



**SED 331.01E— Instructional Design in STEM
COURSE SYLLABUS: Spring 2015**

(this syllabus is a working document and subject to change)**

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Course Description

Instructional Design for Student Engagement in STEM. This second course in the LeoTeach sequence includes middle school field experiences (i.e., observing master teachers and teaching collaboratively designed lessons to diverse learners). The preservice teachers will develop competence with questioning strategies, two teaching models (direct instruction and Inquiry learning), and use formative assessment data including student artifacts to revise initial lesson plans and further differentiate instruction. They will continue their progress toward digital fluency while earning a *Prezi Tutorial Certificate* indicating their instructional technology competence. Their lesson plans will include modifications for learners with attention deficits.

Course Textbook and Readings

Below is the list of textbooks and readings for this course.

Required Textbooks

STEM Lesson Essentials, Grades 3-8: Integrating Science, Technology, Engineering, and Mathematics by Jo Anne Vasquez and Michael Comer
ISBN-13: 978-0325043586

(can be found on amazon for around \$25)

Success from the Start: Your First Years Teaching Secondary Mathematics

Robert Wieman and Fran Arbaugh

(can be found on amazon)

Math Required:

5 Practices for Orchestrating Productive Mathematics Discussions [NCTM]

by [Margaret Schwan Smith](#) [Mary Kay Stein](#) (Author)

Science Required:

5 Practices for Orchestrating Task-Based Discussions in Science

by [Jennifer Cartier](#)

Recommended texts/resources for MATH candidates

Keeley, P. Tobey, C.R. (2011) Mathematics formative assessment: 75 practical tips for linking assessment, instruction and learning. Thousand Oaks, CA: Corwin Press.

<http://nctm.org> National Council of Teachers of Mathematics

Recommended texts/resources for SCIENCE candidates

Keeley, P. (2011). *Science formative assessment: 75 practical tips for linking assessment, instruction, and learning*. Thousand Oaks, CA: Corwin Press.

<http://nsta.org> National Science Teachers Association

Student Learning Outcomes

Course Goals

- To obtain an awareness of multiple models of teaching, including project-inquiry-based teaching, direct instruction, and use of heterogeneous groups; the advantages and disadvantages of each; and what each model requires of teachers and students.
- The students will obtain an awareness of differentiated instruction, why it is necessary, and strategies to implement.

- To explore ways of probing learner understanding through multiple types of assessment, including pre-assessment, formative assessment, performance and authentic assessment, and high-quality multiple-choice tests.
- To explore various methods to engage learners in secondary mathematics and/or science topics.
- To facilitate proper effective group work and discussions in STEM classes.
- To facilitate reflective practice and lifelong learning as professionals.
- To obtain an awareness of equity and diversity issues in classroom teaching and how to enact instruction that ensures that *all* students have an opportunity to learn.

Course Objectives

Students will:

- Discuss and evaluate the merits of multiple models of teaching, and what each model requires of teachers.
- Develop their ability to observe and analyze how classroom instruction develops learners' understanding of content.
- Develop their ability to observe and analyze classroom instruction with regard to equitable and diverse participation (whether *all* students have an opportunity to learn).
- Develop multiple types of assessments to determine what students know and how to help them reach learning goals.
- Use student work as evidence of classroom results.
- Use content and equity as lenses to analyze and reflect on their own teaching and learning interactions.
- Discuss and reflect upon beliefs and beliefs systems regarding educational practices.
- Discuss and reflect upon multicultural connections.

COURSE REQUIREMENTS

Instructional / Methods / Activities Assessments

This course consists of a series of activities and assessments to assist you in achieving the outcomes/objectives for the course. Each week you will work on

various combinations of assignments, activities, discussions, readings, research, etc.

- Professional field experiences are required to successfully complete SED 331.
- Attendance of all class meetings is required and is essential to your success in this course. Absences from a class will result in a “0” for class attendance and participation for that particular class day. Pay careful attention to punctuality, you will have points deducted for being tardy or leaving early.
- Completion of all assigned readings from the text and any supplemental materials and **on-time delivery** is expected. **No late work will be accepted.** The completion of all written assignments and projects exhibit your scholarship and professionalism. Some examples of the assignments that may be expected of you are: written reflections from field experiences and textbook content, self-assessments, thoughtful participation in class discussions, debates, group sessions, group activities, chapter quizzes, reflective written assignments, lesson plans, project presentation, mid-term and final exam.

Notes:

1. Please turn off cell phones, and all other electronic devices when entering class.
2. A word to the wise: clean up your Facebook page prior to sending in your applications.
3. Please use myLeo email when communicating with professors or mentors.

Attendance Policy

The work in this course is accomplished in collaborative work groups and with independent assignments. Punctuality, dependability, and the ability to accomplish group goals and individual goals are considered effective ways to demonstrate the professionalism required for success in the field-based teacher education program. **If you miss a class, you will receive a zero for that day’s attendance and participation grade (total of 10 points for class). You may be allowed to make up the in-class work for that class period for 80% credit, if the make-up work is feasible. If you miss more than three classes, you may be withdrawn from the course.** Extenuating circumstances will be taken into consideration, if the student initiates a conference with the instructor.

University Related Excused Absences: When absences are related to an **approved** University event, your supervisor will need to contact the instructor with the details of the absence **before** the date. You will need to meet with the instructor to receive class notes and assignments to be completed prior to the next class meeting.

Grading procedures: For an approved/excused absence you will receive full credit for attendance. The participation grade will be reflective of your completion of the make-up work of the day's assignments.

Tardy Policy: It is important that you be on-time (early) to class. You should be in the classroom, seated and ready to begin the day's lesson. Coming late to class is distracting to the instructor and your classmates. Three tardies will count as one absence; three absences may have you withdrawn from the class.

Class Participation Grade

There will be a Class Participation Grade for each class period (5 points). The Class Participation Grade will be determined by your attentiveness and contributions to the lesson. Points will be deducted for use of cell phones, laptop use, and talking while others are talking.

Grading

A semester letter grade is earned based on the total points earned throughout the semester for the components of the class. The total points are then applied to a percentage system:

A = 90 – 100 % B = 80 - 89 % C = 70 - 79 % D = 60-69 % F =59 % or below

Components	Points Possible
Class Attendance: 10 points per week Present, on time and remain the entire class	150
Class Participation: 10 points per week (Includes: attentiveness, contributions, activities and assignments for each class meeting)	150

Portfolio/Notebook	100
In-Class Teaches (TBD)	200
EFE--Early Field Experience Reflections Three Teaching Reflections (100 points each) Three Observation Reflections (100 points each)	600
Final Assessment Week 16	100
Miscellaneous Assignments Participation in eCollege assignments	300
Total Points Possible	1600

Technology Requirements

- **All assignments will be turned in through eCollege!**
- The following information has been provided to assist you in preparing to use technology successfully in this course.
- Internet access/connection – high speed recommended (not dial-up)
- Word Processor (i.e. MS Word or Word Perfect)
- Windows operating system (XP or newer) and a recent version of Microsoft Internet Explorer (6.0, 7.0, or 8.0)
- Macintosh OS X along with a recent version of Safari 2.0 or better.
- eCollege also supports the Firefox browser (3.0) on both Windows and Mac operating systems.
- Perform a Browser Test prior to the start of your course. To launch a browser test, login in to eCollege, click on the “myCourses” tab, and then select the —Browser Testlink under Support Services.

Access and Navigation

Access and Log in Information

This course will be utilizing eCollege to enhance the learning experience. eCollege is the Learning Management System used by Texas A&M University-Commerce. To get started with the course, go to: <https://leo.tamu-commerce.edu/login.aspx>.

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or the helpdesk@tamu-commerce.edu.

SED 331 Course Outline / Calendar Spring 2015
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This agenda is tentative and may be revised as needed. Additional assignments or revisions to assignments may occur during the semester.

In development (To Be Determined, will be given calendars each month in class)

Week	Class Activities	Due Next Week
Prior to Class		
Week One		
Week Two		
Week Three		
Week Four		
Week Five		
Week Six		
Week Seven		
Week Eight		
Week Nine		

Communication and Support

Interaction with Instructor Statement:

Use my contact information: cell phone and email address to reach me outside of class. Expect a reply within 48 hours.

Texas A&M University-Commerce provides students technical support in the use of eCollege. The student help desk may be reached by the following means 24 hours a day, seven days a week.

- **Chat Support:** Click on '*Live Support*' on the tool bar within your course to chat with an eCollege Representative.
- **Phone:** 1-866-656-5511 (Toll Free) to speak with eCollege Technical Support Representative.
- **Email:** helpdesk@online.tamuc.org to initiate a support request with eCollege Technical Support Representative.
- **Help:** Click on the '*Help*' button on the toolbar for information regarding working with eCollege

Course APA Format

Course Specific Procedures:

Format for papers handed in for this class:

- Use APA style for citations within text and for the reference page;
- Margins – Left 1., Right 1, Top and Bottom 1; Font - 12 point Times New Roman, Double Space;
- Header – on right side in 8 point include your full name, course identification, and semester; number pages starting with the first page on the bottom right.

Example of citation in text:

The U.S. government states that educational agencies and schools are accountable for student success and that adequate yearly progress as determined by measurable objectives must be met (NCLB, 2001, p. 81).

Example of references:

From a journal:

Niessen, T., Abma, T., Widdershoven, G., & van der Vleuten, C. (2008). Contemporary epistemological research in education: reconciliation and reconceptualization of the field. *Theory & Psychology* 18(1), 27-45.

From a website:

No Child Left Behind Act (NCLB) of 2001. Pub. L. 107-110. 8 Jan. 2002. Stat. 115.142. Retrieved September 27, 2007 from

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_public_laws&docid=f:publ110.107.pdf

From a book:

Noddings, N. (1998). *Philosophy of education*. Boulder, CO: Westview Press, Inc.

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

StudentDisabilityServices@tamu-commerce.edu

[Student Disability Resources & Services](#)

Student Conduct

All students enrolled at the University shall follow the policies of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook*).

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Extras to be discussed in class, if needed!

Go to www.tamuc.edu/teacher

- Look under Available Programs
- Select Early Field Experience (EFE)
- Completely read the entire site including all tabs on the left
- In the Early Field Experience Forms Section you will find the forms that need to be printed and completed during the Early Field Experience. The documents are: Memo of Introduction, Observation Log, an on-line EFE Reflection, Rating Form (to be completed and signed by Mentor Teacher and/or Principal)
- Select Early Field Experience Application Instructions & Information and view the informative Power Point

Criminal Background Checks – It is imperative that you visit the Educator Certification Office (ED North 202) to obtain a Criminal Background Check Form. Please know that observation applications will **not be processed** / sent to districts without the completed criminal background form attached to your EFE application. Districts **will not make assignments** without having the background form completed / submitted. Therefore, assignments will not be made until this process is completed. Only applications with completed background forms will be processed / sent to districts for observation assignments.