

Spring 2026 - STEM 40303 Introduction to STEM Education Tentative Schedule

*Please keep in mind that this is a tentative schedule. All course content can be found on my website: <https://www.uastem.com/>
All assignments will be submitted through the course Blackboard page. Please check the <http://www.uastem.com> website for updates.

Week 1

Tuesday, January 13 and Thursday, January 15

- Syllabus and Schedule Review
- Introduction to STEM Education
- Challenge (in-class) – Climer Cards/Earth Ball Introductions
- Challenge (at-home) – Video Introduction Assignment
- Challenge (in-class) – Engineering Design Challenge – Teacher Trophy Challenge
- Weekly Reading Assignment – The Nature of Interdisciplinary STEM Education chapter and Reading Reflection

Week 2

Tuesday, January 20 and Thursday, January 22

- Reading Review – The STEL
- Measuring: Materials, Tools, and Processes
- 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 27 and Thursday, January 29

- The Engineering Design Process
- 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 3 and Thursday, February 5

- Design Loop Presentations
- The Quick Challenge
- Character Cards (Story Grammar) (in-class) Challenge
- Weekly Reading Assignment – Standards for Technological and Engineering Literacy and STEM Education and Reading Reflection
- Quick Challenges (in-class)

Week 5

Tuesday, February 10 and Thursday, February 12

- 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 17 and Thursday, February 19

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

Week 7

Tuesday, February 24 and Thursday, February 26

- 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 3 and Thursday, March 5

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

Week 9 -

Tuesday, March 10 and Thursday, March 12

- 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 10

Tuesday, March 17 and Thursday, March 19

- Introduction to Electricity – Building electrical circuits to demonstrate transfer of energy.
- Challenge (in-class) – Paper Circuits – Drawing a Circuit Quick Challenge & The Simplest Electric Motor
- Challenge (in-class) – Simple Circuit with Switch
- Major Assignment – Electricity-Curriculum-Project

Week 11 – Spring Break

Week 12

Tuesday, March 30 and Thursday, April 2

- Major Assignment – Electricity-Curriculum-Project
- The Electricity Project PP
- Suggested Reading: Chapter 1: http://www.allaboutcircuits.com/vol_1/index.html

Week 13

Tuesday, April 7 and Thursday, April 9

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

Week 14

Tuesday, April 14 and Thursday, April 16

- Electricity Curriculum Project Development
- Electricity Curriculum Project Presentations
- Introduction to Paper Engineering

Week 15

Tuesday, April 21 and Thursday, April 23

- Paper Engineering
- Challenge – Pop-Up Card Quick Challenge
- Major Assignment – Paper Engineering Project

Week 16

Tuesday, April 28 and Thursday, April 30

- Cardboard Engineering
- Challenge (in-class) - MakeDo
- Paper Engineering Project Presentations

- Automata – the Final Exam

May 1 – Reading Day

Final Exams

Tuesday, May 5 – 3:00 – 5:00