

## 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

#### **Monday, January 13**

- 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: Ch. 1 - Introduction and Background and History of the STEM Movement in *The Overlooked STEM Imperatives*

#### **Wednesday, January 15**

- Reading Review
- Intro to STEM Education PP (cont.)
- Design Challenge
- Reading: [A conceptual framework for integrated STEM education](#) and [Chapter 1. Why Project Based Learning?](#) (pgs. 1-23) in the PBL text

### Week 2

#### **Monday, January 20 - No Class – Martin Luther King Day**

#### **Wednesday, January 22**

- Reading Review
- Space Frame Challenge (using simple tools and materials)
- 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

#### **Monday, January 27**

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

#### **Wednesday, January 29**

- Design Loop Presentations
- Reading Review
- The Quick Challenge PP
- Quick Challenge Sample
- Quick Challenge Checklist
- Assignment 2 - Quick Challenge Project (Due February 10)

### Week 4

#### **Monday, February 3**

- Quick Challenge development and Peer Review

#### **Wednesday, February 5 – Daugherty - No Class – Children’s Engineering Conference – Roanoke, VA**

- Reading: Writing a STEM Design Brief and [Toward Narrative-Centered Learning Environments](#)

### Week 5

#### **Monday, February 10**

- Assignment 2 - Quick Challenge Project Due
- Reading Review
- Curriculum Design and Assessment PP
- Assignment 3 - Literature-based Curriculum Assignment (Due February 24)
- Reading: Handout - Integrating Literacy and Engineering Instruction for Young Learners

#### **Wednesday, February 12**

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

## Week 6

### **Monday, February 17**

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

### **Wednesday, February 19**

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

## Week 7

### **Monday, February 24**

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

### **Wednesday, February 26**

- Reading Review
- Keva Maze Design Challenge
- [KEVA Resources](#)

## Week 8

### **Monday, March 2**

- Construction Block Curriculum Team Development

### **Wednesday, March 4**

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

## Week 9

### **Monday, March 9**

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

**Wednesday, March 11 – Daugherty - No Class – International Technology & Engineering Educators Association (ITEEA Conference) – Baltimore, MD**

## Week 10

### **Monday, March 16**

- Technical Procedural Problem-Solving PP
- Assignment 5 - Technical Procedural Curriculum (Due April 1)

### **Wednesday, March 18**

- Technical Procedural Design Challenge using Teacher Geek Materials

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

## Week 12

### **Monday, March 30**

- Technical Procedural Design Challenge using Teacher Geek Materials

### **Wednesday, April 1**

- 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](http://www.allaboutcircuits.com/vol_1/index.html)

## Week 13

### **Monday, April 6**

- Building electrical circuits
- Reading: Chapter 1: [http://www.allaboutcircuits.com/vol\\_1/index.html](http://www.allaboutcircuits.com/vol_1/index.html)

### **Wednesday, April 8**

- Building electrical circuits

#### **Week 14**

##### **Monday, April 13**

- Building electrical circuits

##### **Wednesday, April 15**

- Building electrical circuits

#### **Week 15**

##### **Monday, April 20**

- Electricity Curriculum Project Presentations
- Assignment 7 – Paper Engineering/Pop-Up Card Project (Due April 27)
- Introduction to Paper Engineering

##### **Wednesday, April 22**

- Paper Engineering

#### **Week 16**

##### **Monday, April 27**

- Cooperative Learning Strategies in the STEM Classroom PP
- The Color Trader
- The Spy Game

##### **Wednesday, April 29**

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

#### **Final Exams**

##### **STEM 4033**

- M/W – 12:30 – 1:45 – Monday, May 4 – 12:45pm – 2:45pm
- M/W – 3:30 – 4:45 – Wednesday, May 6 – 3:00pm – 5:00pm