COURSE TITLE: PRESCHOOL MATHEMATICS

NO. OF CREDITS: 5 QUARTER CREDITS
[semester equivalent = 3.33 credits]

INSTRUCTOR: Kelly Lickteig
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WA CLOCK HRS: 50
OREGON PDUs: 50

COURSE DESCRIPTION:
This course meets OSPI's STEM requirements.

Preschool teachers will learn how to teach activity centered, basic math concepts that meet national standards for early childhood students. It is possible for early childhood students to learn math skills in the areas of numbers and operations, algebra, geometry, measurement, and data analysis and probability. Learn how to translate these standards into developmentally appropriate lessons that can provide a foundation that will best support your students’ learning. Apply mathematics using a variety of simple methods that are effective and will keep students engaged. You will walk away with classroom tools and resources to further promote the importance of math in the early childhood classroom.

The textbook, More Than Counting: Preschool and Kindergarten, Standards Edition, by Sally Moomaw is available used at Amazon for approximately $11.00.

LEARNING OUTCOMES: Upon completion of this course, participants will have:

- Practiced using mathematics lessons to implement, promote, and meet the early childhood national standards at a developmentally appropriate level.
- Implemented standards based math lessons that are simple, effective, and engaging to early childhood student.
- Increased their understanding of each specific content standard in mathematics for the early childhood student.
- Expanded and increased their personal knowledge of Process Standards.
- Increased their understanding of universal design and its three important principles.
- Discovered, created, integrated, and directly applied ready-to-use classroom resources, lessons, and literature which support mathematics in their classroom.

COURSE REQUIREMENTS:
Completion of all specified assignments is required for issuance of hours or credit. The Heritage Institute does not award partial credit.

HOURS EARNED:
Completing the basic assignments (Section A. Information Acquisition) for this course automatically earns participant's their choice of CEUs (Continuing Education Units), or Washington State Clock Hours or Oregon PDUs. The Heritage Institute offers CEUs and is an approved provider of Washington State Clock Hours and Oregon PDUs.

UNIVERSITY QUARTER CREDIT INFORMATION

REQUIREMENTS FOR UNIVERSITY QUARTER CREDIT
Continuing Education Quarter credits are awarded by Antioch University Seattle (AUS). AUS requires 75% or better for credit at the 400 level and 85% or better to issue credit at the 500 level. These criteria refer both to the amount and quality of work submitted.
1. Completion of Information Acquisition assignments 30%
2. Completion of Learning Application assignments 40%
3. Completion of Integration Paper assignment 30%

CREDIT/NO CREDIT (No Letter Grades or Numeric Equivalents on Transcripts)
Antioch University Seattle (AUS) Continuing Education Quarter credit is offered on a Credit/No Credit basis; neither letter grades nor numeric equivalents are on a transcript. 400 level credit is equal to a "C" or better, 500 level credit is equal to a "B" or better. This information is on the back of the transcript.

AUS Continuing Education quarter credits may or may not be accepted into degree programs. Prior to registering determine with your district personnel, department head or state education office the acceptability of these credits for your purpose.

ADDITIONAL COURSE INFORMATION

REQUIRED TEXT
The textbook, More Than Counting: Preschool and Kindergarten, Standards Edition, by Sally Moomaw is available used at Amazon for approximately $11.00.

One picture book form the "Math Picture Book Reading List"
  Buy from Amazon

MATERIALS FEE
Text, More Than Counting: Preschool and Kindergarten is available used at Amazon for approximately $11.00

ASSIGNMENTS REQUIRED FOR HOURS OR UNIVERSITY QUARTER CREDIT

A. INFORMATION ACQUISITION
Assignments done in a course forum will show responses from all educators active in the course. Feel free to read and respond to others comments.

Assignment #1: Introduce Yourself
Introduce yourself in a 250-500 word background summary. Answer all of the following questions:
- What led you to choose teaching as a profession?
- What is your current professional situation?
- What brings you the most joy in your work?
- What are the greatest challenges you face in your profession?
- What outcomes do you hope to achieve in taking this course?

Assignment #2: NCTM
Read Chapter 1 and answer the following questions in a 500-700 word paper:
Briefly describe the NCTM Content Standards.
- Which one of the five content standards is the most important and why?
- Briefly describe the NCTM Process Standards.
- What is the difference between content standards and process standards?
- What is “universal design” and why is it important in the early childhood classroom?
- If you could choose one lesson out of chapter one to use in your classroom, which one would you choose and why?

Assignment #3: Quantification
Read Chapter 2 and answer the following questions in a 500-700 word paper:

- What are the three stages of quantification? Briefly describe each one.
- As a teacher, how can you support children’s construction of quantification?
- Why are math manipulative games important?
- Choose one lesson from Chapter 2. Apply this lesson as an instructional tool in your classroom. Why did you choose this lesson? How did your students respond? Did the lesson achieve its purpose? Will you use this lesson again? Why or why not?
- Provide a brief description about how this lesson meets at least two of the STEM categories.

Assignment #4: Operations
Read Chapter 3 and answer the following questions in a 500-700 word paper:

- Briefly explain the “Operations” component of Number and Operations.
- Briefly describe the early stages of addition.
- Choose one lesson from Chapter 3. Apply this lesson as an instructional tool in your classroom. Why did you choose this lesson? How did your students respond? How did your lesson meet the Numbers and Operations standard? What did you like about this lesson? What will you do differently the next time you teach it?
- Provide a brief description about how this lesson meets at least two of the STEM categories.

Assignment #5: Algebra & Geometry
Read Chapters 4 and 5 and answer the following questions in a 500-700 word paper:

- How does the Algebra standard apply to preschool students?
- As a teacher, how can you support the construction of sorting, classifying, collecting, and patterning? Provide two brief examples for each.
- How does the Geometry standard apply to preschool students?
- What are the stages of development in geometry? Give a brief explanation of each.
- Explain how you can provide opportunities for children to understand symmetry and transformations in your classroom.
- Provide a brief description about how this lesson meets at least two of the STEM categories.

Assignment #6: Applying a Lesson Plan
Read Chapter 6 and answer the following questions in a 250-500 word paper:

- Choose one lesson plan from Chapter 6.
- Apply this lesson as an instructional tool in your classroom.
- Why did you choose this lesson?
- How did your students respond?
- Did the lesson achieve its purpose?
- If you were to teach this lesson again, how might you integrate other subject areas into it?
- Will you use this lesson again?
- Why or why not?
- Provide a brief description about how this lesson meets at least two of the STEM categories.

Assignment #7: Review Questions
Read Chapter 7. Answer the Review Questions located at the end of the syllabus. Then answer the following questions in a 500-700 word paper:

- Explain the importance of the data Analysis and Probability standard in the preschool classroom.
- How are class graphs beneficial in the preschool classroom?
- If you could choose one lesson out of Chapter 7 to use in your classroom, which would you choose and why?
- How can you modify the lesson for students with disabilities?

Assignment #8: COURSE FORUM.
Read Chapter 8. Please choose two of the below questions and answer them using the Course Forum in 250-500 word paper.

1. In your classroom, how do you teach math on a daily basis?
2. In what ways do you feel you are successful in teaching math to preschoolers?
3. How do you feel you can improve in teaching math to preschoolers?
4. What is the most difficult part about teaching math?
5. What is the easiest part about teaching math?
6. How do you currently assess your students?
7. Do you believe it is the most productive way to assess your students?
8. Why or why not?
9. Did you learn anything new about assessing early childhood students from the text?
10. Read any other responses to this assignment and comment on at least one.

Assignment #9: Explore Math Websites

- Explore the following websites, focusing on math.
- Write a one paragraph explanation for each website.
- Provide pros and cons for each website.

1. https://www.abcmouse.com

OR

2. https://www.youtube.com/results?search_query=preschool+math

ADDITIONAL ASSIGNMENTS REQUIRED FOR UNIVERSITY QUARTER CREDIT

B. LEARNING APPLICATION

In this section you will apply your learning to your professional situation. This course assumes that most participants are classroom teachers who have access to students. If you do not have a classroom available to you, please contact the instructor for course modifications. Assignments done in a course forum will show responses from all educators active in the course. Feel free to read and respond to others comments.

Assignment #10: (Required for 400 and 500 Level)

Create a preschool math lesson plan for your classroom or math center. In addition, choose a picture book from the reading list to incorporate into your lesson. Complete all of the following in 250-500 words (You may use the lesson plan format used in the text as a guide) and upload using the lesson tab.

1. Provide a description of your lesson.
2. Indicate the materials needed for your lesson plan?
3. Which book did you choose to incorporate into your lesson and why? Give a synopsis of the story line.
4. Child’s Level - For what age group is this lesson appropriate? Be specific.
5. What other subject areas can be integrated into this lesson? Explain your plan for integration.
6. As far as student involvement, provide at least two possible challenges your students may encounter during the lesson. How will you be prepared for these possible challenges?
7. Provide at least one possible modification for special needs students.
8. Which NCTM Content Standard(s) does this lesson meet? What are the objectives?
10. How will you assess your students? Explain or provide an example.
Assignment #11: (Required for 400 and 500 Level)

- Implement the lesson created in Assignment #10 with students.
- In 250-500 words report what you feel went well and what could be improved.
- Comment on your method of assessment, the use of the picture book and its effectiveness, and any student responses that were noteworthy.
- Include samples of student work where available.

Assignment #12: (500 Level ONLY)
Option A)
Read the article “Early Childhood Teachers’ Misconceptions About Mathematics Education for Young Children in the United States.” Write a 500 word review for this article.

OR

Option B)
Visit the following web page and choose two articles that relate to teaching math in the preschool/early childhood classroom. Read and write a review in a 250-500 word paper for each article.
http://www.naeyc.org/tyc/pastissues

OR

Option C)
An assignment of your own choice with the instructor’s prior approval.

C. INTEGRATION PAPER
Assignment #13: (Required for 400 and 500 Level)

SELF REFLECTION & INTEGRATION PAPER
(Please do not write this paper until you’ve completed all of your other assignments)

Write a 350-500 word Integration Paper answering these 5 questions:

1. What did you learn vs. what you expected to learn from this course?
2. What aspects of the course were most helpful and why?
3. What further knowledge and skills in this general area do you feel you need?
4. How, when and where will you use what you have learned?
5. How and with what other school or community members might you share what you learned?

INSTRUCTOR COMMENTS ON YOUR WORK:
Please indicate by email to the instructor if you would like to receive comments on your assignments.

QUALIFICATIONS FOR TEACHING THIS COURSE:
I currently live in Reno, Nevada. I am a native to the Pacific Northwest and grew up in Madras, Oregon. I graduated from Western Oregon University with a Bachelor of Science in Interdisciplinary Studies. During my undergraduate studies, I studied abroad in Macerata, Italy and traveled to several Western European countries. I have a Master of Arts in Teaching degree from Willamette University.
I have experience teaching various grade levels in both public and private schools. The majority of my experience comes from teaching at the elementary level, specifically fourth and fifth grade. I also have experience with preschool and middle school students.

Upon starting a new position in the private sector in the Kansas City area, I was assigned the task of creating and managing a resource room. I taught students ranging in grades from Kindergarten to eighth grade, as well as both learning disabled and gifted students. I am genuinely passionate about education and enjoy finding the creativity potential in every subject.

**BIBLIOGRAPHY**

**PRESCHOOL MATHEMATICS**


**PRESCHOOL MATH PICTURE BOOK LIST**


