EDCI 547 (Section 001) Integrating Technology in Elementary Classrooms: Mathematics (1 credit), Summer 2012

Instructor	Dr. Jennifer Suh/ Andrea Weiss
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Class Meets	Thompson Hall L018
	5 sessions designated by the instructor during C session:

- Friday,July 6 (online)
- Friday, July 13
- Friday, July 20
- Friday, July 27
- Friday, August 3

The course is offered in conjunction with EDCI 552 Math Methods.

Office Hours	By appointment

Prerequisites: Admission to the Elementary Licensure Program.
Corequistites: Enrollment in EDCI 552.
Course description: This course studies the development and integration of technology in the Elementary Education Mathematics curriculum.

NATURE OF COURSE DELIVERY:
Students in this course will participate in individual and group activities that focus on the integration of technology by using computers and other technology resources in class. Students will also participate in large group discussions led by the instructor and in small group discussions and activities with their classmates. Students will also be required to use asynchronous (Blackboard) postings to reflect upon their own learning.

LEARNER OUTCOMES:
This course is designed to enable teacher candidates to:
A.   plan interdisciplinary learning experiences that enable elementary students to integrate knowledge, skills, and methods of inquiry within the Mathematics curriculum;
B.   identify how students differ in their approaches to learning and create instructional opportunities that are adapted to diverse learners;
C.   select appropriate materials, tools, and technologies to achieve instructional goals with all learners.

PROFESSIONAL STANDARDS:
This course addresses the following National and State Standards:
InTASC:
#6: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

#7: The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

The Virginia State Technology Standards for Instructional Personnel:
1) Demonstrate effective use of a computer system and utilize computer software.
2) Apply knowledge of terms associated with educational computing and technology.
3) Apply computer productivity tools for professional use.
4) Use electronic technologies to access and exchange information.
5) Identify, locate, evaluate, and use appropriate instructional hardware and software to support Virginia's Standards of Learning and other instructional objectives.
6) Use educational technologies for data collection, information management, problem solving, decision making, communication, and presentation within the curriculum.
7) Plan and implement lessons and strategies that integrate technology to meet the diverse needs of learners in a variety of educational settings.
8) Demonstrate knowledge of ethical and legal issues relating to the use of technology.

International Society for Technology in Education (ISTE) National Educational Technology Standards for Teachers:
2. Design and Develop Digital-Age Learning Experiences and Assessments
Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S Teachers:

ARTICLES AND RESOURCES:
A. Teaching Mathematics with Virtual Manipulatives, Grades K-8, Patricia S. Moyer-Packenham
*B. ElementaryandMiddleSchoolMathematics:TeachingDevelopmentally(7thEdition),*John A. Van de Walle, Karen S. Karp and Jennifer M. Bay-Williams
C. Journal articles and links to websites posted on Blackboard, available at http://mymason.gmu.edu.

COURSE ASSIGNMENTS, PERFORMANCE-BASED ASSESSMENT, AND EVALUATION CRITERIA:

A. Assignment #1: Modeling Math ideas with Technology Lesson
Students will evaluate three *Illuminations* lesson plans that incorporate a technology tool (http://illuminations.nctm.org/)   or other technology enhanced lesson plans. Students will evaluate the lesson plans based on the manner in which technology is integrated (based on the guidelines for technology integration, as discussed in class) and offer suggestions for modifications. Students will use a template posted on Blackboard to complete this assignment. (20%)

B. Assignment #2: Assessment for Modeling Mathematics Concepts Using Applets and Virtual Manipulatives. This assignment includes two parts, as noted below. (60%)
a. Part One: Identify one specific mathematics concept (such as the concept of base ten, place value, linking fractions/decimals/percent, money, time, etc.) and locate at least five different

virtual manipulatives or applets that support the learning of that concept (such as those found at the National Library of Virtual Manipulatives, Illuminations, Shodor, etc.) Using a template posted on Blackboard, answer questions about the models you have selected and evaluate them on their effectiveness and fidelity to the mathematical concept.

b. Part Two: Choose one of the models from Part One. Interview one elementary student (i.e. from your placement) and give that student several tasks to perform using the model. Evaluate the effectiveness of the model based on the student's interaction with the virtual manipulative or applet. Include the questions you asked the student, the pluses, minuses, and interesting things you observed, and the math amplified by the model.

C.Group presentation, class participation and attendance. (20%) a. Students will work in small groups to share a 10-15 minute presentation about emerging uses of technology in mathematics class. Rubric posted on Blackboard. b. Class participation is also evaluated using a rubric posted on Blackboard. During each class session, students are expected to attend class and arrive on time. Exceptions (due to extreme circumstances) must be discussed with the instructor. c. Full participation in online discussions and blogs is expected. Attendance. It is your responsibility to attend all class sessions. You are held accountable for all information from each class session whether you are present or not. Please report your reasons for any absences to the instructor in writing.

Tardiness. It is your responsibility to be on time for each class session. Please report your reasons for any tardiness to the instructor in writing.

Evaluation Schema
Determination of the Final Grade:
Graduate Grading Scale

A	93%-100%	B+	87%-89%	C	70%-79%
A-	90%-92%	B	80%-86%	F	Below 70%

WEEKLY SCHEDULE
Date and Topics

Session 1 Friday,July 6 (online)
Overview of using technology in the math classroom NCTM Process Standards Tool: Online resources Before class: 1) Log on to Blackboard and view course materials. 2) Read Weist (2001) from Blackboard before class.
Session 2 Friday, July 13
Technological Pedagogical Content Knowledge (TPACK) Tool: Calculators Readings: 1)Van de Walle, Chapter 7 2) NCTM's position on calculators 3) Lee, H., & Hollebrands, K. (2008) **Assignment 1 due**
Session 3: Friday, July 20

Assessing students through technology Tool: Virtual manipulatives Readings: 1) Rosen and Hoffman (2009) 2) Moyer-Packenham, Ch. 1-3
Session 4: Friday, July 27
Using computer technology in "real" classrooms Tool: Spreadsheets 1) Beige (2010) 2) Siegle (2005) 3) Drier (2000) 1. 2. **Assignment 2a due**
Session 5: Friday, August 3
Share out session **Assignment 2b due and Presentations**

•	Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.*
•	Students are expected to exhibit professional behaviors and dispositions at all times.

Campus Resources
•	The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See http://caps.gmu.edu/].
•	The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing [See http://writingcenter.gmu.edu/].
•	For additional information on the College of Education and Human Development, Graduate School of Education, please visit our website [See http://gse.gmu.edu/].
*The university has a policy that requests students to turn off pagers and cell phones before class begins; however, you may leave your cell phone on vibrate to receive emergency calls in class. If your phone is set to vibrate, then please keep your phone easily accessible, immediately accept the call so it does not continue to vibrate, say "please hold," and walk outside the room before beginning your conversation. Laptops and PDAs may be used in class during group and individual work time to maintain emergency contact and assist with you with your work, but laptops must be kept closed and PDAs face-down during whole class discussions. Register for campus alerts at https://alert.gmu.edu. An emergency poster exists in each classroom explaining what to do in the event of crises. Further information about emergency procedures exists on http://www.gmu.edu/service/cert.