Spring 2024 - Tentative Schedule

STEM 4033 Introduction to STEM Education – T/TH – 4:30 – 5:45pm

***Please keep in mind that this is a tentative schedule. Please check the http://www.uastem.com website for updates.**

Week 1

Tuesday, January 16 and Thursday, January 18

- Syllabus and Schedule Review
- Introduction to STEM Education PP
- Challenge (in-class) – Climer Cards
- Challenge (at-home) – Video Introduction Assignment
- Weekly Reading Assignment – Introduction and Background and History of the STEM Movement in The Overlooked STEM Imperatives and Reading Reflection
- Reading Review
- Challenge (in-class) – Engineering Design Challenge – Teacher Trophy Challenge
- Weekly Reading Assignment – Standards for Technological and Engineering Literacy and STEM Education article and Reading Reflection
- Measure of Problem-Solving Fitness (MPSF)

Week 2

Tuesday, January 23 and Thursday, January 25

- Reading Review – The STEL
- Measuring: Materials, Tools, and Processes PP
- Challenge (in-class) – Space Frame Building Challenge
- Weekly Reading Assignment – Enhancing the Technology and Engineering in Elementary Classrooms: Safer Tool Usage and Reading Reflection

Week 3

Tuesday, January 30 and Thursday, February 1

- The Engineering Design Process PP
- Major Assignment – Major Assignment – The Engineering Design Loop
- Weekly Reading Assignment – A Framework for STEM Problem-Solving and Reading Reflection
- Challenge (in-class) – Engineering Design Challenge - A Bridge to Nowhere

Week 4

Tuesday, February 6 and Thursday, February 8

- The Quick Challenge
- Character Cards (Story Grammar) (in-class) Challenge
- Weekly Reading Assignment – Integrating Literacy and Engineering Instruction for Young Learners and Reading Reflection
- Quick Challenges (in-class)

Week 5

Tuesday, February 13 and Thursday, February 15

- The Literature-based STEM Curriculum - Writing a STEM Design Brief
- Major Assignment – Literature-Based Curriculum, Rubric, and Check-List
- Weekly Reading Assignment – Integrating Literacy and Engineering Instruction for Young Learners and Reading Reflection – Due September 21
- Literature-based Design Challenge Development
- Exploring Potential Tools and Materials
- STEL standards and benchmarks

Week 6

Tuesday, February 20 and Thursday, February 22

- Literature-based Curriculum Development and Ideation
- Performance-Based-Assessment-Guide
- Literature-based Curriculum Peer Review and Presentation

Week 7

Tuesday, February 27 and Thursday, February 29

- Using Blocks and Construction Toys for Teaching STEM PP
- Keva Design Challenges (in class)
- KEVA Educator Guide Lesson Plans
- Weekly Reading Assignment – Using Block Play and Blocks As a Tool for Learning and Reading Reflection
- Reading Review
- Team Fort Enclosure Design Challenge (in-class)
- Major Assignment – Construction Block Design Brief Assignment
- Discuss working in teams on major projects
- Construction Block Ideation Guide

Week 8

Monday, March 4 – Holcomb Elementary School STEM Night – 5:30pm

Tuesday, March 5

- Construction Block Project Development

Thursday, March 7 – we will not officially meet for class as I will attending and presenting at the International Technology and Engineering Educators (ITEEA) Conference, Memphis, TN - March 6 – 9

- Complete Construction Block Project

Week 9

Tuesday, March 12 and Thursday, March 14

- Construction Blocks Curriculum Project Presentations
- Code & Go Robot Mice Challenges (in-class)
- Challenge (in-class) – HexBug Challenge - Part 1
- Challenge (in-class) – HexBug Challenge – Part 2

Week 10 - Spring Break

Week 11

Tuesday, March 26 and Thursday, March 28

- Weekly Reading Assignment – Writing a Technical/Procedural STEM Problem and Reading Reflection
- Technical-Procedural Problem-Solving PP
- Challenge (in-class) – Lego back-to-back Challenge
- Challenge (in-class) – Teacher Geek

Week 12

Tuesday, April 2 and Thursday, April 4

- Introduction to Electricity – Building electrical circuits to demonstrate transfer of energy.
- Challenge (in-class) – Paper Circuits – Drawing a Circuit Quick Challenge
- Challenge (in-class) – The Simplest Electric Motor
- Major Assignment – Electricity-Curriculum-Project
- Challenge (in-class) – Simple Circuit with Switch
- The Electricity Project PP
- Suggested Reading: Chapter 1: http://www.allaboutcircuits.com/vol_1/index.html

Week 13

Tuesday, April 9 and Thursday, April 11

- The Electricity Project Ideation
    - 4th Grade Standards and Content
    - Big Ideas and Essential Questions
    - Scenario and Challenge
- Electricity Curriculum Project Development

Week 14

Tuesday, April 16 and Thursday, April 18

- Complete Electricity Curriculum Project
- Electricity Curriculum Project Presentations

Week 15

Tuesday, April 23 and Thursday, April 25

- Introduction to Paper Engineering
- Basic Pop-Ups (in class challenge)
- Cardboard Engineering using MakeDO (in class challenge)
- Paper Engineering Project

Week 16

Tuesday, April 30 and Thursday, May 2

- Paper Engineering Project Development
- Measure of Problem-Solving Fitness (MPSF)
- Review for the Final Project

May 3 – Reading (Dead) Day

Final Exam Time: Tuesday, May 7 – 3:00 – 5:00pm