

SED 412/512 – Technology in Math and Science Education

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To live, learn, and work successfully in an increasingly complex and information-rich society, students must be able to use technology effectively. Within an effective educational setting, technology can enable students to become:

- Capable information technology users
 - Information seekers, analyzers, and evaluators
 - Problem solvers and decision makers
 - Creative and effective users of productivity tools
 - Communicators, collaborators, publishers, and producers
 - Informed, responsible, and contributing citizens
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Required Texts:

Niess, M.L., Lee, J.K., & Kajder, S.B. (2008). Guided learning with technology. Hoboken, NJ: John Wiley & Sons, Inc.

Course Description:

This course aims to provide for the prospective teacher an overview of basic technologies commonly found and used in K-12 classrooms. The focus is not on learning the technologies, but learning how to properly utilize the technologies as a pedagogical tool in the classroom setting. Throughout the course, each student will reflect on issues relating to technology in math and science education, from a national to a classroom level, as well as on internet safety. Specific technologies include: Website design, Webquests, PowerPoint, Excel Spreadsheets, and Concept Maps. The course is also meant as a basic introduction to teaching techniques and will utilize collaborative learning techniques.

Statement Regarding Students with Disabilities:

Course adheres to all OSU Academic Regulations as found in the Schedule of Classes. Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should know of, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as early as possible, no later than the first week of the term.

Goals:

By the end of the course, I expect that you will:

- Have considered the role technology can play in the K-12 classroom
- Have clarified and refined your own views of technology as a pedagogical tool
- Be proficient in basic technologies commonly used in K-12 classrooms.
- Reflect on appropriate and effective teaching strategies while using technology
- Understand the strengths and weaknesses of different technologies

Requirements:

Requirements for the course include:

- **Attendance.** Much of the course is run in-class (discussions, activities, etc.). Contact the instructor for planned absences.
- **Participation.** It is important for everyone in the course to be actively involved in discussions and activities as well as to make significant contributions to the course.
- **Assignments.** All assignments must be turned in on or before their due date. For every day an assignment is late it will be lowered one full letter grade.
- **Integrity.** You are responsible for making yourself aware of OSU Academic Regulations.

Evaluation:

The grading system consists of 12 grades (A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and F). You will be evaluated in the following way:

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| • Participation and Attendance | 15% |
| • Reflections | 20% |
| • Webquest | 10% |
| • M&M Mystery | 5% |
| • El Niño Project | 10% |
| • PowerPoint Project | 10% |
| • Emergent Technologies Project | 10% |
| • Concept Map | 5% |
| • Electronic Portfolio | 15% |

**Students enrolled in SED 512 will be asked to complete an extension project **



Course Schedule

Week	Topic	Assignments	
1	September 25	<ul style="list-style-type: none"> • Course Intro • What is Technology? 	A: Reflection #1 (Ch. 1,3)
	September 27	<ul style="list-style-type: none"> • TPCCK • Website Basics & Design 	
2	October 2	<ul style="list-style-type: none"> • Begin ePortfolio 	D: Reflection #1 A: Reflection #2 (Ch. 7,9) A: ePortfolio
	October 4	<ul style="list-style-type: none"> • Intro to Webquests • Begin Webquest Assignment 	A: Webquest
3	October 9	<ul style="list-style-type: none"> • Discuss Reflection #2 • Lab Day 	D: Reflection #2
	October 11	<ul style="list-style-type: none"> • Webquest Peer-Review • Spreadsheet Basics 	A: M&M Mystery
4	October 16	<ul style="list-style-type: none"> • Spreadsheet Basics (cont.) • Webquest Presentations 	D: Webquest A: Reflection #3 (Ch. 6,8)
	October 18	<ul style="list-style-type: none"> • Webquest Presentations (cont.) • Dynamic Spreadsheets • 	D: M&M Mystery
5	October 23	<ul style="list-style-type: none"> • Begin El Niño Project 	A: El Niño Project
	October 25	<ul style="list-style-type: none"> • Lab Day 	D: Reflection #3
6	October 30	<ul style="list-style-type: none"> • PowerPoint Basics 	D: El Niño Project
	November 1	<ul style="list-style-type: none"> • Begin PowerPoint Project 	A: PowerPoint Project
7	November 6	<ul style="list-style-type: none"> • Lab Day 	A: Reflection #4 (Ch. 10)
	November 8	<ul style="list-style-type: none"> • PowerPoint Project Peer Review • Concept Mapping 	D: Concept Map
8	November 13	<ul style="list-style-type: none"> • Begin Emergent Technologies Project 	D: PowerPoint Project A: Emergent Technologies Project
	November 15	<ul style="list-style-type: none"> • Lab Day 	D: Reflection #4
9	November 20	<ul style="list-style-type: none"> • Emergent Technologies Project Presentations 	D: Emergent Technologies Project
	November 22	Happy Thanksgiving!	
10	November 27	<ul style="list-style-type: none"> • ePortfolio Peer-Reviews 	
	November 29	<ul style="list-style-type: none"> • Turn in ePortfolio 	D: ePortfolio