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EDEL 600 Differential Math Strategies for Special Educators and Elementary Classroom Teachers

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Xavier University

EDEL600

MONDAY & WEDNESDAY 4:30-8:15

Differentiated Math Strategies for Special Educators & Elementary Classroom Teachers

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The mission of Xavier's Education Department is to educate, in the Jesuit tradition, students from varied backgrounds to be critical thinkers and ethical professionals in education and related fields who effectively contribute to and serve a world of many cultures and diverse communities.

Texts: *Teaching Student-Centered Mathematics Series:* Van de Walle, J. A. & Lovin L. H. (2006). *Teaching Student-Centered Mathematics*

Grades K-3. Boston, MA: Pearson Education, Inc.

Van de Walle, J. A. & Lovin L. H. (2006). *Teaching Student-Centered Mathematics*
Grades 3-5. Boston, MA: Pearson Education, Inc.

Van de Walle, J. A. & Lovin L. H. (2006). *Teaching Student-Centered Mathematics*
Grades 5-8. Boston, MA: Pearson Education, Inc.

Ohio Common Core Standards for Mathematics (2012). Standards are available online at

<http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&TopicRelationID=1704&ContentID=83475>

Course Description and Rationale: This course is designed to prepare both special educators and classroom teachers with the knowledge and skills needed to collaborate, co-teach, and remediate elementary mathematics. Benchmark Strategies and techniques will be explored to enable **all students** to meet the standards and improve performance on high stakes assessment. The Common Core State Standards adopted by the state of Ohio along with the *Ohio Academic Mathematics Content Standards* will be examined throughout the course. The general learning format for the course will consist primarily of hands-on, minds-on activities, demonstrations, class discussions, and collaboration between classroom teachers and special educators. Participants are required to be active in their own learning and to be reflective about information presented in this course, the course readings and their own teaching and the learning of elementary math.

COURSE OBJECTIVES: The objectives of this course are derived from the essential knowledge, established and current research, and sound professional practices as related in the National Council of Teachers of Mathematics *Principles and Standards for Teaching Mathematics* the *Ohio Academic Content Standards*, and *The Common Core State Standards for Mathematics*.

As a result of this course, the student will:

- Use current, effective methods and materials for teaching elementary mathematics to all students based on *The Common Core State Standards for Mathematics*, including the *Common Core Mathematical Practice Standards*.
- Provide a theoretical rationale for mathematics lessons and utilize this theory as a foundation for the mathematical learning of all students.
- Integrate technology into mathematics to enhance the learning of all students.
- Utilize a variety of assessment and evaluation techniques including high stakes testing and different resources designed to improve performance on such tests.
- Familiarize participants with the of *The Common Core State Standards*, including the *Common Core Mathematical Practice Standards*.
- Plan and deliver effective mathematics lessons to all learners.
- Select appropriate materials to support elementary mathematics instruction.
- Develop skills in handling simple mathematics materials/equipment and arranging and managing activities that meet the needs of students at various levels of ability.

ASSIGNMENT	POINTS
Professional Article Critique	20
2 Differentiated Math Lesson Plans	40
2 Math Diagnostics	40
2 Math Software Evaluations	20
1 Math Webquest Evaluation	10
Mid term and Final	70
Math Resource Binder	50
TOTAL	250

Grading Scale:

	A = 95% - 100 %	A- = 94% - 94%
B+ = 91% - 92%	B = 87% - 90%	B- = 85% - 86%
C+ = 83% - 84%	C = 77% - 82%	C- = 75% - 76%

ASSIGNMENTS

Professionalism: Professional behavior is that which is expected of all teachers and is what you have come to expect of your teachers. This course is part of an accredited teacher preparation program. Students are required to demonstrate behavior consistent with a professional career. In particular, students are expected to:

- **ASSIGNMENT DUE DATES:** Assignments are due on the date noted on the course calendar. Grades for assignments submitted past the due date will be reduced two points for each day late. **WRITTEN ASSIGNMENTS:** Correct grammar, mechanics, and spelling must be evident in all work that is submitted. All assignments must be typed or word-processed. Handwritten assignments will not be accepted. **The standards for quality of written assignments are high.** **ACADEMIC HONESTY:** The Education Department values academic honesty. It is expected that each student will submit original work. Where others' works and ideas are used, citations must be included. Please refer to Xavier University Catalog for the official statement. **ATTENDANCE:** Students are expected to attend all class meetings and field experiences. Attendance will be taken. If you will not be in class, you should call and leave a message on my voice mail. The instructor must be notified of any absences in advance. Remember that one class absence is equivalent to four and a half absences in a M-W-F semester class. **TWO absences can result in failure of the class. More than two absences is an automatic failure.** "Reasonable attendance at all class meetings of courses for which a student has registered is expected of students as a condition for granting of academic credit. Lack of reasonable attendance as determined by the individual faculty member is reason for denial of credit for a course and possible course failure." (Xavier University, Catalog).

Reading Schedule: Reading assignments for each class are indicated on the course calendar. These readings will center on the topic to be covered. Reading is expected to be completed prior to the class meeting, with notice given as to how the readings address diverse learners in the classroom, and in context of the new Common Core State Standards

Article Critique: Read an article related to differentiated teaching of mathematics and write a summary and critical analysis. The article may come from *the resources given to you*. In your paper, you should include the author, title of the article, name of journal, date of article, and page numbers. Please attach a copy of the article also. The expected approximated length is one page of summary and one page of your professional analysis. In your professional reaction discuss theory/theorist that support the ideas presented. **Avoid all first person references** and personal opinions. Justify your thoughts with theory and/or theorist.

Software Evaluation: During the Friday evening class you will review and evaluate two mathematics software programs. A form provided in class will be completed for each software program. Software includes but is not limited to: Geometry Sketchpad, Building Perspectives, and Tesselmania.

Webquest Evaluation: During the Friday evening class you will review and evaluate a Math Webquest. A form will be provided during class for you to complete.

Lesson Plan Differentiation: You will be given two lesson plans and a reason to direct your differentiation, such as a disability, or obstacle preventing the student from learning. You will be asked to differentiate the lesson to meet the special needs described. Each differentiation should include a technology resource that would allow the student to further explore the concepts.

Mathematics Diagnostics: You will be given two mathematical concepts for which you will be asked to construct a brief diagnostic test, based on the necessary pre-requisite skills for the concept presented along with the concept itself. This diagnostic test would be used with students who were unable to master the mathematical concept. The purpose of this activity is to give experience in designing a quick diagnostic to determine why the student does not comprehend a concept so that inferences can be made as to what instructional strategies and materials should be used to assure the student makes the necessary connections and develops an understanding of concept. Such assessments will assure No Child Is Left Behind any lesson you teach, because assessments can be quickly designed and remediation plan quickly enacted for any child who does not master the skill to ensure all children succeed.

Math Resource Binder: You are to develop a math resource binder for a grade level of your choice. This binder will be divided into the domains for that grade level. For each domain, you are to include 4 activities and 4 websites that could be used to develop a conceptual understanding of the domains content. These activities can be taken from numerous resources. At the beginning of each domain include a typed page that gives the titles of the 4 activities and 4 websites and clearly identifies domain and cluster that each activity or website will address. Reference where each activity was taken from. The binder should have a minimum of 20 activities and 20 websites. This binder should be clearly organized and serve as an excellent Common Core Math resource for a teacher of mathematics.

**EDEL 600 & EDSP 622 COURSE CALENDAR
Summer 2012**

DATE	TOPIC	ASSIGNMENT
May 7, 2012	Foundations of Teaching Differentiated Mathematics	
May 9, 2012	Math Standards: Using Ohio Academic Content Standards to meet the minimum standards all learners need to learn. Math Assessment and High Stakes Testing	Article Critique Due
May 14, 2012	Number and Number Sense Setting the Foundations for all Mathematical Learning:	Chapters K-3: 1, 2 & 5 3-5: 1 & 2 5-8: 1 & 5
May 16, 2012	Numbers and Operations: Alternative Algorithms for Computations with Whole Numbers	Chapters K-3: 3, 4, & 6 3-5: 3 & 4 5-8: 2
May 21, 2012	Number and Operations Fractions	Chapters K-3: 9 3-5: 5 & 6 5-8: 3 Mid-Semester Test
May 23, 2012	Number and Operations Decimals, Percents, Ratios and Proportions	Chapters 3-5: 7 5-8: 4 & 6
May 28, 2012	Memorial Day	No Class
May 30, 2012	Measurement and Geometry	Chapters K-3: 7 & 8 3-5: 8 & 9 5-8: 7 & 8
FRIDAY , June 1, 2012	Technology Meet in Cohen 190	Software Evaluations Due
June 4, 2012	Data Analysis, Probability	Chapters K-3: 10 & 11 3-5: 10 & 11 5-8: 9 & 10 Math Binder Due
June 6, 2012	Algebraic Thinking Final Exam Hailstones 317	Chapters K-3: 12 3-5: 12 5-8: 11 & 12 Peer Lessons Final Exam: Due Friday, June 8th
<i>The instructor reserves the right to make changes in the syllabus and/or calendar if circumstance so dictates.</i>		