George Mason University

EDCI 547 (Section 001) Integrating Technology in Elementary Classrooms: Mathematics (1 credit), Summer 2011

Instructor	Dr. Pam Edwards Johnson
Office Phone	
Office	Suite 200 Commerce II
Email	edwards.pamelaj@gmail.com
Class Meets	5 sessions designated by the instructor during C session: • Friday, July 15 • Tuesday, July 19 • Tuesday, July 26 (online) • Friday, July 29 • Tuesday, August 2 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. Articles for this course are available on the GMU Library website, via: http://library.gmu.edu/phpzone/ej.php. If you are using a non-campus computer, you will need to log in with your GMU email account information.

B. Also required for this course is access to Blackboard, available at http://mymason.gmu.edu.

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

A. Assignment #1: Students will evaluate three *Illuminations* lesson plans that incorporate a technology tool (http://illuminations.nctm.org/). Students will evaluate the lesson plans based on the manner in which technology is integrated (based on the five guidelines for technology integration, as discussed in class) and offer suggestions for modifications. Students will use an evaluation form to complete this assignment. The evaluation form will be posted on Blackboard. (30%)

B. Assignment #2: Students will evaluate an existing spreadsheet activity for use with elementary students. The resources will be selected from http://eusesconsortium.org/edu/resources-problems.php Students will use an evaluation form to complete this assignment. The evaluation form will be posted on Blackboard**.** (10%)

C. Assignment #3: Students will post, on Blackboard, one journal article which focuses on the use of technology in elementary mathematics education. The article should be linked as a PDF, and students should write a two- paragraph summary of how the article will impact their own future teaching of a particular mathematical topic with technology as a support. Suggested journals include: *Teaching Children Mathematics, Mathematics Teaching in the Middle School, School Science and Mathematics, Journal of Technology and Teacher Education, Computers in*

Schools, Contemporary Issues in Technology and Teacher Education. (10%)

D. Performance-based assessment: Modeling Mathematics Concepts Using Applets and Virtual Manipulatives. This assignment includes two parts, as noted below. (40%)

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. Specific guidelines are posted on Blackboard.

E. Class participation and attendance. (10%) This includes full participation in the asynchronous online class during the week of July 26. 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.

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.

F. 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%

GSE SYLLABUS STATEMENT OF EXPECTATIONS:

The Graduate School of Education (GSE) expects that all students abide by the following:

A. Students are expected to exhibit professional behavior and dispositions. See http://gse.gmu.edu/facultystaffres/profdisp.htm for a listing of these dispositions.

B. Students must follow the guidelines of the University Honor Code. See http://academicintegrity.gmu.edu/honorcode/ for the full honor code.

C. Students must agree to abide by the university policy for Responsible Use of Computing. See http://mail.gmu.edu and click on Responsible Use of Computing at the bottom of the screen.

D. Students with disabilities who seek accommodations in a course must be registered with the GMU Office of Disability Services (ODS) and inform the instructor, in writing, at the beginning of the semester. See http://www2.gmu.edu/dpt/unilife/ods/ or call 703-993-2474 to access the ODS.

Approved March 2004, Revised June 2011.