

Spring 2021 - STEM 4033 Introduction to STEM Education - T/TH – 12:30-1:45 - Tentative Schedule

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

Week 1

Tuesday, January 12 and Thursday, January 14

- Introduction activity – The Earth Ball
- Syllabus and Schedule Review
- Introduction to STEM Education PP
- Reading Review
- Challenge 1 (at-home) – YouTube Video Introduction
- Challenge 2 (in-class) - Moon Lander Design Challenge
- Weekly Reading Assignment 1 - Ch. 1 - Introduction and Background and History of the STEM Movement in The Overlooked STEM Imperatives and Reading Review
- Weekly Reading Assignment 2 - [A conceptual framework for integrated STEM education](#) and [Chapter 1. Why Project Based Learning?](#) (pgs. 1-23) in the PBL text and Reading Review
- STEM Kids Video

Week 2

Tuesday, January 19 and Thursday, January 21

- Reading Review
- Measuring: Materials, Tools, and Processes PP
- Space Frame Video and Activity
- Challenge 3 (in-class) – Tool Building Challenge
- Challenge 4 (in-class) - Space Frame Building Challenge
- Weekly Reading Assignment 3 - Chapter 2 – Power and Promise of STEM Education in the *The Overlooked STEM Imperatives* and Reading Review
- Weekly Reading Assignment 4 - A Framework for STEM Problem Solving and Reading Review

Week 3

Tuesday, January 26 and Thursday, January 28

- Reading Review
- The Design Loop PP
- Major Assignment 1 – Creating a Design Loop
- Template and Challenge
- The Quick Challenge PP
- Major Assignment 2 – Quick Challenge Project
- Challenge 5 (in-class) – The Flagpole Quick Challenge
- Weekly Reading Assignment 5 - Integrating Literacy and Engineering Instruction for Young Learners and Reading Review

Week 4

Tuesday, February 2 and Thursday, February 4

- Reading Review
- Design Loop Presentations
- Quick Challenge Peer Review
- Weekly Reading Assignment 6 - Writing a STEM Design Brief and [Toward Narrative-Centered Learning Environments](#) and Reading Review

*Children's Engineering Conference – <https://childrensengineering.org/Convention/> - February 2-4-2021

Week 5

Tuesday, February 9 and Thursday, February 11

- Reading Review
- Quick Challenge Presentations
- Curriculum Design and Assessment PP
- Major Assignment 3 - Literature-based Curriculum Assignment
- Weekly Reading Assignment 7 - Performance-Based Assessment Guide and Reading Review
- Finding a good book – library resources – STEM lab book check-out

Week 6

Tuesday, February 16 and Thursday, February 18

- Reading Review
- Scope and Sequence PP
- Literature-based Curriculum Development Ideas and Ideation Presentations
- Literature-based Curriculum Peer Review – submit to Blackboard
- Video - Building the Perfect Squirrel Proof Bird Feeder

Week 7

February 22 – 23 – No Class – Spring Break

Thursday, February 25

- Literature-based Curriculum Presentations
- Construction Block PP
- Major Assignment 4 - Construction Blocks Curriculum Project
- Discuss working in teams on major projects
- Weekly Reading Assignment 8 - [Using Block Play](#) and [Blocks as a Tool for Learning](#) and Reading Review
- Challenge 6 (in-class) - Keva Maze Design Challenge and Video
- [KEVA Resources](#)
- Construction Block Ideation Guide

Week 8

Tuesday, March 2 and Thursday, March 4

- Reading Review
- Construction Blocks Curriculum Ideation Presentations
- Computer Programming and Computational Thinking
 - Scratch and Pencil Code
- Weekly Reading Assignment 9 – Computer Science in the Elementary Classroom
- Challenge 7 (at-home) - Scratch Programming and Reflection

Week 9

Tuesday, March 9 and Thursday, March 11

- Technical Procedural Problem-Solving PP
- Major Assignment 5 - Technical Procedural Curriculum
- Challenge 8 (in-class) - Teacher Geek
- Weekly Reading Assignment 10 – Writing a Technical Procedural STEM Problem

Week 10

Tuesday, March 16 and Thursday, March 18

- Technical Procedural Curriculum Development

Week 11

Tuesday, March 23

- Reading Review
- Introduction to Electricity - Building electrical circuits to demonstrate transfer of energy
- Major Assignment 6 - Electricity Curriculum Project
- Challenge 9 (in-class) – Paper Circuit
- Weekly Reading Assignment 9 - Chapter 1: http://www.allaboutcircuits.com/vol_1/index.html

March 25-26 – No Class – Spring Break

*International Technology and Engineering Educators Conference <https://www.iteea.org/Activities/Conference/ITEEA2021.aspx> - March 22-27, 2021

Week 12

Tuesday, March 30 and Thursday, April 1

- Electricity Curriculum Project Development

April 2 – No Class – Spring Break

Week 13

Tuesday, April 6 and Thursday, April 8

- Electricity Curriculum Project Presentations
- Cooperative and Collaborative Learning PP
 - 21st Century Skills
- Weekly Reading Assignment 10 - Cooperative and Collaborative Learning

Week 14

Tuesday, April 13 and Thursday, April 15

- Cooperative and Collaborative in STEM Education
- Challenge 10 (in-class) – Spy Game
- Challenge 11 (in-class) – Green and White/Gutterball/Crazy Forts

Week 15

Tuesday, April 20 and Thursday, April 22

- Paper Engineering PP
- Challenge 12 (at-home) – Pop-Up Card Quick Challenge
- Challenge 13 (in-class) - MakeDo

Week 16

Tuesday, April 27 and Thursday, April 29

- Paper Engineering – Final Project

April 30 – Dead Day

Final Exam

Tuesday, May 4, 2021 – 12:45 – 2:45