Adams State University Spring 2015 Semester Curriculum and Instruction Master of Arts in Education degree program - Course Descriptions

- **ED 549 Educating Diverse Learners – Fully Online**
  
  This is a "core" graduate level course that provides teachers and administrators an overview of student diversity. School demographics, law, and ethics obligate educators to effectively teach all students. This necessitates understanding the effects of different social, cultural, linguistic, and cognitive experiences on learner development, and how to differentiate and shelter subject matter in order to provide all students equitable educational opportunities.

- **ED 550 Curriculum & Assessment – Fully Online**
  
  This is a core course for the MA degree in Curriculum and Instruction. This course provides a general foundation of knowledge skills, and principles in curriculum and assessment. Through this course, candidates will focus on the major influences on curriculum-and the concomitant development of valid and reliable assessments that will allow educators to make formative and summative judgments regarding the curriculum. A major emphasis will be on developing assessment skills and competencies that promote the learning of children and youth.

- **ED 560 Psychology of Teaching and Learning – Fully Online**
  
  This is one of three required "cognate" courses in the Curriculum & Instruction program of study. This is a course in educational psychology that will provide a practical understanding of human development, learning, and teaching. Historical theories of cognitive and psychosocial development as well as learning theories and motivation will be viewed in light of recent findings on how the mind works. These findings will inform pedagogy as it relates to problem-solving, learning styles, differentiated instruction, learner-centered pedagogy, and assessment.

- **ED 575 Data-Driven Decision Making – Fully Online**
  
  This course will introduce candidates to current standards and testing procedures that apply to student, staff, data collection, school management and business procedures, as well as, develop, monitor and report, curriculum, student testing ,school accountability and long strategies plans for schools. This course is designed to use data collection and communication to improve instruction, student retention/growth, and introduce candidates to state and national requirement/laws reporting, timelines and student graduation rates.

- **ED 571 Educational Research – Fully Online**
  
  This course is designed to provide an introduction to the fundamentals of research. In this course the candidate will develop the knowledge and skills to critically “consume research”. Candidates will examine the foundations of qualitative and quantitative research, focusing on foundational and contemporary research that is significant for professional practice.

U. S. Satellite Labs STEM Course list and Course Descriptions, Spring 2015 Semester

[http://www.us-satellite.net/endeavor/index.cfm](http://www.us-satellite.net/endeavor/index.cfm)

- **SCED 526 Methods of STEM Education - NOTE: All Endeavor Educators are required to take this course.**
  
  This must be the first STEM course completed for certificate.
Learn the importance of infusing STEM in your education context and develop a foundation for success through this introduction to theory and practice for teaching, learning, and assessing integrated STEM education. Visit the history of science and STEM education reforms, and engage in a variety of activities to gain experiences with STEM content and practices in unique contexts. Explore connections between Next Generation Science Standards and Common Core State Standards with data-driven investigations and tools such as engineering design in K-12 learning environments. Learn to use instructional technologies and technology education, as tools for promoting best-practices of "STEM pedagogical strategies" and student understanding in STEM disciplines.

- **SCED 537 NASA Physics for Real Beginners: Earth, Moon, and Space**

NASA Physics for Real Beginners: Earth, Moon, and Space (Synchronous learning sessions)

8PM Session starting 1/22/15:
1/22/15, 8:30-9:30 PM ET
1/29/15, 8:30-9:30 PM ET
2/5/15, 8:30-9:30 PM ET
2/19/15, 8:30-9:30 PM ET
2/26/15, 8:30-9:30 PM ET

Target Grade(s): 5-12

Gain an introduction to physics in this conceptual course that uses NASA’s space initiatives as the context for content. Learn about gravitation between celestial bodies, how to get a satellite into orbit, what it takes to blast off into space, and more. This course will discuss these and related topics while exploring NASA content related to space and the Hubble Space Telescope and Kepler Missions. Bring cutting-edge examples to your classroom while addressing Next Generation Science Standards performance expectations.

- **SCED 527 Exploring Mars: A New Twist on Earth Science**

Exploring Mars: A New Twist on Science (or Math) (Synchronous learning sessions)

8PM Session starting 1/21/15:
1/21/15, 8:00-9:00 PM ET
1/25/15, 8:00-9:00 PM ET
3/4/15, 8:00-9:00 PM ET
3/18/15, 8:00-9:00 PM ET

Target Grade(s): 5-9, or High School

Exploring Mars to Understand Earth

Use a wealth of data sets and technological tools to explore and understand features of Earth’s neighbor, the Red Planet. Look for and study the physical and chemical evidence of water and ice; compare erosion patterns on Mars and Earth; and make inferences about the planet’s history as you study both its geologic features, including volcanoes and craters, and the physics of the atmosphere. Teach Next Generation Science Standards topics in Earth, physical, and chemical science integrating mathematics, in the context of Mars using recent data from Curiosity Rover and other missions.

- **SCED 535 NASA's Tracking a Solar Storm: The Science of the Sun**

NASA’s Tracking a Solar Storm: The Science of the Sun (Synchronous learning sessions)

8PM Session starting 1/20/15:
1/20/15, 8:00-9:00 PM ET
1/27/15, 8:00-9:00 PM ET
3/3/15, 8:00-9:00 PM ET
3/10/15, 8:00-9:00 PM ET
3/24/15, 8:00-9:00 PM ET

Target Grade(s): 5-High School

Make Sun-Earth connections as you monitor abrupt changes on the Sun when it creates solar flares and coronal mass ejections, blasting powerful "solar storms" into space. NASA satellites predict these storms in order to protect astronauts, the International Space Station, and power grids. Learn about Sun-Earth relationships and content using online NASA resources. Virtually meet NASA guest solar scientists and educators. Bring years of NASA's observations and authentic data with the story of the Sun into your classroom as an engaging context for teaching Next Generation Science Standards topics.

- **SCED 533 Math Connections to STEM Education**

9PM Session starting 1/26/15:
1/26/15, 9:00-10:00 PM ET
2/9/15, 9:00-10:00 PM ET
2/23/15, 9:00-10:00 PM ET
3/9/15, 9:00-10:00 PM ET
3/23/15, 9:00-10:00 PM ET

Target Grade(s): K-12
The course introduces a wealth of applied mathematics exercises and activities relevant to integrated STEM assets and science activities. Some are in the realm of topics seen in Earth and Space science and physics. Live presenters break down authentic examples and projects, and demonstrate to educators how problems incorporate Common Core State Standards-based mathematics with applications that meet Next Generation Science Standards performance expectations. Educators survey math and science examples and tools as the course promotes the use of applied mathematics in science, or science in mathematics, to meet content goals in the classroom.

- **SCED 531 Life and Marine Science: Tracking Live Marine Animals**

  Life and Marine Science: Tracking Live Marine Animals *(Synchronous learning sessions)*

  **8PM Session starting 1/26/15:**
  1/26/15, 8:00-9:00 PM ET
  2/2/15, 8:00-9:00 PM ET
  2/9/15, 8:00-9:00 PM ET
  2/23/15, 8:00-9:00 PM ET
  3/16/15, 8:00-9:00 PM ET

  **Target Grade(s): 7-8, or high school**

  **Tracking Marine Animals Using Earth Imagery**

  Follow marine animals (e.g., polar bears, sea turtles, sharks, and whales) in real-time, and apply life and Earth science topics to the ocean. Study topics such as ecosystems, biodiversity, cell structures, food webs, and conservation, as you make connections to ocean currents, seafloor features, density and more. Discover the importance of the ocean to humans, as well as our impacts, both positive and negative, on marine environments. The in-depth use of data lends itself to Next Generation Science Standards by integrating instructional technology with life, Earth and physical science.

  (**Choose one of the two courses listed below as your last course to be completed for the STEM Certificate**)

- **SCED 544 Action Research in the STEM Classroom** - *All Endeavor Educators earning graduate credit are required to take this course or the Leadership Seminar course.

  **Prerequisite: Methods of STEM Education**

  Action Research in the STEM Classroom* *(Synchronous learning sessions)*

  **9PM Session starting 1/21/15:**
  1/21/15, 9:00-10:00 PM ET
  2/18/15, 9:00-10:00 PM ET
  3/4/15, 9:00-10:00 PM ET
  4/15/15, 9:00-10:00 PM ET

  **Target Grade(s): K-12**

  Conduct research in your educational setting to examine some aspect of STEM teaching and learning. Design and enact action research by reviewing background literature, formulating research questions, designing a study, collecting data, completing a thorough analysis, and reporting findings. You may be encouraged to prepare to present your research at an appropriate education conference and/or to submit work to research publications.

- **SCED 545 STEM Leadership Seminar**

  STEM Leadership Seminar* *(Synchronous learning sessions)*

  **9PM Session starting 1/20/15:**
  1/20/15, 9:00-10:00 PM ET
  5/5/15, 9:00-10:00 PM ET

  A special two-session course guides Endeavor Educators to perform short-term STEM episodic professional development of their choosing. The goal is to help to infuse systemic change and STEM pedagogy to peers in the building, school district, or region. Collaboration and online feedback offers guidance necessary to achieve outcomes and success.