Education 301 Spring 2012

Mrs. Joyce E. Hoellein
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T&Th: 9:20-10:50 am
Tues: (7) Labs: 11-11:30 am
E-mail: Hoellej

OFFICE HOURS: T&F afternoons. MWR as posted on office door.

REQUIRED MATERIALS: **Text**: Rey,R.E., Suydam,M.N., & Lindquist,M.M. (2007). Helping Children Learn Mathematics (**8th Edition**). (abbreviated RSL in syllabus)

Kit: Hands-On Teaching H.O.T. Strategies for Using Math Manipulatives. ETA. Vernon Hills, Illinois. Teacher's Resource Binder, Bag and Manipulatives.

WELCOME! I"M GLAD YOU"RE HERE!!

The goals of this course are:

1. To discover how children understand mathematics in order to provide appropriate instruction
2. To learn how to provide mathematics instruction at the elementary level in compliance with the PA Academic Standards
3. To learn how to help students construct personal mathematics knowledge from meaningful experiences

OUTCOMES:

As a result of completing ED 301, the students will be able to:

1) Research what it means to learn mathematics with understanding from an historical perspective.
2) Develop concrete, hands-on approach to teaching mathematics, including problem solving, manipulatives, and real life experiences. **(*)**
3) Gain confidence, both in one's own mathematics skills and one's ability to teach mathematics with understanding.
4) Explore the NCTM Principles and Standards for School Mathematics and evaluate current mathematics programs in light of these standards. **(*)**
5) Choose appropriate manipulatives and age appropriate activities to teach number sense, place value, addition, subtraction, multiplication, division, geometry, fractions, decimals measurement, probability and statistics. **(*)**
6) Choose appropriate literature as a means of teaching mathematical concepts.
7) Critically review various assessment techniques used in elementary mathematics.**(*)**
8) Research and experiment with technology and its' various uses in teaching elementary mathematics. **(*)**

(*) Meets PA Teacher Preparation Standard

Expectations of the Students:

*PROFESSIONALISM

- **BE ON TIME! Call before class if you cannot attend or expect to be late. It will be difficult to earn an "A" if you have missed a class without prior notification (do NOT ask a friend to tell me).**
- Dress appropriately.
- Respect the confidentiality of students, teachers, and parents when you are in elementary schools.

*INTEGRITY IN YOUR ASSIGNMENTS

- ***All*** written assignments are expected to demonstrate college level work with the correct use of grammar, writing mechanics, spelling and proper format.
- All assignments are due as stated in the syllabus or in class. Points will be deducted for late work.(10% for each day late).
- Plagiarism or turning in others' work as your own will result in an “F” and a meeting with the Department of Education to determine your status as an education student.
- Tests missed may be made up only if the instructor has been notified in advance and documentation of the reason has been submitted.

The schedule is tentative, but I will announce any schedule changes or deletions well in advance.

I am very interested in your development as a competent teacher of elementary math and will make every effort to be available to you for questions or concerns. Joyce Hoellein

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MATH ANXIETY BILL OF RIGHTS
By Sandra L. Davis

I have the right to:

* learn at my own pace and not feel put down or stupid if I'm slower than someone else.
* ask whatever questions I have.
* need extra help
* ask a teacher or TA for help
* say I don't understand.
* not understand.
* feel good about myself regardless of my abilities in math
* not base my self-worth on my math skill.
* view myself as capable of learning mathematics
* evaluate my instructors and how they teach.
* relax

* be treated as a competent adult
* dislike mathematics
* define success in my own terms

EXCITING ED 30 PROJECTS!!!

The following written assignments (*) will be more fully described in separate handouts.

1. **Journal Article Critique(s).**
Preparation of one (required) or more (optional) journal article critiques related to the teaching/learning of elementary mathematics.

* 2. **Lesson Plan and School Experience with Math and Literature**
You will have the opportunity to prepare a math lesson as an extension of a children's book and present it to school age children. More detailed information to follow.

* 3.**Games/Activity–** There will be opportunities to make a game/activity that will be of "professional" quality. You will receive a rubric to follow. It is intended to be something you can use in practicum and beyond.

4. **Manipulative Lab**.
You will teach a lesson to a small group of your classmates which focuses on a manipulative from your kit. I will model a LAB lesson first.

5. **Basic Skills Quizzes.**
There will be 2 quizzes given to help assess your basic math skills. Each quiz is noted on the syllabus and will cover the topic stated. Nothing is above a seventh grade level and there will be no reviewing in class. "Brushing up" by working through some elementary texts, attending a help session, or peer tutoring is encouraged.

6. **Daily Assignments**
Most reading assignments will be accompanied by some kind of activity to have ready. Five of these will be randomly collected at the discretion of the instructor.

7. **Participation**
Learning is an engaging, social process. We learn from each other through discussion, debate and questioning. Be prepared to be active and involved in class discussions and activities.

- **Excellent Participation** – Proactive participation, leading, originating, informing and challenging

contributions that reflect analysis, synthesis and evaluation of concepts and topics.

- **Satisfactory Participation-** Reactive participation, supportive, follow-up contributions that are relevant and of value; however, the comments reflect opinion rather than study, though and contemplation.
- **Below Average Participation –** Passive participation, present, awake, alert, attentive, but not actively involved
- **Unsatisfactory Participation –** absent, non-attentive, sleeping, disrespectful and disruptive

ASSESSMENT PORTFOLIO

ACTIVITY	**POINT VALUE**
Journal Article	25
2 Basic Skills Quizzes	50 (25, 25)
Early Childhood Activity	20
First Examination	50
Second Examination (Frac/Dec methods)	30
Math/Literature Lesson	30
Manipulative Lab Lesson	30
Measurement Activity	25
CGI Game	25
Daily Assignments	25 (5 at 5 pts ea)
Participation	25
Final(theme cycle:math section)	50
TOTAL	385 pts

Grading Scale:

90-100 = A
80-89 = B
70-79 = C
60-69 = D
59 or below (don't even think about it!)

TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL OUTCOMES
(referenced to PDE-Elementary Education Program Guidelines)

I. KNOWING THE CONTENT

To acquire knowledge:

I.A. 1. Cognitive development and theories of learning
I.A. 2. Oral and written language development

Assignments: Daily assignment/activity
Journal Critique
Examination
Practicum Journal
Manipulative Labs

To address issues of assessment and evaluation including:

I.B. 1. Diagnostic, formative and summative instruments
I.B. 2. formal, informal and authentic assessment procedure
I.B. 3. biases tracking, labeling and lowering expectations
I.B. 4. Aligning assessment to teaching and learning of special needs students

Assignments: Daily assignments/activities
Lesson plans
Practicum Journal
Examination

To connect mathematics instruction at the elementary level in accordance with the PA Academic Standards:

I.D. 1. Prenumber concepts, number sense, whole numbers, fractional numbers, measurement, algebra, geometry, estimation, probability, statistics, reasoning and problem solving.
I.D. 2. Use of developmentally appropriate manipulatives, calculators and emergent technologies

Assignments: Daily assignments/activities
Quizzes
Examinations

Manipulative Labs
Practicum Journal
Journal article critique

II. PERFORMANCE

To manage the instructional environment involving:

II.A. 1. creating a positive, inclusive learning environment
II.A. 2. establishing and maintaining rapport with all students
II.A. 3. communicating high learning expectations to all students
II.A. 4. establishing and maintaining fair and consistent standards of classroom behavior
II.A. 5. creating a safe physical environment conducive to learning

Assignments: Daily assignments/activities
Practicum Journal
Practicum assignment

To plan instruction relative to:

II.B. 1. Alignment of curriculum, instruction and assessment
II.B. 2. multidisciplinary curriculum integration
II.B. 3. collaborating with appropriate subject area specialist

Assignments: Lesson plans
Practicum Journal
Examinations

To explore and apply computer-mediated-communications and emerging technologies including:

II.C. 1 audio-visual hardware and other presentation tools
II.C. 3. internet searches and electronic mail

Assignments: Manipulative Labs
Daily assignments/activities

To select, implement, and adapt instructional strategies including:

II.D. 1. Assessing, identifying and building on the students' prior knowledge, experiences and skills
II.D. 2. Problem analysis, creativity, problem solving and decision-making skills
II.D. 3. inquiry, direct instruction, and cooperative learning

Assignments: Daily assignments/activities
Practicum assignment
Practicum Journal
Lesson Plans
Manipulative Lab

II.E. **To develop, utilize and communicate appropriate measurement and evaluation procedures in the instructional program**

Assignments: Lesson Plans
Practicum Journal

II.F. **To monitor student understanding, provide feedback, and adjust instruction**

Assignments: Practicum Journal
Manipulative Lab

III. PROFESSIONALISM

III.A. Professional organizations and professional journals

III.B. Integrity and ethical behavior, professional conduct as stated in PA Code of Professional Practice and Conduct for Educators

III.D. Communicating effectively with parents/guardians, other agencies and the community at large to support learning and elementary education

Assignments: Practicum Journal
Practicum Experience

Teaching Math in the Pre-School and Primary School
Spring 2012
Tentative Schedule

Date	**Topic**	**Assignment**	**PDE**
1/17	Welcome	Bring text	
1/19	History of Elem Mathematics and Standards	Selections from Ch 1, 2, & 5 Questions for understanding Math self perceptions and goals	V.A
1/24	Problem Solving Strategies	Ch 6 Questions for Understanding Solve assigned problems from chapter	II.C.1.j. t
1/26	Early Number Concepts	Ch 7 Questions for Understanding **ENC Activity**	II.C.1.a.b.c.d. ; II.C.2.a.b.c.e.
1/31	Place Value **<u>LAB:</u> Base Ten Blocks, modeled by Mrs H**	Ch 8 Questions for Understanding & Place Value Set	II. C. 1.d.f.g.j.
2/2	Place Value	Ch 8 Handout Questions for	II.C.1.d.f.g.k. l. II.A.4.a.f.g.

		Understanding *****Journal Article Due***	
2/7	Basic Facts **<u>LAB</u>: Pattern Blocks**	Ch 9 Questions for Understanding	II.C.1.e.f.g.j. II.C.2.g
2/9	Basic Facts Cognitively Guided Instruct. **Basic Facts Quiz***	Ch 9 Handout Questions for Understanding	II.C.1.d.e.f.h. II.C.2.b.g.
2/14	Algebraic Thinking **<u>LAB</u>: Tangrams**	Ch 14 Questions for Understanding	II.C.2.i.j.l.m.
2/16	Algorithms	Ch 11 Questions for Understanding *****CGI Basic Fact Game Due***	II.C.1.o.p.q.r.s.t.y II.C.2.d.g.
2/21	Algorithms Part 2 To Teach or Not to Teach **<u>LAB:</u> Color Tiles and Two-Colored Counters**	Ch 11 Handout: "Invented Strategies" Questions for Understanding	II.C.1.o.p.q.r.s.t.y II.C.2.d.g
2/23	Math and Literature Planning for Instruction	Ch 3 Handouts: Why Math and Literature? Questions for Understanding	II.A.4.a.b.f. II.A.5.a.
2/28	Assessment in Mathematics **<u>LAB:</u> Cuisenaire Rods**	Ch 4 Questions for Understanding Conduct a math activity with	III.A.1.2.3.4.5.B IIA.4.a IV.4.C.5.

	Family Math Night **New Wilmington** **@ 6 pm**	students and their parents	V.C.
3/1	Assessment and Writing in Math class		
3/6 and 3/8	**SPRING BREAK**	**SPRING BREAK**	**SPRING BREAK**
3/13	**First Test**		
3/15	Fractions-Beginning Concepts	Ch 12 (pp282-296) Questions for Understanding **Fraction Bars**	II.A.1.l.m.n.u.
3/20	Fractions – Add & Subtract **LAB: Fraction Circles or TBA**	Ch 12 (pp296-298) Handout Questions for Understanding	II.A.1.l.m.n.u.
3/22	Fractions-Mult & Division	Ch 12 (pp298-302) Questions for Understanding	II.A.1.l.m.n.u.o.
3/27	Decimals Part 1 *****Basic Skill test***	Ch 12 (302-306) Questions for Understanding	II.A.1.k.g.m.u.
3/29	Decimals Part 2	Ch 12 (pp306-309) Questions for Understanding **Take home test on teaching fractions and**	II.A.1.k.g.m.u.

		decimals. Due 11/10 by 5 pm	
4/3	Rosemary/Joyce's Circle **<u>LAB</u>: Geoboards**	Ch 15 Questions for understanding **Take home test due**	II.A.3.a.b.g.h.i.j.k.l.m.p.x.n.o.p.gr.u.x.y.z.aa
4/5	Measurement **Measurement activity**	Ch 16 Questions for Understanding	II.A.4.a.b.c.d.e.f.g.h.i.j.k.l.m.n.o.p
4/12	Graphing and Probability		
4/16-4/27	11/9-11/22 Practicum	Continue Placement in elementary classroom implementing lessons including Math/Lit	
5/1	Theme Cycle Seminars	***Team Work***	II.A.5.a.b.c.d.e.f.g.h.i
5/3	Theme Cycle Seminars	***Team Work***	II.A.5.a.b.c.d.e.f.g.h.i