Spring 2020 – STEM 4033/5033 - 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 14

- Introduction via Earth Ball – Land vs. Water Activity
  - https://www.jpl.nasa.gov/edu/teach/activity/ocean-world-earth-globe-toss-game/
- Syllabus Review
- Intro to STEM Education PP
- Readings: Handout - Ch. 1 - Introduction and Background and History of the STEM Movement in *The Overlooked STEM Imperatives*

Thursday, January 16

- Reading Review
- Intro to STEM Education PP (cont.)
- Design Challenge
- Reading: A conceptual framework for integrated STEM education

Week 2

Tuesday, January 21

- Reading Review
- Space Frame Challenge (using simple tools and materials)
- Readings: Chapter 1. Why Project Based Learning? (pgs. 1-23) in the PBL text

Thursday, January 23

- Reading Review
- Space Frame Challenge Testing and Discussion
- The Design Loop PP
- Assignment 1 – Creating a Design Loop (Due January 30)
- Reading: Chapter 2 – Power and Promise of STEM Education in the *The Overlooked STEM Imperatives and* A Framework for STEM Problem Solving

Week 3

Tuesday, January 28

- Reading Review
- The Design Process – Sample Design Challenge
- Reading: Chapter 3 – 'T' and 'E' in STEM in the *The Overlooked STEM Imperatives*

Thursday, January 30

- Design Loop Presentations
- Reading Review
- The Quick Challenge PP
- Quick Challenge Sample
- Quick Challenge Checklist
- Assignment 2 - Quick Challenge Project (Due February 11)

Week 4

Tuesday, February 4

- Quick Challenge development and Peer Review

Thursday, February 6 – No Class – Children's Engineering Conference – Roanoke, VA

- Reading: Writing a STEM Design Brief and Toward Narrative-Centered Learning Environments

Week 5

Tuesday, February 11

- Assignment 2 - Quick Challenge Project Due
- Reading Review
- Curriculum Design and Assessment PP
- Assignment 3 - Literature-based Curriculum Assignment (Due February 25)
- Reading: Handout - Integrating Literacy and Engineering Instruction for Young Learners

Thursday, February 13

- Curriculum Design and Assessment (continued)
- Reading: Performance-Based Assessment Guide

Week 6

Tuesday, February 18

- Reading Review
- Performance-based assessment
- Comparative Judgement, Rubric Planning Sheet, Engineering Journal Booklets, Design Logs

Thursday, February 20

- Peer review - Literature-based Curriculum Project
- Literature-based Curriculum Development

Week 7

Tuesday, February 25

- Literature-based Curriculum Assignment Due – Presentations
- Assignment 4 - Construction Blocks Curriculum Project (Due March 5)
- Readings: Using Block Play and Blocks as a Tool for Learning

Thursday, February 27

- Reading Review
- Keva Maze Design Challenge
- KEVA Resources

Week 8

Tuesday, March 3

- Construction Block Curriculum Team Development

Thursday, March 5

- Construction Block Curriculum Assignment Due – Presentations
- Computer Programming – Lego WeDO Robotics – Bring laptops to class

Week 9

Tuesday, March 10

- Computer Programming and Computational Thinking – Lego – Bring laptops to class

Thursday, March 12 – No Class – International Technology & Engineering Educators Association (ITEEA Conference) – Baltimore, MD

Week 10

Tuesday, March 17

- Technical Procedural Problem-Solving PP
- Assignment 5 - Technical Procedural Curriculum (Due April 2)

Thursday, March 19

- Technical Procedural Design Challenge using Teacher Geek Materials

Week 11 - March 23-27 – No Class – Spring Break

Week 12

Tuesday, March 31

- Technical Procedural Design Challenge using Teacher Geek Materials

Thursday, April 2

- Technical Procedural Curriculum Presentations
- Introduction to Electricity - Building electrical circuits to demonstrate transfer of energy
- Assignment 6 - Electricity Curriculum Project
- Reading: Chapter 1: http://www.allaboutcircuits.com/vol_1/index.html

Week 13

Tuesday, April 7

- Building electrical circuits
- Reading: Chapter 1: http://www.allaboutcircuits.com/vol_1/index.html

Thursday, April 9

- Building electrical circuits

Week 14

Tuesday, April 14

- Building electrical circuits

Thursday, April 16

- Building electrical circuits

Week 15

Tuesday, April 21

- Electricity Curriculum Project Presentations
- Assignment 7 – Paper Engineering/Pop-Up Card Project (Due April 28)
- Introduction to Paper Engineering

Thursday, April 23

- Paper Engineering

Week 16

Tuesday, April 28

- Paper Engineering Assignment Due
- Cooperative Learning Strategies in the STEM Classroom PP
- The Color Trader
- The Spy Game

Thursday, April 30

- STEM Resources
- Final Project
- Wrap-Up – Being a STEM Champion

Final Exams

STEM 4033

- **T/TH – 12:30 – 1:45 - Thursday, May 7 – 12:45pm – 2:45pm**