June 3-5, 8:30-12:40: EDUC 548: STEM Education in the 21st Century, KERN 1112 (Michael Dragoni)

This course involves traditional lecture and discussion, but focuses on active, hands-on and minds-on learning utilizing technology and materials appropriate to a Constructivist education. Participants will gain an understanding of STEM and STEAM education in K-8 classrooms in the contemporary educational environment. While the STEM Education Certificate is tied to today's standards and the realities of schooling in early 21st century America, participants are encouraged to dream about what can be and do what they can, within their scopes, to make their dreams reality in their classrooms for the benefit of their students and thus the future of our world.

June 3-21, 1:30-4:30: EDUC 629: Creative Problem Solving, KERN 1112 (Michelle Schoeck)

Models, concepts, and processes in creativity, problem solving, and critical thinking are engaged in with hands-on practice with a focus teaching gifted learners in multiple K-12 formats and subjects. In particular, course participants are introduced to the concept of creativity, characteristics of the creative individual, and school-based applications of creativity across domains.

June 6, 7, 10 - 8:30-12:40	June 11, 12, 13 - 8:30-12:40	June 14, 17, 18 - 8:30-12:40	June 19, 20, 21 - 8:30-12:40
EDUC 560-01: Makerspace Movement (Karen Czaicki) Kern 1112 This course involves researching the Makerspace movement in relation to learning strategies and related curriculum. The course will focus on different types of Makerspaces and how the movement promotes creative problem solving and critical thinking skills. Makerspace activities and STEM related literature will be the focus of this course.	**EDUC 560-03: Novel Engineering (Chris Ries) Kern 1112** Novel Engineering is a model developed through Tufts University. Through this course teachers will use reading as a means to springboard into an engineering project. Participants will learn how to integrate curriculum utilizing a Novel Engineering Project. Participants will experience engineering projects themselves, as well as walk away with a plan on how to bring this back to their school setting.	**EDUC 560-05: Robotics Using Ozobots and Spheros (Kasey Healy) Kern 1113** Meet a couple of highly sophisticated robots that can be programmed to do some amazing things. Participants in this course will learn how to create programs by simply drawing with markers, or using some very user-friendly apps. This course will allow time for exploration and experimentation with the technologies. Both robots are affordable options for teachers to use when teaching students how to code.	**EDUC 560-07: Teaching Physics with Toys (Shirley Verseman) Kern 1112** Have fun as you learn how to teach the principles of physics using toys you make. We will use common, everyday objects to construct toys which when played with help students to better understand physics. You will easily transfer everything we do to your students while providing a "make and take" experience for them.
EDUC 560-02: Hands-On Science Using Technology (Stacey Donovan) Kern 1113 Learn about low and high-tech ways to integrate technology into your K-12 science classroom, including magnifying glasses, microscopes, camera/video, iPad apps, probewear, and, animated simulations. Work in teams to follow a structured lab activity and then modify the activity to create guided and open-inquiry lab activities that effectively implement technology.	**EDUC 560-04: Decoding the World of Coding (Chris Sellers) Kern 1113** Whether you identify with Steve from Minecraft, filters on Snapchat, Bruno Mars on Pandora, or your cart on Amazon, this course will fill your toolbox with resources and strategies to implement both block and line coding into your classroom. Participants will design a favorite lesson that incorporates computer programming and most importantly 01101000 01100001 01110110 01100101 00100000 01100110 01110101 01101110 (have fun).	**EDUC 560-06 Project-Based Learning Using STEM Challenges (Erik Taylor) Kern 1112** Project-based learning is a valuable teaching method where students gain knowledge and skills through their work tackling an engaging real-world problem or challenge. Where better can this method be employed then inside a STEM focused classroom. This course will introduce the method of project-based learning through various STEM related problems and challenges.	**EDUC 560-08: Architecture With Google SketchUp (Dan Healy) Kern 1113** Google SketchUp is a 3D modeling program that is used by architects, engineers, artists, and educators. By using a few simple techniques, you will have the confidence to design and decorate a new classroom, construct a city landscape, plot landmarks on a map, measure geometric shapes, and much more. This introductory course will teach users a multitude of tools and give opportunities for practice with other educators.

June 24-27, 9:30-12:40 EDUC 549: STEM Capstone KERN 1112 (Michelle Schoeck)

Participants demonstrate their learning in the STEM Education Certificate Program with a significant demonstration project of their new abilities to conduct STEM education within their classroom contexts.