

Spring 2025 - Tentative Schedule

STEM 40303 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 14 and Thursday, January 16

- Syllabus and Schedule Review
- Introduction to STEM Education PP
- Challenge (in-class) – Climer Cards/Earth Ball Introductions
- 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

Week 2

Tuesday, January 21 and Thursday, January 23

- 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 28 and Thursday, January 30

- The Engineering Design Process PP
- Weekly Reading Assignment – Connecting Compassion Empathy's Role in STEM and Literacy Integration and Reading Reflection
- 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 4 and Thursday, February 6

- The Quick Challenge
- Character Cards (Story Grammar) (in-class) Challenge
- Weekly Reading Assignment – The Nature of Interdisciplinary STEM Education and Reading Reflection
- Quick Challenges (in-class)

Week 5

Tuesday, February 11 and Thursday, February 13

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

Week 6

Tuesday, February 18 and Thursday, February 20

- Literature-based Curriculum Development and Ideation
- Performance-Based-Assessment-Guide

- Literature-based Curriculum Peer Review and Presentation

Week 7

Tuesday, February 25 and Thursday, February 27

- 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

Tuesday, March 4 and Thursday, March 6

- Construction Block Project Development

Week 9

Tuesday, March 11 and Thursday, March 13

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

Week 10

Tuesday, March 18 and Thursday, March 20

- 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 11 - Spring Break

Week 12

Tuesday, April 1 and Thursday, April 3

- 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 8 and Thursday, April 10

- 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 15 and Thursday, April 17

- Complete Electricity Curriculum Project

- Electricity Curriculum Project Presentations

Week 15

Tuesday, April 22 and Thursday, April 24

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

Week 16

Tuesday, April 29 and Thursday, May 1

- Paper Engineering Project Development
- Review for the Final Project

May 3 – Reading (Dead) Day

Final Exam Time: Thursday, May 8 – 3:00 – 5:00pm