EDCI 520: Introduction to STEM Education

COURSE SYLLABUS: Fall 2024

INSTRUCTOR INFORMATION

Instructor: Dr. Melanie Fields
Office Location: Education South #228, Commerce Campus. Additional locations by appointment.
Office Phone: 903.886.5537

University Email Address: Becky.Sinclair@tamuc.edu is answered on a regular basis, M-F 9:00-5:00 plus additional times/days. This is the best way to contact me. Please allow 48 hour response time. Remember to include your name, ID# and phone number in all emails to allow for conference calls, if needed.

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) and Required Reading Materials
Online resources as assigned in the course shell. No purchase necessary.

Course Description

Introduction to STEM education is designed to explore the literature and current practices in STEM/STEM education in K-12 classrooms. The primary objective is for students to advance their professional knowledge, skills and practice in the area of STEM instruction.

Student Learning Outcomes: The student will

1. Identify factors related to the focus on STEM education and current practices in STEM
2. Understand and critique various models and definitions of STEM
3. Be able to evaluate, modify, and create STEM curricula
4. Understand the Standards and Frameworks that govern the teaching of STEM

The *syllabus/schedule are subject to change.*

5. Develop a personal philosophy of STEM education that represents research based best practices

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Instructional Methods

This course consists of a series of activities and assessments to assist you in achieving the outcomes/objectives for the course and instructional units/modules. During each unit, you will work on various combinations of assignments; worksheets, activities, threaded discussions, readings, literature searches, etc.

Student Responsibilities or Tips for Success in the Course

Attend in-person class sessions &/or participate in online activities regularly and on-time.
Work toward completing assignments throughout the modules/units rather than waiting until the due date.
Familiarize yourself with the entirety of course assignments and schedule time wisely in order to meet due dates.

Activities/Assessments

Discussions: Students will be divided into discussion groups. You will complete your course reading assignments and activities and participate in discussions about your learning. Threaded discussions are designed to for you to (1) interact with others about your learning, (2) express personal and professional opinions, and (3) debate issues with your peers. SLO 1,2,3

> Your participation in threaded discussion will be evaluated based on the following criteria:
>
> Initial Entry: While there is not a minimum required length, thoughtfulness and insight are expected.
>
> Responses to Group Members: While there is not a minimum required length, thoughtfulness and insight are expected. In order to get full credit, you must thoughtfully respond to several of your discussion group members

Assignments: Several written assignments are required in this course to reinforce your learning. These will be based on additional readings, videos, websites, etc. or your own research that will allow you to learn about aspects of STEM. Potential Assignments include guided reflections on readings, Critical comparisons of STEM definitions and models, Evaluation of STEM activities/curricula Requirements for each will be provided in the course units. SLO 1,2,3,4

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Final Project: Develop and complete a STEM curriculum related project that will directly enhance the STEM learning in your classroom/campus. A brief description of the potential project must be submitted via email by the announced date and approved by the instructor. Possible projects include developing STEM units of study or revising existing STEM units or other with instructor approval. The format of the project to be submitted is variable and open to allow best representation of the project. SLO 3,4,5

GRADING

Final grades in this course will be based on the following scale:

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

Weights of the assessments in the calculation of the final letter grade.
Example:

Assignments	50%
Discussions	20%
Final Project	30%
TOTAL	100%

All assignments are graded based on the following criteria:

A - Exceptional – Exceeds Minimum Expectations in All Areas Addressed: Well above average in thought, and language structure; extremely well organized; shows thorough understanding and assimilation of concepts; excellent sense of unity; polished transition between concepts or thoughts; virtually free of errors.

B - Above Average – Meets Minimum Expectations in the Majority of Areas Addressed and Exceed Expectations in Some Areas. In general command of thought and word choice; organized; shows some understanding of concepts; good sense of unity; good transition between concepts or thoughts; writing that demonstrates a level of maturity expected of graduate students; few if any errors.

C – Average - Adequate In some Areas and Inadequate in Others. Problems in some of the following areas: depth of thought; ability to elaborate and provide sufficient detail; organized and formatted appropriately; writing that demonstrates a level of maturity expected of graduate students; in need of instruction.

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D – Below Average - Inadequate in Several Areas. Problems in several of the following areas: depth of thought; ability to elaborate and provide sufficient detail; organization and formatting; writing that does not demonstrate a level of maturity expected of graduate students; in need of instruction.

F – Unacceptable - Inadequate in Many Areas. Problems in many of the following areas: depth of thought; ability to elaborate and provide sufficient detail; organization and formatting; writing that does not demonstrate a level of maturity expected of graduate students; in need of instruction.

0 - Not Turned In or Not Accepted By Instructor

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

University email is the preferred method of communication. Emails will be answered within 48 hours weekdays.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Grading, etc. described above

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.

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http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
Undergraduate Student Academic Dishonesty Form

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf

Graduate Student Academic Dishonesty Form

http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Students with Disabilities-- 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
Velma K. Waters Library Rm 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-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.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Tentative COURSE OUTLINE / CALENDAR

Module 1 - What is STEM?; Exploring various definitions and models of STEM.
Module 2 - How is STEM different from other types of integration? How is it different from Science or Technology or Engineering or Mathematics?
Module 3 - What do national and state standards and published research say about STEM?
Module 4 - Finding, modifying and creating quality STEM activities for classrooms.
Module 5 - STEM curriculum development; STEM beyond the classroom.
Final Project - Develop a philosophy and framework for STEM in your classroom/campus/district.

A specific calendar will be provided within the first two weeks of class.
There will be a deeper conversation about the grading system within this class as well.

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