

EDUC 5389
Interdisciplinary Methods
Spring 2024

Instructor Information

Yasemin Gunpinar, Ph.D.
Office: BEP 247D
Office Hours:
Mondays 10:00-12:00, 4:00-5:00 or by
appointment

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Email

Last Day to Withdraw from Courses: March 25, 2023

The office hours and some optional online synchronous sessions (highly recommended) will be held through Zoom. The link and more information will be provided in Canvas.

Course Catalog Description:

Science, Technology, Engineering, and Mathematics (STEM) Education is by definition interdisciplinary. This course will explore how K-12 teachers can best integrate multiple disciplinary concepts within their STEM and Non-STEM classrooms. Interdisciplinary methods related to STEM; STEM with Fine Arts; STEM with Language Arts; and STEM with Social Studies will be addressed in this course.

Student Learning Outcomes & Assessments:

1. The student will be able to discuss, critique, and reflect on the research and experiences related to interdisciplinary methods in STEM education.
 - a. (Texas Educator Standards: 1ai, 1aai, 1aiii, 1bi, 1biii and 1cii; 2ai, 2bi, 2bii, 2biii, and 2ciii; 3ai, 3aii, 3aiii, 3bi, 3bii, 3biii, 3ci, 3cii, and 3ciii; 5ai; 6ai)
 - b. (INTASC Standards: 1, 2, 4, 5, 7, and 8)
2. The student will be able to prepare, implement, and reflect on instructional lesson planning regarding interdisciplinary methods in STEM education.
 - a. (Texas Educator Standards: 1ai, 1aiii, 1bi, and 1cii; 2bi, 2ciii)
 - b. (INTASC Standards: 1, 2, and 7)
3. The student will be able to synthesize personal perspectives and research literature as it relates to interdisciplinary methods in STEM education.
 - a. (Texas Educator Standards: 1bii, 1biii, 1ci, 2bi, 2bii, 2biii, and 2ciii; 3ai, 3aii, 3aiii, 3bi, 3bii, 3biii, 3ci, 3cii, and 3ciii)
 - b. (INTASC Standards: 1, 2, 4, 5, and 8)

Evaluation and Grading

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| <i>Video Reflections and Blog Posts</i> | 25% |
| --Students will be asked to provide video reflections throughout the semester related to interdisciplinary methods. | |
| <i>Talking Head Lectures</i> | 25% |
| -- Lectures focused on specific readings will be viewable and launched throughout the semester. The instructor will present content during these Talking Head Lectures. Quizzes will be associated with these lectures related to the selected readings and content discussed in the lectures. | |
| <i>Professional Article Summaries</i> | 25% |
| --Various articles related to interdisciplinary instruction will be researched, selected, read, and summarized by students throughout the semester. An example of the guidelines and work sample are provided in the Canvas. | |
| <i>Interdisciplinary PjBL Unit Project</i> | 25% |
| -- Students will be expected to generate an interdisciplinary STEM PjBL unit illustrating the integration of STEM with Fine Arts, Language Arts, and Social Studies. | |

TOTAL 100%
A = 90-100% B = 80-89% C = 70-79% D = 60-69% F = 0-59%

Required Text, Materials/Supplies, and Related Readings:

There is **no required textbook** for this course. This course will utilize published articles for its literature.

Required Course Materials

The Professional Article Reading guidelines and example work product are provided at the end of the syllabus.

Course Policies (attendance, make-up assignments, etc.)

All assignments are due on or before the dates provided in the **Topical Outline**. Each written assignment must be typewritten and submitted in Canvas. No email attachments of assignments will be accepted. Submission deadlines are final and links will be removed after deadline has expired. NO LATE assignments will be accepted unless a valid pre-approved or medical reason has been discussed with the professor. If an assignment is not completed on time due to a documented illness, funeral, or other university related activity, then a make-up date can be scheduled with the professor. All late assignments or non-submitted assignments will receive a score of zero points.

If an assignment is plagiarized, then the student will receive a zero for the assignment. Academic dishonesty is not tolerated. The professor reserves the right to assign a failing grade for the course and report student behavior to university officials if offenses are egregious or occur more than once.

Sample Readings:

Definitions and Uses: Case Study of Teachers Implementing **Project-based Learning**.

Authors:

[Tamim, Suha R.](mailto:srtamim@memphis.edu)1, srtamim@memphis.edu

[Grant, Michael M.](mailto:michael.m.grant@gmail.com)1, michael.m.grant@gmail.com

Source:

[Interdisciplinary Journal of Problem-based Learning](#); Fall2013, Vol. 7 Issue 2, p71-101, 31p

Abstract:

The purpose of this descriptive study was to explore inservice teachers' definitions of **project-based learning** (PjBL) and their accounts on the meaning of their PjBL implementations. A purposive sample of six teachers from grades four through twelve in public and private schools participated. Three themes evolved from inductive analysis: (1) teachers define PjBL through its perceived advantages on **learning**, (2) teachers vary in their use of PjBL over the continuum of the **learning** process, and (3) teachers adopt student-centered approaches in PjBL. Interpretations and implications of the findings are also presented. [ABSTRACT FROM AUTHOR]

Considerations for Teaching Integrated STEM Education.

Authors:

[Stohlmann, Micah](#)1

[Moore, Tamara J.](#)1

[Roehrig, Gillian H.](#)1

Source:

[Journal of Pre-College Engineering Education](#); Apr2012, Vol. 2 Issue 1, p28-34, 7p

Abstract:

Quality Science, Technology, Engineering, and Mathematics (**STEM**) **education** is vital for the future success of students. **Integrated STEM education** is one way to make learning more connected and relevant for students. There is a need for further research and discussion on the knowledge, experiences, and background that teachers need to effectively teach **integrated STEM education**. A support, **teaching**, efficacy, and materials (s.t.e.m.) model of **considerations for teaching integrated STEM education** was developed through a year-long partnership with a middle school. The middle school was implementing Project Lead the Way's Gateway to Technology curriculum. The s.t.e.m. model is a good starting point for teachers as they implement and improve **integrated STEM education**. [ABSTRACT FROM AUTHOR]

Children's nonfiction trade books: a complement to content area texts.

Authors:

[Moss, Barbara](#)

Source:

[Reading Teacher](#); September 1991, Vol. 45, p26-32, 7p

Abstract:

Examines how **teachers** can use children's nonfiction books to enhance content area textbooks for instruction. Literature-based **teaching**; Limitations of textbooks; Criteria for selecting nonfiction books; Organizing content area.

Implementing a science-based **interdisciplinary** curriculum in the second grade: A community of practice in action.

Authors:

[Park Rogers, Meredith](#)¹, mparkrog@indiana.edu

Source:

[International Electronic Journal of Elementary Education](#); Mar2011, Vol. 3 Issue 2, p83-103, 21p

Abstract:

The purpose of this study was to explore the role that a collaborative **teaching approach**, referred to as a community of practice (CoP), had on a team of four second grade teachers' implementation of a science-based **interdisciplinary** curriculum. Data was collected in the form of extensive observation notes gathered over 10-weeks of twice weekly team meetings and two 45 minute interviews with each participant. From the field notes developed two vignettes for the purpose of illustrating the members CoP in action. Combining my analysis of the vignettes and the interviews resulted in three emergent themes: 1) benefits, 2) contributions, and 3) their commitment to professional development. From this study I learned that establishing a CoP was viewed as a necessary component of the team's implementation of their science-based **interdisciplinary** curriculum. Implications for encouraging preservice and inservice elementary teachers to develop CoPs to support science **teaching**, specifically **interdisciplinary teaching**, are discussed. [ABSTRACT FROM AUTHOR]

Development of Theme-based, **Interdisciplinary**, Integrated Curriculum: A Theoretical Model.

Authors:

[Lonning, Robert A.](#)
[DeFranco, Thomas C.](#)

Source:

School Science & Mathematics; Oct98, Vol. 98 Issue 6, p312, 8p

Abstract:

Presents information as it pertains to the development of **interdisciplinary** integrated curriculums, with emphasis on **education**. Information on efforts launched to redefine mathematics, science and social studies curriculums; Role of a teaching curriculum; Reference to the book 'A Bibliography of Integrated Science and Mathematics Teaching and Learning Literature.'

Putting Professionalism Back into Teaching: Secondary Preservice and In-Service Teachers Engaging in **Interdisciplinary** Unit Planning

Author(s):

[Stolle, Elizabeth Petroelje](#); [Frambaugh-Kritzer, Charlotte](#)

Source:

[Action in Teacher Education](#), v36 n1 p61-75 2014. 15 pp.

Abstract:

Recently, **interdisciplinary** instruction has come back to the educational scene, specifically supported through the Common Core State Standards. As teacher educators and former middle-level teachers, the authors see this as a positive move to enhance learning for adolescents. This qualitative study sought to answer: How do secondary preservice and in-service teachers respond to **interdisciplinary** instruction? Findings provide key insights into how **interdisciplinary** instruction, when implemented successfully within a content area literacy course, empowers preservice and in-service teachers, and brings about a more professional environment. That is, data shows designing **interdisciplinary** instruction provided the teachers space to take up an identity as teaching professional--acting as specialist, acting as agent, and acting as regulator. Based on the authors' analysis, the authors believe **interdisciplinary** instruction has the potential to elevate the professional status for teachers, and teacher educators can lead and guide secondary preservice and in-service teachers toward new understandings and paradigms surrounding **interdisciplinary methods** as we seek to evolve and improve secondary-level curriculum.

The Role of Integrated Curriculum in Music Teacher **Education**.

Authors:

[Barry, Nancy H.](#)¹

Source:

[Journal of Music Teacher Education](#); Oct2008, Vol. 18 Issue 1, p28-38, 11p

Abstract:

The article focuses on the key issues encompassing the integrated curriculum and its implications for music teacher **education** in the U.S. It includes a one way of model in which music is used to reinforce content in other academic areas is what commonly passes for integration. Another one is a two-way integrated curriculum in which music and other subject areas are included and provides comprehensive learning that can cross cultural boundaries and individual student differences, resulting in a productive experience for learners and opportunities for teachers.

Revisiting Curriculum Integration: A Fresh Look at an Old Idea.

Elizabeth Hinde

May/Jun2005, Vol. 96 Issue 3, p105-111. 7p.

Abstract:

This article examines the viability of integrating social studies and elementary core subjects such as reading and math. Elementary teachers in the U.S. report being overwhelmed by pressures to have their students achieve on standardized assessments and complain that there is not enough time in the day to teach reading and math, the areas for which they are held most accountable, and also teach social studies. Moreover, there is another issue constraining the teaching of social studies at the elementary level: Many teachers do not feel comfortable teaching the subject. They lack confidence in their knowledge of social studies content and feel unprepared to teach it. When that lack is added to the pressures being applied by state and federal mandates, it is no wonder that teachers teach social studies only when they have adequately addressed reading and math standards. Therein lie the problems with elementary social studies: There is no time to teach it and it is not seen as a priority. The problem of how to reconcile elementary teachers' discomfort with social studies and the pressure they feel to teach only those areas that are tested with the practical application of social studies **education** remains, however. The answer may lie with the effective integration of social studies into content areas like reading and math and meeting the state-mandated standards in each area.

UNIVERSITY POLICIES

UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

For a full list of university policies including information related to the topics listed below, click [University Guidelines, Links and Policies](#).

- Students Rights and Responsibilities
- Campus Carry
- Tobacco-Free University
- Grade Replacement/Forgiveness and Census Date Policies
- State-Mandated Course Drop Policy
- Disability Services
- Student Absence due to Religious Observance
- Student Absence for University-Sponsored Events and Activities
- Social Security and FERPA Statement
- Emergency Exits and Evacuation
- Student Standards of Academic Conduct

UT Tyler Resources for Students:

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu, <http://www.uttyler.edu/writingcenter/>
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu, <https://www.uttyler.edu/tutoring/>
- The Mathematics Learning Center, RBN 4021, This is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Counseling Center (903.566.7254) <https://www.uttyler.edu/counseling/>

[University Guidelines, Links and Policies](#)

COLLEGE OF EDUCATION AND PSYCHOLOGY (CEP) VISION AND MISSION

Vision: The College of Education and Psychology is nationally recognized and respected for its academic programs and opportunities. It is a center of academic excellence, scholarly inquiry, and public service. The College prepares leaders to meet the critical challenges of the 21st Century through productive contributions to local and global communities and toward individual and cultural equity.

Mission: The mission of the College of Education and Psychology is to provide a positive environment that fosters the acquisition of knowledge and skills. The mission is individually and collectively realized through a community of scholars that contributes to knowledge through scholarly inquiry; organizes knowledge for application, understanding and communication; and provides leadership and service. We affirm and promote global perspectives that value individual and cultural diversity to enhance learning, service, and scholarship.

UT TYLER'S SCHOOL OF EDUCATION STANDARDS FOR EDUCATOR PREPARATION PROGRAMS

Texas Education Standards: The School of Education are committed to teaching and implementing the Texas Educator Standards at the highest level. The School of Education faculty use the Texas Education Standards, along with the Interstate New Teacher Assessment and Support Consortium (InTASC) standards used by educator preparation programs throughout the United States.

The list of [Texas Education Standards](#) can be accessed [here](#).

Access the [Code of Ethics and Standard Practices for Texas Educators](#).