ED 124—Mathematics and Science Instruction
Tuesdays, 4:00 to 7:50 p.m.
WH 227—“Math 20 Lab”

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Dept. secretary: Donna Mainord, ph# 917-4900
PCDC 101

I. COURSE DESCRIPTION:
Course focuses on mathematics and science for Instructional Assistants. Covers a variety of instructional techniques that can be used with individual students or groups, how to cope with a variety of learning styles and special needs students, the prevention of accidents, injuries and illness at the worksite/in the classroom, and the use of technology in the classroom. Learning will include the Oregon Mathematics Teaching and Learning Standards, Benchmarks, and Essential Learning Skills for grades 3, 5 and 8; Scoring Guides for Mathematics Problem Solving; and student portfolios. Students examine currently adopted math programs. There is an emphasis on becoming more comfortable with mathematics and science throughout the entire course.

II. COURSE OBJECTIVES:
• Confidently and appropriately manage individuals and small groups in mathematics and science learning situations
• Draw on knowledge of relevant curriculum, standards, benchmarks, programs, technology, and assessment
• Cope with a wide variety of student learning needs
• Utilize current environmental awareness issues (conservation, recycling/reuse, and resource depletion) as a means to connect "science textbook" learning with real life situations
• Know how to prevent accidents, injuries and illness at the work site

III. REQUIRED MATERIALS
• Supplemental Reading Packet for ED 124
• Materials and supplies for Learning Labs, Child Interview, and Documentation Project

IV. Course Requirements: Thinking, reading, writing, speaking, and computer literacy.
V. Evaluation

Reflective Writing               100
Math Interview      50
Jigsaw Teaching/Learning     50
Learning Labs                                100
Final Learning Lab      75
Final Reflective Writing     75
Total  possible    450 points

405-450 A
360-404 B
315-359 C
270-314 D
269 and below F

“Y” grade: The “Y” grade will be awarded to students who stop attending class and do not participate in Learning Lab #1 (May 6). Students who submit work on May 6 will be graded on the A-F system.

A. Reflective Writing: Reflective Writing is due in class on the dates indicated. Writings will be one page, double-spaced in 10-12 pt. font. In your writing, reflect upon readings, class experiences, or lectures and how they impact you as a learner, thinker, person, or educator. (5 x 20 points per writing = 100 possible points).

B. Math Interview: Interview a child who is enrolled in school K-8th grade. Videotape and/or voice record the interview. Choose a topic that is related to a specific math standard. Your task is to ask the child enough questions to determine their understanding of the topic. It is not enough for the child to answer correctly (or incorrectly). You want to uncover their thinking. DO NOT TEACH. Instead, prepare to learn and then reflect. Written up interview is worth 50 points.

C. You will be involved in Jigsaw Teaching and Learning two times during the quarter. You and a small group of peers will study individually and then analyze collectively to become « class experts » on a particular chapter of the text. Your expert group will divide and teach other small groups of students about the topic. You will also become students to « class experts » on other chapters. During jigsawing you have the responsibility to complete all course readings, explore assigned sections in depth, attend to the learning of others, and demonstrate understanding of the diversity of learning styles. (Two jigsaws worth 25 points each: 2 x 25 = 50 points).

D. Learning Labs: Learning Labs are a group project; points will be assigned individually based on student’s own, instructor’s and peer evaluations. You must participate in both preparation and presentation in order to earn the full points. Partial points will be awarded if part of lab is missed. (2 x 50 = 100 possible points). The Final Learning Lab (which takes place on Week 10 and integrates math and science) is worth 75 points.

E. Final: In lieu of a final, students will prepare Learning Lab #3 (described above) and complete a final open-note written reflection in class. Students will receive the final
question a week in advance. (80 points for Learning Lab; 40 points for Final Reflective Writing).

VI. Tips for Success in this Class
A. Consult the syllabus on a regular basis. Read the material indicated *BEFORE* coming to class.
B. Be prepared to participate actively in this class. Your discussion, question, and exploration of math and science learning concepts will contribute to your own, and to other’s learning.
C. Talk with me about any questions or comments you have about assignments, attendance, concepts, etc.
D. Present your work in a professional manner. Word process all assignments (except in-class work). Use your spell-check and/or a peer editor.
## Math Instruction Class Calendar

The Instructor reserves the right to make changes in this syllabus. Changes will be announced in class.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings due</th>
<th>Activities/Work Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/1</td>
<td>Class Introduction, Reform in Mathematics Education; Oregon State Standards: TIMMS</td>
<td>Chapter 1; <em>Comparing Student Achievement</em> from packet</td>
<td>• Reflective Writing: Math Experiences</td>
</tr>
<tr>
<td>2</td>
<td>4/8</td>
<td>Constructivism Concepts vs. Procedures Using Technology Problem-solving Assessment Teaching All Children</td>
<td>Chapter 2 from text; <em>Enabling the Learning Disabled</em> from packet</td>
<td></td>
</tr>
</tbody>
</table>
| 3    | 4/15 | Learning Styles | Chapter 3; *Science Sampler* from packet | • Reflective Writing due  
• Bring (a set of) recyclable items—at least 10  
• Math games with recyclables  
• GREGORC Style Delineator |
| 4    | 4/22 | Number Concepts Operations Sense The Scientific Method | Chapters 9,10; 2 articles | • Math Interview |
| 5    | 4/29 | Fact Mastery Place Value The child as Scientist | Chapters 11,12 | • Reflective Writing |
| 6    | 5/6  | Algebraic Thinking Fractions | Chapter 15 (pp.259-275), 16 | • Learning Lab #1—Calculations and Estimations |
| 7    | 5/13 | Measurement; Safety in the Classroom | Chapter 19 (pp. 374-397): *Scope on Safety* | • Reflective Writing |
| 8    | 5/20 | Geometry | Chapter 21 | • Learning Lab #2--Measurement |
| 9    | 5/27 | Probability | Chapter 23 (pp.475-489) Review Ch.4 | • Reflective Writing |
| 10   | 6/3  | Teaching through Problem-Solving Oregon Benchmarks and Scoring Guides | | • Final Learning Lab—Integration of Mathematical Problem-Solving and Science  
• Final Reflective Writing |
Lesson Plan Worksheet: ED 124

Type your lesson plan in the following format:

Lesson Title: ____________________________________________________________
Grade level: ___________________________
Curriculum Goal: What will the students know after this lesson is completed?
Oregon Standard(s) Addressed: ____________________________________________
Materials Needed: _________________________________________________________

BEFORE: (How will you capture students’ attention and reactivate previous knowledge? Give your expectations for the problem to be solved.)

DURING: (What will you do with students during the lesson; what do you expect the students to do. What are some questions you could ask to inspire learning? Meaningful work for the first-finishers.)

AFTER (How will you facilitate everyone making sense of the problem and various solutions; how you will close the activity; is there any follow-up activity the students will participate in?)
ED 124 Learning Lab Activity Assessment

Your full name ________________________________ Date ________________________

Math Activity Title _____________________________________________

The other members of your group _________________________________________________

Describe, in your own words, how your activity will help children meet the targeted grade level standard(s).

What was most effective in the presentation of your activity?

What was challenging? What adjustments did you make as you went along?

What would you change if you could start over from the beginning?

Discuss the activity in terms of each of the three step (Before, During, and After) lesson presentation format. What worked? What didn’t?
Your name

Describe your role in terms of the activity planning and presentation. How did you contribute in class, and through your work on your own?

In terms of your group membership, did each person contribute in a comparable way? Please explain.

How would you evaluate each group member, including yourself? (Using first names, evaluate each member on a scale from 0 - 4; “0” is lack of effort, “4” is excellent work).