2014
SYLLABUS

EDEE 4330 D 090 : Science Grades EC-6 3Hrs	
Department of Teacher Education	**Division of Education and Human Services**
Instructor Name:	**Dr. Ratna Narayan**
Office Location:	***201 N Dallas 1***
Office Phone:	**972 780 1340, Cell: 806 252 5277** Phone calls/texts to my cell are welcome between 9AM and 10 PM daily and replies can be expected within no more than 24 hours.
Email Address:	***Ratna.narayan@unt.edu***
Office Hours:	**Monday 1-3 pm Wednesday 1-6 pm, Thursday 3 - 5 pm, or by appointment**
Classroom Location:	**Dallas 1 room 344**
Class Meeting Days & Times:	**Thursday 11.30 am – 2.20 pm**
Course Catalog Description:	**The purpose of this course is to provide teacher candidates with the subject matter, background, and material organization for an integrated science program in the primary/elementary school. Students experience first-hand the scope and sequence of science education in a primary/elementary/middle school setting.**
Recommended Text and References:	**Articles will be uploaded on Blackboard as and when required.**
Access to Learning Resources:	**UNT Dallas Library:** **phone: (972) 780-3625;** **web: http://www.unt.edu/unt-dallas/library.htm** **UNT Dallas Bookstore:** **phone: (972) 780-3652;** **e-mail: 1012mgr@fheg.follett.com**
Field Experience: This course has a 20 hour field experience component that must be completed with the field experience log submitted in a timely manner in order to get a grade for the course.	
Course Goals or Overview:	
	The goal of this course is provide teacher candidates with the knowledge, skills and dispositions as a basis for making decisions in respect to teaching elementary 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, requirements of the Texas State Board for Educator Certification (TEKS) and Interstate New Teacher Assessment and Support Consortium (INTASC) standards.
Learning Objectives/Outcomes:	At the end of this course, the student will
1	Be able to demonstrate the use of instructional strategies and teaching activities to teach the science content knowledge included in Texas' Essential Knowledge and Skills (The TEKS). TEKS
2	Learn to teach science activities or lessons at the elementary level by a variety of approaches (discovery, inquiry, decision-making, and problem solving) and in a variety of grouping arrangements. TEKS, NSES & INTASC standards
3	Plan and teach elementary science activities and lessons with adaptations for minority populations and students with special needs TEKS, NSES & INTASC standards
4	Learn to apply technology to elementary school science by identifying, describing, and using instructional software, Internet and other computer applications than would enhance instruction. TEKS, NSES & INTASC standards
5	Complete classroom observations and related tasks in field-based settings. TEKS, NSES & INTASC standards
6	Plan science activities and lessons and teach them to students in field-based settings TEKS, NSES & INTASC standards
7	Plan lessons that integrate mathematics, science, language arts and social studies and the arts (visual art, music, and theatre arts) around a particular theme TEKS, NSES & INTASC standards
8	Use reflective analysis to improve their teaching. TEKS, NSES & INTASC standards
9	Integrate the various areas of science as well as integrate science with other subject areas at the elementary level, as well as teaching science integrating visual media, arts, music and drama TEKS, NSES & INTASC standards

Course Outline

This schedule is subject to change by the instructor. Any changes to this schedule will be communicated both verbally in class as well as through Blackboard

Please Note: assignments include both those completed in class as well as for homework.

TOPICS	TIMELINE
Nature of Science and Science Process skills Introduction to Field-Based Experiences and Teaching Science in the Elementary School, examining TEKS, TAKS and NSES standards. Content integration in the EC-6 classroom TEKS: K-6 (a) Nature of Science NSES / NSTA: Standards for Science Teaching EC-6, Chapter 3 Standard 2 – Nature of Science	Jan 16th DAST drawing Science process skills **Due Jan 16th: application to volunteer at Perot** **Pre-reflection online** **Drawings**

INTASC: Standard 2 - Student development, Standard 4- Multiple Instructional Strategies INTASC: Standard 1 – Content Pedagogy	**Homework for Jan 23rd: Complete the 5th grade science TAKS test and bring the results to class.**
The Scientific Method, Inquiry-based Science teaching and Learning. TEKS: K-6 (0.1-0.4) Science Process / Inquiry NSES / NSTA: Inquiry and the National Science Education Standards Standard 3 - Inquiry INTASC: Standard 1 – Content Pedagogy	Jan 23rd Scientific method **Due Jan 26th: Museum reflection 1 to be uploaded to BB**
Science Safety in the Elementary Classroom, MSDS sheets, safety contracts TEKS: K-6 (0.1) The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. NSES / NSTA: Safety and School Science Instruction Standard 9 – Safety & Welfare INTASC: Standard 6 – Communication & Technology, Standard 7 - Planning	Jan 30th Safety contract
Constructivism in the Elementary Classroom Planning and Teaching Science: Activities, Lessons, and Units, 5E model, Hands-on activity, Visual Organizer, Extension activity, Formative and Summative Assessments, Administration and Arts Integration (e.g., scientific illustration, using science trade books [language arts literacy]), dramatic performance [skits/historical science leader role play], and music. TEKS: K-6 (0.5 – 0.14) Science concepts NSES /NSTA: Standards for Science Teaching EC-6 Chapter 3, Standards for Science Content EC-6 Chapter 6 Standard 5 – General Teaching Strategies INTASC: Standard 2: Planning Standard 7- Planning	Feb 6th 5E lesson, subject integration
Scientific inquiry in the elementary class Definition, types, examples , expectations of teachers, students TEKS: K-6 (0.1-0.4) Science Process / Inquiry NSES / NSTA: National Science Education Standards, an overview Standard 3 - Inquiry NTASC: Standard 2: Planning	Feb 13th Scientific inquiry **Due Feb 16th: TEKS mapping, 2 hands-on activities, Vocab list, reflection paper uploaded to BB**

Assessment in the Science Classroom TeXes, PPR, Content exams TEKS: The TEKS and the TAKS tests NSES / NSTA: Assessment in Science Education, Chapter 5 Standard 8 - Assessment INTASC: Standard 8 - Assessment	Feb 20th Assessments **Due Feb 23rd: reflection about Project Learning Tree**
Professional development opportunities for elementary science teachers TEKS: K-6 (0.5 – 0.14) Science concepts NSES /NSTA: Standards for Professional Development of Teachers of Science, Chapter 4 Standard 10 – Professional growth INTASC: Standard 9 – Reflective Practice, Professional development	Feb 27th Reflection
Multicultural Science Education TEKS: K – 6 (0.3) Science Process, connect science concepts with the history of science and contributions of scientists NSES / NSTA: Diversity and the National Science Education Standard 5 – General skills of teaching INTASC: Standard 3 – diverse learners **March 10th – 16th spring break**	March 6th Multicultural scientist **Due march 16th: 2 reflection papers for Phase 3 parts 1 & 2 uploaded to BB**
Use of Models in the elementary science classroom Student Science Model Presentations TEKS: K-6 (a) Use of models of objects and events as tools for understanding the natural world and to show how systems work NSES / NSTA: Standards for Science Teaching EC-6 Chapter 3, Standard 5 – General skills of teaching INTASC: Standard 4- Multiple Instructional Strategies	March 20th Models, FOSS **Due March 18th: Cart activity description, materials list, budget emailed to me and Thomas** **Due March 25th: 1 page description of science fair project and 2 brochures for toys for trash uploaded to BB**
Science Fair projects and toys from trash presentations	March 27th

Controversial issues in science and science teaching TEKS: K-6 (0.4,0.5) Science Process NSES / NSTA: National Science Education Standards, an overview Standard 4 – Issues INTASC: Standard 1: Content Pedagogy Standard 10 – School and community involvement	April 3rd Issues **Due April 3rd: Section 2 of checkpoint 2 of the TK20 portfolio on BB** **April 3rd-6th NSTA**
Scientific Literacy, reading and writing science, science notebooks TEKS: K-6 (0.3) Science Process NSES / NSTA: National Science Education Standards, an overview Standard 3 - Inquiry Standard 5 – General skills of teaching INTASC: Standard 1: Content Pedagogy	April 10th Literacy science integration **Cart activities, games, Museum literature connections, reflections**
Group Lesson Presentations Life Science	April 17th **Due: all relevant documents and reflection to be uploaded to BB and TK 20 by April 24th**
Group Lesson Presentations Physical Science	April 24th **Due: all relevant documents and reflection to be uploaded to BB and TK 20 by May 1st**
Group Lesson Presentations Earth Science	May 1st Last class **Due: all relevant documents and reflection to be uploaded to BB and TK 20 by May 8th**
Final	May 8th
All assignments due /submitted / uploaded by May 8th 3pm	

Course Evaluation Methods

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

Assignments –

1. Weekly Activities– Readings and other activities such as the science story that are assigned weekly throughout the semester.

2. Reflection Papers– Reflective writings that serve to integrate your experiences in the classroom and in the field during the semester.
3. Toys from trash- preparing and teaching a science concept with a two working science model you have constructed from the toys from trash website,
4. Perot museum assignments
5. Final Science Lesson presentation

Please note: <u>All the assignments are compulsory</u>. All assignments will be submitted to a thread in Blackboard unless mentioned otherwise. I expect you to complete all the assignments in a timely fashion. There will be no substitutions unless I approve of them. Professional development opportunities will be offered; if you are unable to avail of these an alternate assignment will be provided.

Class Participation – Expectations

1. ATTENDANCE - Attend all classes, meetings, etc. arriving on time.
2. PREPARATION - Be prepared to discuss assigned readings and submit assignments according to established deadlines.
3. PARTICIPATION - Contribute constructively and respectfully to all discussions and activities.
4. RESPECT – Do not talk while the teacher or another presenter is speaking.
5. ACADEMIC HONESTY - Know and follow course, departmental, program and university policies on assignments and assessments.
6. PROFESSIONALISM - Know and follow departmental, program and university policies expected of PDS students.
7. Participation and Professionalism – CRITICAL!
    a. Absences and tardies will count toward final grade reduction: 2 absences = one final grade reduction, 4 absences = two final grade reductions, 5 absences = three grade reductions.
    b. Three tardies = 1 absence. (Tardy - must arrive within the first 10 minutes of class)
    c. Completes assigned readings before coming to class
    d. Answers questions and participates in class discussions
    e. Avoid social or unrelated conversation, working on other assignments, using cell phone, checking email, surfing web, playing video games during class time etc.
8. I am offering a Project Learning Tree Professional Development opportunity on Feb 22nd at UNT Dallas from 9 am – 3pm. Attendance is mandatory.
9. **You are expected to be present in class and on time especially on presentation dates. If you arrive late you will lose 25% of the assigned points.**

Grading Matrix:

Instrument	Point Value	Total
Reflection papers / assignments	10 x 6	60
-Science model, develop and teach and present from toys from trash website	40	40
- science fair experiment, develop, conduct and teach	40	40

Perot Museum assignments TEKS mapping 2 hands-on activities Vocabulary list for exhibit hall Reflections Science literacy connections Science game Cart activity	 10 20 10 50 20 10 10	130
Content Group Science lesson	30	30
Grand Total		300

Grade Determination:
A = 300 - 270 points
B = 269 – 240 points
C = 239 – 210 points
D = 209 – 180 points
F = below 179 points

University Policies and Procedures

Students with Disabilities (ADA Compliance):
The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA). Students' with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. For more information, you may visit the Office of Disability Accommodation/Student Development Office, Suite 115 or call Laura Smith at 972-780-3632.

Student Evaluation of Teaching Effectiveness Policy:
The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. 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 the SETE to be an important part of your participation in this class.

Assignment Policy:
All assignments are compulsory. There are no exceptions to this rule. Please refer to the assignment expectations document for details about each assignment and its due dates. Late assignments will result in a 5 point reduction for each day late.
If I am not satisfied with an assignment response, I reserve the right to deduct points and return it to you so you may improve on it and resubmit to get some of the deducted points back if the work is deemed satisfactory. **All assignments are due by 3pm May 8th 2014** after which NO assignments will be accepted or graded.

Exam Policy:
Exams should be taken as scheduled. No makeup examinations will be allowed except for documented emergencies (See Student Handbook).

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of conduct and Academic Dishonesty 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 the Student Code of Conduct at http://www.unt.edu/csrr/student_conduct/index.html for complete provisions of this code.
Please take the time to go through this link. If I find you have plagiarized from any source without giving them due credit I will give you a zero for that assignment.

Bad Weather Policy:
On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website www.unt.edu/dallas. Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.

Attendance and Participation Policy:
The University attendance policy is in effect for this course. Class attendance 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 class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. **Students are responsible to notify the instructor if they are missing class and for what reason. If I have not heard from you and receive supporting documentation for your absence, I shall consider it an unexplained absence. Two such absences will reduce your overall grade by a letter grade irrespective of the points you might make. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent. If you have missed a class, please make an appointment to meet me so we can determine what needs to be done to make up the lost time.**

Diversity/Tolerance Policy:
Students are encouraged to contribute their perspectives and insights to class discussions. 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 Center for Student Rights and Responsibilities as the instructor deems appropriate.

Optional Policies:
Use of WebCT/Blackboard
I will expect you to use Blackboard to upload your reflection papers and I will give you feedback on those on Blackboard. Please monitor these for additional comments I give or information I require.

Use of Cell Phones & other Electronic Gadgets in the Classroom
Please do not use your cell phones in class. If it is an emergency, I will permit you to leave class and take the call. **If I see you texting or playing videogames or checking your email in class I will drop you a letter grade.**

Food & Drink in the Classroom
I do not mind food and drink in the classroom, however when we are conducting an activity, I will expect all food and drink to be put away immediately. All food and drinks must be properly disposed of.

Use of Laptops
If I need you to use a laptop during class I will take you to the computer lab.

Grade of Incomplete, "I"
A grade of incomplete, "I" will be given only under extenuating circumstances.

EDEE 4330 spring 2014

Assignment details and Expectations

You will be referring to this document a lot during the spring 2014 semester so please keep this safe and turn it in when you are required to. Please bring it to every class.

Assignment details:
All written responses must be typed, single spaced, 12 font and spell checked. It is extremely likely I will ask you to make changes and improve on your work. If I do so, please make the changes. You will have a week to make the requisite changes. Failure to do so will result in a lowering of the grade.

If your work is submitted past the due date you will lose points, and if it is very late, you will not receive any points for the work.

1. Weekly reflection papers / assignments: 6 x 10
   This class is a three credit course which means you will be expected to do at least three hours of out of class work per week during the semester. There will be an assignment every week expect for those weeks where one is already scheduled. Assignments can be anything, a discussion to a chapter, a written reflection paper, a web based task, a presentation etc. and will be assigned in class. There are tentatively 6such assignments, if we do not get to complete all 10, the grading scheme will be adjusted to reflect the same.

   The assignment will be posted on Blackboard right after class under the Discussion tab and you will have a week to respond to it. You will post your response right under the prompt on blackboard unless prompted to do otherwise.

   The assignment for the week of January 23th is the following. This week I would like to test your science content knowledge. You are all training to be elementary teachers. As you are generalists and might be teaching any subject any grade EC-6 you are required to know the relevant content. I will give you a copy of the 5th grade TAKS test, please complete it to the best of your ability and bring it to class. We will discuss the answers in class.
   For your response to be posted on Blackboard: please tell me what broad areas of science Physical, life, earth science you had trouble with.
   What individual questions did you get wrong, why do you think you got them wrong?
   How do you plan to improve your science content knowledge over the course of this semester to ensure success in your EC-6 science part of the test as well as in your future teaching? Be specific. I don't want a response like "I will study" or "I don't know". I want a specific plan that you will generate and stick to.
   Please write in complete sentences and spell check. You may paste your response directly on BB or upload a word document.

Grading: You will get 10 points if the assignment is complete by class time next week. I am not interested in how you scored so please give it your best shot without any external help.
Note: you will lose points if your response is late @ 1 point a day. I will look at the date and time the response was posted and deduct accordingly. You will also lose points if you do not specifically address how you plan to improve your science content knowledge over the course of this semester to ensure success in your EC-6 science part of the test as well as in your future teaching. I am expecting at least two paragraphs with regard to how you plan to ensure success with the EC-6 science content.

Also for Jan 23rd:

1. Please look through the toys for trash website and pick two science appropriate working models that you will be making and presenting to the class on March 27th 2014. You will upload the links to Blackboard; I will look at them and approve them. If I think the model is too easy I will ask you to choose a more complex one.

http://www.arvindguptatoys.com/toys.html

2. You will choose 3 science tentative fair projects and upload them to Blackboard so I can look through them and approve one of them. You will be presenting this to the class on March 27th.

One such assignment in this category you must prepare for is the Multicultural Scientist that will be made in class. I need you to pick a scientist, an unsung hero from your own culture, or a different ethnic background. Make sure the scientist isn't a well-known / popular scientist.
I will ask you to post your selection of scientist on Blackboard so your peers know not to choose the same scientist. If I feel your scientist is too well known, I will ask you to choose another scientist. You may change your choice at any time provided you do not choose one that has already been picked.
Paper requirements:
You will upload a word processed paper to Blackboard with a cover page with your name, the name of the scientist and a clear picture of the scientist, where the person is from, important achievements, his/her bio and how you will integrate this scientist in your science teaching at the elementary level.
Grading: 10 points
You will lose points for your written material if it is late, and does not meet the requirements mentioned above.
You will get zero points if I don't see you have made an effort in doing this assignment.
The emphasis is on how you would integrate the scientist you chose and his/her achievements into your science class. Identify a science topic that will lend itself to you introducing the scientist.

Another such assignment is the Science Safety contract / science Rules. If you are bilingual, you will be required to write these in Spanish. If you are ESL, you will make sure you address the vocabulary in your assignment so the students will understand these terms.
Paper requirements:

You will upload both documents to Blackboard. Please make sure they are not copied off the internet but are ones you have created. Please be through when creating the 2 documents.
Grading: 10 points
You will lose points for your written material if it is late, and does not meet the requirements mentioned above.
You will get zero points if I don't see you have made an effort in doing this assignment.

Section 2 of checkpoint 2 of the TK 20 Portfolio is also included in this category. You will be required to turn in a rough draft, I will give you feedback on this and then you will make corrections and turn in a final product that I will grade. I will give you an exemplar to follow and model your work on. This assignment carries 20 points. You will lose 50% of the points for turning in late work.

2. Science Fair experiment 50 points

The rationale behind this assignment is to give you the experience of generating, conducting and presenting a science fair type experiment. You will try and involve a few students in your class in your project. If you do, you will first discuss this with the mentor teacher you have been assigned to at the school as well as with me. Once you have completed your experiment, you will make a power point presentation and print out a copy and display it at your school and get feedback from the elementary students and teachers. You will also present it to your person March 28th

PLEASE RUN YOUR IDEAS BY ME AND GET WRITTEN PERMISSION BEFORE EMBARKING ON THE EXPERIMENT.

For this assignment, you will explore a question related to a science concept in the elementary school. You will formulate the question as a hypothesis, set up the experiment, collect data and record it, both as narratives and pictures, analyze that data and present the results in the form of a short paper. Please include a scientific reason for your results. A short will be made to the class. The assignment will also have a reflective component.
Requirements: You will need a trifold science fair board for your oral presentation as well as a written paper to be submitted to me.
The slides/ headings I am looking for the trifold board as well as paper are the following: Title of the project with your name, your question, your hypothesis, materials, method, and data tables with graphs and photographs, and qualitative descriptions, results, scientific reason for the results.
Your written paper will also constitute a reflective component in which you will explain what worked with respect to your project, what didn't work and what you would do differently the next time. You will upload the paper to the thread I create on BB.

Grading: 50 points: you will lose points if the work is turned in late and is missing any of the above specified components. If you do not tackle the scientific reason in your own words you will lose 30 points.

3. Toys from trash

For this assignment, you will go to the website http://www.arvindguptatoys.com/toys.html and pick two different items, follow directions to make then WORK and present them in class on March 28th. Each will be accompanied by a brochure in which you explain a) how you made the model and b) the science behind the model.
When you peruse the site, please do not pick craft and art projects like making a paper bag or woven man, I am looking for science related materials, so please take heed.

4. Science Lesson Presentation

This is a TK 20 requirement for EDEE 4330 and MUST be completed and uploaded into TK 20 by all students. You will work on this project in groups that I will pick.

You will be divided into 3 groups each focused on Earth, Life or Physical Science. You will be assigned a topic selected from the EC-6 generalist science list. You are responsible for preparing a comprehensive packet about the topic assigned with definitions, vocabulary, pictures, everyday examples and hands-on activities to teach your peers this content.

Your team will take on the role of the teachers and teach the class as if they were the grade level students. For example, if the lesson is for 5th graders, you will be a 5th grade teacher and the EDEE class will be the 5th graders. The lesson that you will prepare will include a hands-on activity for the class, a graphic organizer, and an assessment quiz.

5. Perot museum assignment

The New Perot Museum of Science opened on Dec 1st 2012 in Downtown Dallas. You will complete a 20 hour field experience at the Museum where you will sign up as a volunteer. The field experience consists of 4 phases:

Phase	When, time	What UNT students will do	Expected product
Phase 1	Jan 25th 9 am – 3pm, 6 hrs*	Orientation and discover the museum on their own (Thomas, Fyve, Lisa)	Reflection on prompts provided
Phase 2	Phase 2 to be completed by Feb 15th		
Part 1	3 hrs	Explore assigned exhibit hall on own	TEKS map exhibits, vertical alignment, 2 hands-on activities relevant to 2 exhibits. Explain each at K-2 level and 3-6 grade level
Part 2	3 hrs	Shadow a docent / volunteer	Reflection paper/ Vocabulary list

Phase 3	Phase 3 to be completed by March 15th		
Part 1	3 hrs	UNTD student + volunteer/docent interact with museum visitors in the exhibit hall.	Reflection Groups work on cart activities and games
Part 2	3 hrs	UNTD student alone interacts with museum visitors in the exhibit hall.	Reflection Groups work on cart activities and games
Phase 4	Activity, supply list and budget due to Thomas by March 18th Phase 4 will be implemented soon after materials are purchased , completed by last week of April		
Part 1	2 hrs	Presentation of cart activity, games at the museum to Thomas, students, Dr. N etc, Lisa will make up rubric for this	Individual students submit electronic version of game, groups submit electronic version of cart activity after incorporating suggestions
Part 2	3 hrs	UNTD students present cart activities and games to museum visitors in the exhibit hall.	reflection
Part 3	3 hrs	UNTD students present modified cart activities and games to museum visitors in the exhibit hall.	reflection

*These 6 hrs are not counted towards the field experience for EDEE 4330 however they will count towards the overall hours. With 25 hrs, the students get a yearly membership to the Perot half off.