Oregon State University
College of Education

SYLLABUS
Understanding Cultural Influence:
Developing STEAM Curriculum (FCL Elective)

Instructor/Coordinator:
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Course Description:

The course focuses on the analysis of science curricula that is embedded in the design of free--choice learning experiences. The course heavily relies on National Research Council's Learning Science in Informal Environments consensus study of research findings. The challenge for this course is to explore a framework for understanding the strengths and weaknesses of free--choice learning designs in meeting curricular goals. The goal is to synthesize best practices and lessons learned in educating the public about STEAM (science, technology, engineering, arts, and mathematics) disciplines as well as prepare publics with the thinking skills, content knowledge, and literacy for positive and productive participation in the 21st century.

Measurable Student Learning Outcomes:

Overall Course Outcomes (OCO): As a result of the class you will gain experience in:

1. Theory about curriculum design and Backward Design practice.
2. Synthesizing what makes useful, meaningful curriculum.
3. Applying learned concepts to real world problems by developing or improving curriculum:
    a. Choosing a topic of focus for a piece of curriculum
    b. Defining learning goals and objectives
    c. Understanding and incorporating assessment into free--choice learning STEAM curriculum.

Specific Learning Outcomes (SLO): Participants will be able to:

1. Use a curriculum development process to design STEAM related free-choice learning experiences.
2. Articulate the roles that educationally designed places, programs, and media play in lifelong STEAM learning and how learning leaders can leverage these to support learners of all ages and backgrounds across a diversity of settings.
3. Describe the nature and importance of free-choice learning as a component of lifelong STEAM learning.

Learning Resources:

In addition to the two required textbooks, there are a variety of readings for each module posted online or linked electronically. See the readings section under each module in the Canvas course.

Required Text:

❖ National Research Council. (2009). *Learning science in informal environments: People, places, and pursuits.* Washington, DC: The National Academies. (available free online)

Course Content and Evaluation of Student Performance:

The course is broken into 5 modules, typically beginning on Wednesday and ending on Tuesday nights. Here is a sample schedule:
- Module 1 spans Jan 8 – Jan 16 (8 days)
- Module 2 spans Jan 17 – Jan 30 (2 weeks)
- Module 3 spans Jan 31 – Feb 13 (2 weeks)
- Module 4 spans Feb 14 – Feb 27 (2 weeks)
- Module 5 spans Feb 28 – March 7 (1 week) [with possible extension if needed]

Modules consist of readings, online discussion, and an activity with an accompanying written assignment to complete. All coursework is designed to help you design, test, and rewrite curriculum, by which the student learning outcomes will be assessed. Each module ends with a reflection on what you learned. When all elements of a module are completed the student is passed for that module. When all five modules are passed, the course is passed and completed.

Module	Topic		OCO	SLO
1	Introduction to Curriculum Theory and Development	Assignment + Reflection	1, 2	2, 3
2	Frameworks for designing free-choice learning experiences, learning goals and outcomes	Assignment + Reflection	1, 2, 3	1, 2, 3
3	Assessment in informal science learning environment	Assignment + Reflection	1, 3	1, 2, 3
4	Science inquiry, the learning cycle, and designing a lesson	Assignment + Reflection	1, 3	1, 2, 3
5	Curriculum project	Final Project	1, 3	1, 2, 3

Guidelines for Major Assignments:

Weekly Discussions – You will be receiving a starting prompt for all modules. It is important that you:

➔ **Read your classmate's posts and respond to them** during the week so as to facilitate the discussion.
➔ In the spirit of collaboration and co-construction of our understandings of the personal aspects of free-choice learning, we will be using discussion boards to communicate.
➔ We expect participation, engagement, and kind respectful discussion focused both on our own experiences and the class readings.
➔ There is no minimum number of posts per week. But you are expected to participate in every discussion board with more than a single statement.
➔ The discussion board is only as good as each individual's contribution.

Curriculum Matrix - The Curriculum matrix is actually Part I of your final project which is a draft free-choice learning curriculum. The matrix is an outline that spells out your learning goals, activities/content, and an assessment/evaluation component. You will use this to begin planning your final project.

Final Project - You will develop or improve curriculum for a free-choice learning venue (this may be related to your current position.) We will use **Backwards Design**, where you will write goals, assessments, and activities for the curriculum on the STEAM topic of your choice.

Link to PCTE Conceptual Framework:

This course supports the Professional Teacher and Counselor Education (PTCE) unit at Oregon State University. The PTCE unit Conceptual Framework is based on four foundational or core values that are listed below:
- ➢ Ethics and Professionalism
- ➢ Reflective Practitioner
- ➢ Lifelong Learners
- ➢ Diversity and Equity

To find out more about how the knowledge base relates to the National Council for Accreditation of Teacher Education (NCATE) guidelines, review the Conceptual Framework at the website: http://oregonstate.edu/education/accreditation/

Link to National Standards:

With respect to national standards, this course includes application of NCATEcontent knowledge, professional and pedagogical knowledge and skills, dispositions, and student learning. NCATE Unit Standards:
http://www.ncate.org/public/unitStandardsRubrics.asp?ch=4 Link to State Standards: The Oregon TSPC Standards embedded in this course include the following:
- ➢ Standard 1: Plan Instruction that supports student progress in learning and is appropriate for the developmental level.
- ➢ Standard 2: Establish a classroom climate conducive to learning.
- ➢ Standard 3: Engage students in planned learning activities.
- ➢ Standard 4: Evaluate, act upon, and report student progress in learning.
- ➢ Standard 5: Exhibits professional behaviors, ethics, and values.

Course Policies:

Expectations for Student Conduct: Student conduct is governed by the university's policies, as explained in the Office of Student Conduct: information and regulations.

Academic Integrity: Students are expected to comply with all regulations pertaining to academic honesty, defined as: An intentional act of deception in which a student seeks to claim credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work. For further information, visit Avoiding

Academic Dishonesty, or contact the office of Student Conduct and Mediation at 541-737-3656.

Conduct in this online classroom: In an academic community, students and faculty, and staff each have responsibility for maintaining an appropriate learning environment, whether online or in the classroom. Students, faculty, and staff have the responsibility to treat each other with understanding, dignity and respect. Disruption of teaching, administration, research, and other institutional activities is prohibited by Oregon Administrative Rule 576-015-0015 (1) and (2) and is subject to sanctions under university policies, OSU Office of Student Conduct.

Canvas: This course will be delivered via Canvas, your online learning community, where you will interact with your classmates and with me. Within the course Canvas site you will access the learning materials, tutorials, and syllabus; discuss issues; submit assignments; take quizzes; email other students and the instructor; participate in online activities; and display your projects.

For Canvas support, start by looking for answers on the [Canvas support page]. **Canvas has a 24/7 Support Hotline at (844) 329-3084 as well as a 24/7 Support Live Chat feature accessible through the HELP tab.** For any other technical questions, contact OSU WorkSpace by emailing workspace@oregonstate.edu or calling (541) 737-4197 from 8 a.m. 5 p.m. PDT Monday through Friday. You can also email your instructor.