

LEE 108: Effective Mathematics Teaching and Learning in PK-3

Fall 2024

Instructor Information

Instructor Name:

Department:

Email / Telephone: Contact me via email or Canvas inbox. Most messages will be responded to within 24 hours. Messages sent after 5pm on Friday may not be replied to until Monday. If you do not receive a response in a timely manner, assume I did not receive your message (possibly due to a technology glitch or just a missed message by your instructor) and make contact again.

Office:

Student Support Hours: (days/times) Before or after class on or by appointment.

Email the instructor to schedule an in-person, Zoom or phone meeting

Course Information

Course Modality: This course is scheduled for in-person instruction, and we will be meeting on the Fresno State campus. If necessary, we will switch to virtual synchronous class sessions on Zoom. Course materials, activities and assignments provided on Canvas.

Course ID:

Units: 3

Class Meeting Location & Time: (zoom link if applicable)

Canvas: fresnostate.instructure.com

Prerequisites: Successful completion of Phase 1 of the P-3 Credential Program.

Course Description: This course prepares teacher candidates to provide developmentally appropriate mathematics learning activities and experiences (including student-led, teacher-led, and play-based) to develop conceptual mathematical understanding aligned with state-adopted preschool and math content standards to children in pre-kindergarten to 3rd grade. Teacher candidates will learn strategies to build mathematical connections to children's interests and everyday life, engage children in solving problems in different ways, assess children's math knowledge through observations and questioning, and differentiate instruction to meet the needs of individual children. This course will be delivered in a face-to-face classroom setting. If required by the university or other extenuating circumstances, we will move a virtual synchronous model of instruction during our

scheduled class time for the class session(s). In this situation, we will use a blended learning model with a combination of synchronous and asynchronous activities.

It is usually expected that students will spend approximately 2 hours of study time outside of class for every one hour in class. Since this is a 3 unit class, you should expect to study an average of __6__ hours outside of class each week.

Required Course Materials

- Carpenter, T. P., Fennema, E., Franke, M. L., Levi, L., Empson, S. B. (2015). *Children's mathematics: Cognitively guided instruction* (2nd edition). Portsmouth, NH: Heinemann.
- California Common Core Content Standards for Mathematics. (2013). <http://www.cde.ca.gov/ci/cc/>
- California Preschool Learning Foundations, Volume 1 (2008). <https://www.cde.ca.gov/sp/cd/re/documents/preschoollf.pdf>
- National Council of Teachers of Mathematics (NCTM) journal articles. You will access the journal articles from the Fresno State library, or the materials will be provided by the instructor.
- Seesaw account (free). Specific directions for joining a specific Seesaw class will be provided on Canvas.
- Teaching Channel. You can access these resources through the Fresno State library by using your login credentials. <https://learn-teachingchannel-com.htmlproxy.lib.csufresno.edu/tch-videos>
- Zoom. For additional details and guidelines on using Zoom, review the [Zoom at Fresno State Start Guide](#). Access your Zoom account using this link: fresnostate.zoom.us

Recommended Course Materials

- 3 ring binder for organizing course materials (handouts, assignment directions, reading homework, notes, etc.)
- Professional Journals
 - *Teaching Children Mathematics* (preK-6 focus, mathematics)
 - *Mathematics Teaching in the Middle School* (middle school focus, mathematics)
 - *Mathematics Teacher: Learning and Teaching PK-12*
 - *Educational Leadership* (general education focus)
 - *Phi Delta Kappan* (general education focus)
 - *Journal for Research in Mathematics Education* (mathematics education, research focus)
 - *Elementary School Journal* (elementary education, research focus)
 - *American Educational Research Journal* (general education, research focus)

Note: Specific articles from the NCTM journals will be assigned during the semester. Teacher candidates will be able to access the journal articles through the Fresno State library or the articles will be provided on Canvas.

Course Specifics

Course goals: This course is designed to examine both teacher candidates' and young children's conceptions of mathematics, explore developmentally appropriate instructional strategies and assessments for young children, and learn how to create a problem-based and play-based mathematics learning environment that encourages critical thinking and fosters positive attitudes towards mathematics.

Student Learning Outcomes: The learning outcomes are aligned with the 2023 PK-3 Early Childhood Specialist Instruction Credential Teaching Performance Expectations (TPE), the National Association for the Education of Young Children 2020 Professional Standards and Competencies for Early Childhood Educators, and the KSOEHD Dispositions: Reflection, Critical Thinking, Professional Ethics, Valuing Diversity, Collaboration, Life-Long Learning.

CURRICULUM, PLANNING, & INSTRUCTIONAL STRATEGIES

The teacher candidate will:

- Demonstrate an understanding of the current California Mathematics Standards and Preschool Learning Foundations to plan learning opportunities for all children consistent with Universal Design for Learning principles related to: 1) number and operations, 2) mathematical thinking and understanding relationships, 3) algebra and functions, 4) measurement and data analysis, and 5) geometry. (TPE 3.1 IPA, 3.6 IP, 8.1 IPA, 8.2 IPA) (NAEYC 4c, 5a)
- Plan learning experiences utilizing the California Standards for Mathematical Practice to develop children's mathematics abilities based on knowledge of individual children's academic, social, and emotional strengths and needs. (TPE 8.3 IP, 8.4 IPA 8.7 P) (NAEYC 4b, 5a, 5b)
- Plan and differentiate mathematics learning experiences for young children incorporating manipulatives, education technology and other tools that engage children in self-initiated, teacher-led, and play-based activities. *Disposition: Valuing Diversity* (TPE 1.7 P, 8.5 IPA 8.6 IPA) (NAEYC 4b, 5c)
- Engage children in problem-solving and critical thinking by (a) posing problem-solving tasks with meaningful and relevant contexts aligned with grade-level mathematics standards, (b) allow children to make sense of and persevere in solving problems, and (c) asking children higher-order questions that lead to a deeper understanding of mathematics concepts. *Disposition: Critical Thinking* (TPE 1.4 PA, 1.7 PA, 8.1 PA, 8.3 PA, 8.4 PA, 8.7 PA) (NAEYC 5b, 5c)
- Demonstrate the ability to organize instruction to engage children in mathematical discussions by (a) supporting children in using academic language in mathematics, (b)

encouraging child-to-child discussions about strategies for problem solving, and (c) asking students to construct mathematical arguments based on sound reasoning and relevant evidence. (TPE 1.4 PA, 1.7 PA, 3.2 IPA, 8.4 IPA, 8.7 IPA, 8.8 IPA) (NAEYC 5a, 5b)

- Identify characteristics of a secure environment for children to take intellectual risks, foster positive attitudes towards mathematics, and encourage student curiosity, academic discourse, and persistence in solving mathematical problems. (TPE 1.7 PA, 8.3 IPA, 8.7 PA) (NAEYC 4a, 4b)
- Communicate with families/guardians about children's mathematics learning, encourage families/guardians to use and discuss mathematics at home in their preferred language, and create learning opportunities for children to build connections in math to their home and community. *Disposition: Collaboration* (TPE 1.5 P, 5.7 P, 8.8 IP) (NAEYC 2b, 3d, 6c)

ASSESSMENT

The teacher candidate will:

- Identify, plan, and apply a variety of assessment strategies such as interviews, observations, questioning, and examining student work to assess young children's learning and development in mathematics. (TPE 4.1 P, 5.1 I, 5.2 PA, 5.3 PA, 8.6 IPA) (NAEYC 3a, 3b, 3c)
- Interpret evidence gathered using assessment strategies to assess students' prior knowledge, progress towards meeting grade-level objectives, and to plan mathematics activities or lessons. *Disposition: Critical Thinking* (TPE 4.1 P, 5.2 PA, 5.3 P, 8.6 IPA) (NAEYC 1a, 3c)

PROFESSIONAL EDUCATOR

The teacher candidate will:

- Consider personal biases and how they affect teaching and learning mathematics. (TPE 6.2 IP) (NAEYC 6e)
- Examine his or her own pedagogical practices related to mathematics instruction and reflect on the importance of planning and implementing mathematics instruction to improve children's learning in the ECE context. *Disposition: Reflection* (TPE 6.1 IP, 8.1 IP) (NAEYC 6d, 6e)

Course Requirements/Assignments:

Class Attendance and Participation (5 points per class, 70 points total) -

Teacher candidates will keep track of their attendance, evaluate their participation in class, and briefly reflect on each class session on the "Attendance and Participation Self-Evaluation" log. This form will be completed in class each week and turned in at the end of each class session. If you are absent from class, you can earn the attendance and participation points for one class session by reviewing the

materials provided for the class session and submitting completed work as documentation. Information about specific work to submit will be included in the slide deck for each class session. At the end of the semester, the lowest attendance and participation score will be dropped to calculate your total points for this assignment.

Homework / Asynchronous Activities (5-10 points each, 80-100 points total) -

There will be small homework and formative assessment tasks throughout the semester to check for progress on learning course content connected to class activities and assigned reading. Teacher candidates will complete most of these tasks individually but can choose to discuss the work with a partner or small group for some of the tasks. Specific directions will be provided on Canvas for each task. These activities will be worth 5 or 10 points each and graded based on completing the assigned tasks.

Counting and Early Number Concepts Interviews (40 points) (TPE 1.5 P, 3.4 P, 4.1 P, 4.7 P, 5.1 P, 5.2 P, 5.3 P, 5.7 P, 6.1 P, 7.8 P, 8.2 P, 8.3 P, 8.6 P, 8.8 P) - Teacher candidates will conduct short interviews with 2 students from different grade levels using tasks provided by the instructor.

Journal Article Presentations (20 points) (TPE 3.5 I, 4.7 I, 7.8 I, 7.9 I, 8.3 I, 8.4 I, 8.5 I, 8.6 I, 8.7 I, 8.8 I) - Teacher candidates will select a journal article about teaching mathematics from the instructor-provided list. After reading the article, prepare a short visual presentation (e.g., slide deck, graphic organizer, poster, handout) addressing specific prompts.

Integrating Mathematics and Literature (30 points) (TPE 1.4 P, 1.7 P, 3.1 P, 4.7 P, 6.5 P, 7.9 P, 8.1 P, 8.2 P, 8.4 P, 8.5 P, 8.8 P) - Teacher candidates will select a developmentally appropriate children's picture book that is not an explicit math book. After providing a summary of the book, the teacher candidate will write 4 to 5 different story problems with multiple number choices connected to the book (such as characters, actions, events, object).

Student Problem-Solving Interview (50 points) (TPE 1.4 A, 1.7 A, 3.1 P, 4.1 P, 5.2 A, 5.3 A, 6.1 A, 7.8 P, 8.2 A, 8.3 A, 8.4 A, 8.5 A, 8.6 A, 8.7 A) - Teacher candidates will conduct two interviews with one student in TK-3rd grade to assess the child's mathematics knowledge on number and operations and mathematical thinking.

Final Project: Mathematics Centers Unit (75 points) (TPE 1.4 A, 1.5 P, 1.7 P, 3.1 A, 3.2 A, 3.5 P, 3.6 P, 3.7 P, 4.1 A, 4.2 P, 4.7 P, 5.2 P, 5.3 P, 6.5 P, 7.7 P, 8.1 A, 8.2 A, 8.3 P, 8.4 A, 8.5 A, 8.6 A, 8.8 PA) - Teacher candidates will work in small groups to plan mathematics centers on an assigned mathematics content area (geometry, measurement, data analysis, or algebra and functions). The group will find, adapt and/or create at least 4 different centers related to the math content standards for 2 grade levels. One center must be teacher-led and one must be a self-initiated play-based center. All centers must include hands-on tools; one center must include an educational technology tool.

Instructions for significant assignments¹:

Counting and Early Number Concepts Interviews (40 points) (TPE 1.5 P, 3.4 P, 4.1 P, 4.7 P, 5.1 P, 5.2 P, 5.3 P, 5.7 P, 6.1 P, 7.8 P, 8.2 P, 8.3 P, 8.6 P, 8.8 P)

Instructions: Teacher candidates will conduct short interviews with 2 students from different grade levels using tasks provided by the instructor. The interview tasks include rote counting, counting objects, number recognition, writing numbers, and comparing quantities. The completed assignment will include a summary table with detailed observation notes for each interview and an analysis of each child's mathematics assets and areas for growth. The third section of the completed assignment will be a sample letter to one child's parent/guardian explaining the child's strengths, areas for growth, and how the parent can continue to support the child's learning at home. The last section will be a reflection addressing specific prompts about the interview process.

Child #1 Interview (12 points)					
	Fully accomplished	Accomplished	Partially accomplished	Needs improvement	Missing/Unsatisfactory
DESCRIPTION FOR CHILD #1 INTERVIEW Interview table identifies the tasks posed and a description of what the child did	4 pts Identifies the specific tasks and numbers given; detailed description of the child's	3 pts Identifies the specific tasks and numbers given; detailed description of the child's	2pts Identifies the specific tasks given; some description of the child's actions and/or what	1pt Identifies the specific tasks given; limited description of the child's actions or what the	0 pts Does not identify the specific tasks posed and/or describe the child's actions or

¹ Any instructor should not remove Significant Assignments for the accreditation purpose.

and/or said for each task (TPE 5.2 P, 7.8 P, 8.6 P)	actions and what the child said for each task.	actions and what the child said for most tasks.	the child said for most tasks.	child said for many tasks.	what the child said for the tasks.
ANALYSIS of STRENGTHS FOR CHILD #1 Describes the child's specific assets or strengths from the interview, primarily related to math; primary focus of the analysis (TPE 5.2 P, 5.3 P, 8.2 P)	4 pts Accurately describes child's strengths based on information from the interview; focused mostly on math areas; strong focus on child's strengths.	3 pts Describes child's strengths based on information from the interview; focused mostly on math areas; part of the analysis may not be accurate.	2pts Describes some of the child's strengths partially based on interview; analysis addresses some math content and may have inaccuracies.	1pt Describes some of the child's strengths, not necessarily from the interview; analysis focuses on non-math areas or is mostly inaccurate.	0 pts Does not describe child's assets or strengths.
ANALYSIS of AREAS OF GROWTH FOR CHILD #1 Describes specific areas for growth for the child based on the interview, primarily related to math; secondary focus of the analysis (TPE 3.4 P, 5.2 P, 5.3 P, 8.2 P)	4 pts Accurately describes areas for growth connected to math standards based on information from the interview; focus mostly on math content.	3 pts Describes areas for growth connected to math standards based on information from the interview; focus mostly on math areas; part of the analysis may not be accurate.	2pts Describes some areas for growth partially based on interview; analysis addresses some math content but may not be appropriate for grade level math standards.	1pt Describes areas for growth, not necessarily from the interview; analysis focuses on non-math areas or is not appropriate for grade level math standards.	0 pts Does not describe areas of growth for the child.

Child #2 Interview (12 points)					
	Fully accomplished	Accomplished	Partially accomplished	Needs improvement	Missing/Unsatisfactory

DESCRIPTION FOR CHILD #2 INTERVIEW Interview table identifies the tasks posed and a description of what the child did and/or said for each task (TPE 5.2 P, 7.8 P, 8.6 P)	4 pts Identifies the specific tasks and numbers given; detailed description of the child's actions and what the child said for each task.	3 pts Identifies the specific tasks and numbers given; detailed description of the child's actions and what the child said for most tasks.	2pts Identifies the specific tasks given; some description of the child's actions and/or what the child said for most tasks.	1pt Identifies the specific tasks given; limited description of the child's actions or what the child said for many tasks.	0 pts Does not identify the specific tasks posed and/or describe the child's actions or what the child said for the tasks.
ANALYSIS of STRENGTHS FOR CHILD #2 Describes the child's specific assets or strengths from the interview, primarily related to math; primary focus of the analysis (TPE 5.2 P, 5.3 P, 8.2 P)	4 pts Accurately describes child's strengths based on information from the interview; focused mostly on math areas; strong focus on child's strengths.	3 pts Describes child's strengths based on information from the interview; focused mostly on math areas; part of the analysis may not be accurate.	2pts Describes some of the child's strengths partially based on interview; analysis addresses some math content and may have inaccuracies.	1pt Describes some of the child's strengths, not necessarily from the interview; analysis focuses on non-math areas or is mostly inaccurate.	0 pts Does not describe child's assets or strengths.
ANALYSIS of AREAS OF GROWTH FOR CHILD #2 Describes specific areas for growth for the child based on the interview, primarily related to math; secondary focus of the analysis (TPE 3.4 P, 5.2 P, 5.3 P)	4 pts Accurately describes areas for growth connected to math standards based on information from the interview; focus mostly on math content.	3 pts Describes areas for growth connected to math standards based on information from the interview; focus mostly on math areas; part of the analysis	2pts Describes some areas for growth partially based on interview; analysis addresses some math content but may not be appropriate for grade level math	1pt Describes areas for growth, not necessarily from the interview; analysis focuses on non-math areas or is not appropriate for grade level math	0 pts Does not describe areas of growth for the child.

5.3 P, 8.2 P)		may not be accurate.	standards.	standards.	
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Letter to Parent/Guardian (10 points)				
	Fully accomplished	Accomplished	Partially accomplished	Missing/Unsatisfactory
COMMUNICATING WITH PARENTS Professional, respectful, positive tone, and uses proper conventions (grammar, spelling, and punctuation) in the written letter (TPE 1.5 P)	2 pts Overall tone of the letter is positive, respectful, and collaborative towards families; ideas are clearly communicated using proper grammar, punctuation, and spelling.		1pt Overall tone of the letter is somewhat positive and respectful towards families; multiple writing convention errors (grammar, punctuation, spelling).	0 pts The tone of the letter is negative about the child and/or disrespectful towards families.
DESCRIPTION OF CHILD'S STRENGTHS Describes the child's specific strengths from the interview, primarily related to math; uses language and terminology that parents/guardians will understand (TPE 5.7 P)	3 pts Describes multiple examples of the child's strengths based on information from the interview; mostly focused on math; effort to use language that will be understood by most parents/guardians.	2pts Describes at least 2 of the child's strengths based on information from the interview; mostly focused on math; effort to use some language that will be understood by some parents/guardians.	1pt Describes at least 1 example of the child's strengths, but may not be from the interview or related to math; language will be difficult for many parents/guardians to understand.	0 pts Does not describe child's strengths.
AREAS FOR GROWTH Describes 2 specific	3 pts Describes 2 areas for growth in mathematics	2pts Describes 1 or 2 areas for growth in math based	1pts Describes 1 area for growth, not necessarily from	0 pts Does not describe an area for growth for

areas for growth in math that you will be working on with the child based on the interview; uses language and terminology that parents/guardians will understand (TPE 1.5 P, 3.4 P, 4.1 P, 4.7 P, 5.7 P, 8.2 P)	based on information from the interview; effort to use language that will be understood by most parents/guardians.	on interview; effort to use some language that will be understood by some parents/guardians.	the interview or related to math; language will be difficult for many parents/guardians to understand.	the child.
ACTIVITIES FOR PARENTS Provides realistic and developmentally appropriate suggestions for parents/guardians to support their child's math learning at home. (TPE 1.5 P, 8.8 P)	2 pts Provides 2 or 3 realistic suggestions to engage in a collaborative partnership with parent/guardian to support the child's development and learning about these math concepts at home. Suggestions are related to the child's life and developmentally appropriate.	1pt Provides at least one realistic and developmentally appropriate suggestion to the parent/guardian to support the child's at home.	0 pts Does not provides suggestions to parent/guardian to support the child's learning about these math concepts at home.	

Reflection (6 points)			
	Accomplished	Partially accomplished	Missing/Unsatisfactory
REFLECTION QUESTION #1 How did you create a positive and secure learning environment for each student during the interviews? (TPE 6.1 P, 8.3 P)	2 pts Describes specific ways they created a positive learning environment for each child during the interview. Explains why these specific strategies made this a secure learning environment.	1pt Generally describes ways they created a positive learning environment for the children during the interview. Limited explanation about why these strategies made this a secure environment.	0 pts Did not address the reflection question.
REFLECTION QUESTION #2	2 pts Reflects on	1pt Reflects on	0 pts Did not address the

Reflect on your role in conducting the interviews. What did you do well? What changes could you make to make the interviews more effective? (TPE 6.1 P)	conducting the interviews. Identifies some aspects that they did well. Explains one or more realistic changes to make the interview process more effective.	conducting the interviews. Addresses either aspects that they did well or some changes to make the interview process more effective.	reflection question.
REFLECTION QUESTION #3 What are some advantages of using an interview for assessing students' mathematics knowledge and skills? What are some disadvantages? (TPE 5.1 P, 6.1 P)	2 pts Reflects on and describes both advantages and disadvantages of using interviews as an assessment tool.	1pt Reflects on and describes either advantages OR disadvantages of using interviews as an assessment tool.	0 pts Did not address the reflection question.

Journal Article Presentations (20 points) (TPE 3.5 I, 4.7 I, 7.8 I, 7.9 I, 8.3 I, 8.4 I, 8.5 I, 8.6 I, 8.7 I, 8.8 I)

Instructions: Teacher candidates will select a journal article about teaching mathematics from the instructor-provided list. After reading the article, prepare a short visual presentation (e.g., slide deck, graphic organizer, poster, handout) addressing specific prompts. Students will have the option of creating the presentation by themselves or with a partner, but each person will present individually. In class, teacher candidates will present and discuss the article with a small group of classmates who read different articles.

ARTICLE INFORMATION Include title, author(s), and summary of the article	3 pts Accomplished Identifies the title and author(s) of the article. Provides a short summary of the article that gives a quick and clear overview.		2 pts Partially Accomplished Identifies the title and author(s) of the article. Provides a summary of the article that is unclear.	1 pt Needs improvement Provides 2 out of the 3 following items: title of the article, author(s), and summary of the article.	0 pts Missing/Unsatisfactory Did not include at least 2 of the following items: title of article, authors, a summary of the article
IMPORTANT IDEAS FROM ARTICLE Describe 5 or more key ideas from the article and why they are important (TPE 3.5 I, 4.7 I, 7.8 I, 7.9 I, 8.3 I, 8.4 I, 8.5 I, 8.6 I, 8.7 I, 8.8 I)	5 pts Fully accomplished Identifies 5 or more key ideas that are clearly aligned with the article. Uses own words to clearly explain why each idea is important.	4 pts Accomplished Identifies 5 or more key ideas that are generally aligned with the article. Uses own words to provide a reason why most of these are important ideas.	3pts Partially accomplished Identifies 4 or more key ideas that are partially aligned with the article. Provides general reasons why these are important ideas.	2pts Need improvement Identifies 3 or more key ideas that are partially aligned with the article. Limited or no reason provided about why these are important ideas.	0 pts Missing/Unsatisfactory Does not identify multiple key ideas from the article.

APPLICATION OF KEY IDEAS Describe 2-3 ways to apply the ideas from the article to planning and/or teaching mathematics (TPE 3.5 I, 4.7 I, 7.8 I, 7.9 I, 8.3 I, 8.4 I, 8.5 I, 8.6 I, 8.7 I, 8.8 I)	5 pts Fully accomplished Describes 2-3 ways to apply ideas from the article to planning and/or teaching math. All applications are aligned with the article, math teaching, and are appropriate for young children.	4 pts Accomplished Describes 2-3 ways to apply ideas from the article to planning and/or teaching math. Some applications are aligned with the article, math teaching, and are appropriate for young children.	3pts Partially accomplished Describes 1-3 ways to apply the ideas from the article to planning and/or teaching; connection to math may be unclear or applications may not be appropriate for young children.	2pts Need improvement Describes at least 1 way to apply an idea from the article to planning and/or teaching; connections to math are unclear and applications are not appropriate for young children.	0 pts Missing/Unsatisfactory Does not describe how to apply ideas from the article to planning or teaching.
OTHER INFORMATION Provide additional information related to the article (TPE 3.5 I, 4.7 I, 7.8 I, 7.9 I, 8.3 I, 8.4 I, 8.5 I, 8.6 I, 8.7 I, 8.8 I)	2 pts Accomplished Provides additional information, connections or recommendations aligned with this journal article.		1 pt Needs improvement Provides additional information, connections or recommendations aligned with the article topic; connection to article is unclear.		0 pts Missing/Unsatisfactory Did not provide additional information related to the topic/article.

JOURNAL ARTICLE PRESENTATION	5 pts Fully accomplished	4 pts Accomplished	3pts Partially accomplished	2pts Need improvement	0 pts Missing/Unsatisfactory
Present the article to classmates in small groups or create a video presentation (if absent from class) (TPE 3.5 I, 4.7 I, 7.8 I, 7.9 I, 8.3 I, 8.4 I, 8.5 I, 8.6 I, 8.7 I, 8.8 I)	Brings completed presentation to class; presents to the small group; submits presentation on Canvas discussion board before class. OR (if absent) Submits a 3-5 minute video presenting all of the required elements for this assignment.	Brings completed presentation to class; presents to the small group; submits presentation on Canvas discussion board after class. OR (if absent) Submits a 3-5 minute video presenting some of the required elements for this assignment.	Brings mostly completed presentation to class; presents to the small group; finishes presentation and submits on Canvas after class. OR (if absent) Submits a short (<2.5 minutes) or long (>6 minutes) video with all/some of the required elements for this assignment.	Does not have a presentation to share during class; prepared to talk about the article during class and has to complete the presentation after class. OR (if absent) Submits a video presenting some general information about the article; not clearly connected to the assignment guidelines.	Is not prepared to share about the journal article in the small group discussions in class. OR (if absent) Does not submit a video with the assignment.

Integrating Mathematics and Literature (30 points) (TPE 1.4 P, 1.7 P, 3.1 P, 4.7 P, 6.5 P, 7.9 P, 8.1 P, 8.2 P, 8.4 P, 8.5 P, 8.8 P)

Instructions: Teacher candidates will select a developmentally appropriate children's picture book that is not an explicit math book. After providing a summary of the book, the teacher candidate will write 4 to 5 different story problems with multiple number choices connected to the book (such as characters, actions, events, object). Teacher candidates will identify the problem type for each story problem and anticipate how children may solve two of the problems. The assignment will include grade level mathematics content standards and the Standards for Mathematical Practice with an explanation about why

these standards are appropriate for their specific book and story problems. Teacher candidates will share the completed assignments with their classmates.

	Fully Accomplished	Accomplished	Partially Accomplished	Needs Improvement	Missing/Unsatisfactory
GRADE LEVEL and CHILDREN'S BOOK Identify grade level; Identify children's book in APA format; summary of book; why book would be interesting and relevant to children at the selected grade level. (TPE 1.4 P, 4.7 P, 7.9 P, 8.8 P)	4 pts Identifies grade level and book in APA format. Provides a clear summary of the book. Describes valid reasons why this book would be interesting and relevant to children at the selected grade.	3 pts Identifies grade level and book in APA format. Provides a summary of the book. Describes valid reasons why this book would be interesting and relevant to children in general.	2 pts Identifies title/author of book. Provides a brief summary of the book. Describes general reasons why this book would be interesting, but reasons may not be related to children or valid.	1 pt Identifies title/author of book. Provides a summary of the book. May include limited or unclear reasons why this book would be interesting to children.	0 pts Did not include identify the title and author of the book or provide a summary of the book.
STORY PROBLEMS and IDENTIFICATION Write 4 or 5 different story problems related to the children's book. Identify the problem type for each story. (TPE 1.7P, 4.7 P, 7.9 P, 8.1P, 8.2P)	5 pts Writes 4 or more story problems clearly related to the selected children's book; 4 different problem types are correctly identified.	4 pts Writes 4 or more story problems somewhat related to the selected book; 3 different problem types are correctly identified.	3pts Writes 3 or more problems somewhat related to the selected book; 2-3 different problem types, several errors with identifying problem types.	2pts Writes 2 or more story problems, but may not be related to the book; only 1-2 problem types; errors with identifying most problem types.	0 pts Missing OR writes 1 or more story problems not related to the book; errors with identifying all problem types.
NUMBER	5 pts	4 pts	3pts	2pts	0 pts

CHOICES FOR STORY PROBLEMS Include 4 different sets of number choices with different levels of difficulty ranging from easiest to hardest. (TPE 4.7 P, 8.1 P, 8.5 P)	Includes 4 different sets of numbers with varying levels of difficulty organized by difficulty level; all number choices are appropriate for the story situation and stated grade level.	Includes 4 different sets of numbers with varying levels of difficulty that may or may not be organized by difficulty level; most number choices are appropriate for the story situation and the grade level.	Includes 2-3 different sets of numbers with some varying levels of difficulty; some number choices are appropriate for the story situation and the grade level.	Includes 2-3 different sets of numbers that are at a similar level of difficulty; many number choices are not appropriate for the story situation and the grade level.	Provides just one set of numbers instead of multiple choices.
ANTICIPATING CHILDREN'S STRATEGIES PROBLEM #1 Three different strategies for solving one of the story problems; explanation of what children would be thinking and doing to solve the problem; identify each strategy. (TPE 8.2 P, 8.5 P)		3 pts Solves one story problem using 3 different strategies; clearly explains how students would solve the problem using each strategy; correctly identifies each strategy.	2 pts Solves one story problem using 3 different strategies; explains how students would solve the problem using each strategy, but may be unclear for 1-2 strategies; correctly identifies most strategies.	1 pt Solves one story problem using different strategies; unclear explanations about how students would solve the problem using each strategy; identifies 2 or more strategies incorrectly.	0 pts Does not solve the problem using multiple strategies and/or does not provide an explanation about how students would solve the problem.
ANTICIPATING CHILDREN'S STRATEGIES PROBLEM #2		3 pts Solves second story problem	2 pts Solves second story problem	1 pt Solves second story problem	0 pts Does not solve the second story

Three different strategies for solving one of the story problems; explanation of what children would be thinking and doing to solve the problem; identify each strategy. (TPE 8.2 P, 8.5 P)		using 3 different strategies; clearly explains how students would solve the problem using each strategy; correctly identifies each strategy.	using 3 different strategies; explains how students would solve the problem using each strategy, but may be unclear for 1-2 strategies; correctly identifies most strategies.	using different strategies; unclear explanations about how students would solve the problem using each strategy; identifies 2 or more strategies incorrectly.	problem using multiple strategies and/or does not provide an explanation about how students would solve the problem.
MATH CONTENT STANDARDS ALIGNMENT Identifies 1 or 2 math content standards from the selected grade level; provides explanation about how these standards are aligned with the book and story problem. (TPE 3.1 P, 4.7 P, 7.9 P, 8.1 P, 8.2 P)	5 pts Identifies 1 or 2 well-aligned math content standards from the focus grade level; provides a strong and valid justification why these standards are aligned with the book and story problems.	4 pts Identifies 1 or 2 aligned math content standards from the focus grade level; provides a generally valid justification why these standards are aligned with the book and story problems.	3pts Identifies 1 or 2 math content standards; provides limited justification why these standards are aligned; standards may be partially aligned with the book and story problems.	2pts Identifies 1 or 2 math content standards that are aligned or partially aligned with the book and story problem; justification why these standards are aligned is missing.	0 pts Math content standards are not clearly identified. OR Math content standards are not aligned with the book and story problems.
STANDARDS FOR MATHEMATICAL PRACTICE Identifies 1 or 2 Standards for	5 pts Identifies 1 or 2 well-aligned MP standards; provides a	4 pts Identifies 1 or 2 aligned MP standards; provides a generally valid	3pts Identifies 1 or 2 somewhat aligned MP standards; provides limited	2pts Identifies 1 or 2 MP standards that are somewhat aligned with	0 pts MP standards are not listed on the assignment. OR

Mathematical Practice (MP); provides explanation about how these MP standards could be addressed in a lesson using the book and problems. (TPE 3.1 P, 4.7 P, 8.1 P, 8.4 P, 8.8 P)	strong and valid justification why these MP standards could be addressed in a lesson using the book and story problems.	justification why these MP standards could be addressed in a lesson using the book and story problems.	justification why these standards are aligned; response may indicate limited or incorrect understanding of the MP standards.	the book and story problem; justification about why these MP standards could be addressed is missing.	Selected MP standards would not be aligned or appropriate for this content.
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Student Problem-Solving Interview (50 points) (TPE 1.4 A, 1.7 A, 3.1 P, 4.1 P, 5.2 A, 5.3 A, 6.1 A, 7.8 P, 8.2 A, 8.3 A, 8.4 A, 8.5 A, 8.6 A, 8.7 A)

Instructions: Teacher candidates will conduct two interviews with one student in TK-3rd grade to assess the child's mathematics knowledge on number and operations and mathematical thinking. The student does not need to be from your field placement class. The first interview protocol will be provided. Teacher candidates will write new problems for the second interview based on what was learned about the student's math knowledge and additional information they would like to find out. The product will contain (1) a table listing the interview problems and a brief description of the student's responses; (2) an analysis of the student's mathematics knowledge, citing specific evidence from the interview; (3) a short (2 to 4-minute) video clip from the interview or a description of two problems from the interview, for the purpose of highlighting questioning techniques; (4) a reflection on the interview process.

FIRST INTERVIEW SESSION (12 points)				
	4 pts Fully accomplished	3 pts Accomplished	2pts Partially accomplished	1 pt Needs improvement
Word Problem Identification and Answers (TPE 1.7 A, 5.2 A, 8.2 A)	Identifies problem types and correct answers accurately.	Identifies problem types and/or correct answers with minor errors.	Identifies problem types and/or correct answers with many errors.	Does not identify problem types or correct answers.

Word Problems and Number Selection (TPE 1.7 A, 5.2 A, , 8.2 A, 8.5 A)	Includes 4-5 word problems. Adapted problems to provide relevant situations and selected appropriate numbers for the ability and development of the child.	Includes at least 4 word problems. Selected appropriate numbers and/or evidence of adjusting the numbers for the ability and development of the child.	Includes at least 3 word problems. Selected numbers appear to be too easy or too difficult with limited effort to adjust the level of difficulty.	Includes less than 3 word problems. or Problems are inappropriate for the child's ability and developmental level.
Child's Solutions (Descriptions and Identifying Strategies) (TPE 1.7 A, 5.2, 5.3, 7.8 P, 8.3 A, 8.4 A, 8.6 A, 8.7 A)	Descriptions of responses are detailed and accurate; easy to understand the child's way of solving. Accurately identifies the child's strategies.	Descriptions of responses include most of the relevant details; somewhat easy to understand the child's way of solving. Identifies the strategies with minor inaccuracies.	Descriptions lack detail; difficult to understand the child's way of solving. Does not identify the strategies or has many inaccuracies.	Minimal descriptions and/or descriptions of responses are missing.

SECOND INTERVIEW SESSION (12 points)				
	4 pts Fully accomplished	3 pts Accomplished	2pts Partially accomplished	1 pt Needs improvement
Word Problems: Writing New Problems, Identification, and Answers (TPE 1.7 A, 5.2, 8.2 A)	Writes 3 new word problems with new contexts; at least 2 new problem types. Identifies problem types and correct answers accurately.	Writes 3 new word problems with new contexts; at least 1 new problem type. Identifies problem types and/or correct answers with minor errors.	Writes at least 2 new word problems with the same contexts as the first interview. Identifies problem types and/or correct answers with many errors.	Uses provided word problems instead of writing new problems OR writes new word problems but does not identify problem types or correct answers.

Selection of Problems: Justification (TPE 1.4 A, 1.7 A, 5.2, 8.2 A, 8.3 A, 8.5 A)	Explains why each problem was given based on context relevant to child, problem type, and specific numbers; describes what could be learned about the child's math knowledge; generally accurate and based on frameworks for children's thinking.	Effort to explain why each problem was given based on 2 to 3 aspects (relevant context for child, problem type, number choices); describes what could be learned about the child's math knowledge; somewhat accurate and somewhat based on frameworks for children's thinking.	Limited explanation about why each problem would be given, focusing primarily on one aspect (context relevant to child, problem type or number choices); reasoning may be inaccurate or not based on frameworks for children's thinking.	Does not explain why each problem would be given.
Child's solutions (Descriptions and Identifying Strategies) (TPE 1.7 A, 5.2, 5.3, 7.8 P , 8.2 A, 8.3 A, 8.4 A, 8.6 A, 8.7 A)	Descriptions of responses are detailed and accurate; easy to understand the child's way of solving. Accurately identifies the child's strategies.	Descriptions of responses include most of the relevant details; somewhat easy to understand the child's way of solving. Identifies the strategies with minor inaccuracies.	Descriptions lack detail; difficult to understand the child's way of solving. Does not identify the strategies or has many inaccuracies.	Minimal descriptions and/or descriptions of responses are missing.

ANALYSIS OF MATHEMATICAL KNOWLEDGE (12 points)				
	4 pts Fully accomplished	3 pts Accomplished	2pts Partially accomplished	1 pt Needs improvement
Analyzes Child's Math Knowledge	Accurately analyzes the child's math knowledge	Analyzes the child's math knowledge aligned with 2-3	Analyzes the child's math knowledge, but not aligned with	Analyzes the child's knowledge, but doesn't address the

(TPE 5.2 A, 5.3 A, 8.6 A)	aligned with 2-3 math standards and frameworks for children's thinking; provides multiple and specific evidence from the interview to support analysis; focuses primarily on the child's strengths, including math.	math standards and frameworks for children's thinking; provides some evidence from the interview to support analysis; part of the analysis is inaccurate; addresses the child's strengths.	the math standards; provides some evidence from the interview to support analysis; addresses at least one of the child's strengths.	child's mathematics knowledge; doesn't provide any evidence from the interview to support the analysis and/or only addresses the child's weaknesses in mathematics.
Connects to future learning (TPE 3.1 P, 4.1 P, 5.2 A, 8.2 A, 8.5 A)	Provides at least 2 specific areas for future math learning for the child; explains why the child should work on these aspects of math; suggestions are aligned with information learned from the interview, math content standards and are developmentally appropriate.	Provides at least 2 specific areas for future math learning for the child; explains why the child should work on these aspects of math; suggestions are partially aligned with information learned from the interview and math content standards; some ideas may not be developmentally appropriate.	Provides at least 1 specific area for future math learning for the child; limited explanation why the child should work on these aspects of math; suggestions are not well-aligned with information learned from the interview and/or math content standards.	Does not provide specific areas for future math learning. OR Provides a general suggestion for future learning without explaining why the child should work on this area; suggestions are unclear or inappropriate for the child's learning.
Application of Standards for Mathematical Practice (TPE 3.1 P, 8.2 A, 8.4 A)	Identifies 2 different MP Standards; provides specific examples of how the child was engaged in the MP	Identifies 2 different MP Standards; provides general examples of how the child was engaged in the MP	Identifies at least 1 MP Standard; provides examples of how the child was engaged in 1 or 2 MP during the interview; some	Does not identify MP Standards. OR Does not provide examples of how the child was engaged in the MP

	during the interview; examples clearly and accurately illustrate the application of the MP standard.	during the interview; examples generally illustrate the application of the MP standard.	examples reveal a limited or inaccurate understanding of the MP standard.	during the interview.
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ANALYSIS OF ROLE AS INTERVIEWER (14 points)				
	4 pts Fully accomplished	3 pts Accomplished	2pts Partially accomplished	1 pt Needs improvement
Reflection: Differentiating interview tasks (TPE 6.1 A, 8.5 A)		Explains how tasks or numbers were adjusted for the child; justifies why these changes were appropriate for the child; suggests adjustments that are realistic and appropriate for the child.	Some evidence or explanation that tasks or numbers were adjusted for the child; limited justification about why these changes were appropriate; suggests possible adjustments; some examples of differentiation are not clear or appropriate.	Evidence or explanation of making adjustments for the child is missing. OR Examples and suggestions for differentiating are not clear or appropriate.

Reflection: Creating secure environment (TPE 6.1 A, 8.3 A)		Provides specific and appropriate evidence of steps from the interview for creating a secure environment and fostering the child's positive attitude towards math; explains how these steps impacted the child; suggests other appropriate ways to create a secure learning environment.	Provides some appropriate, but general examples from the interview and/or for the future for creating a secure environment and fostering the child's positive attitude towards math.	Explanation about how to create a secure learning environment is missing. OR Examples for creating a secure environment are unclear or are not appropriate.
Reflection: Analyzing Probing Questions (TPE 1.7 A, 6.1 A, 7.8 P, 8.6 A, 8.7 A)	Evidence of using appropriate questions to clarify strategy and to probe the child's thinking. Critically analyzes and reflects on the effectiveness of questions to understand student's thinking.	Evidence of using some questions to clarify and to probe the child's thinking. Some analysis and reflection on the effectiveness of questions to understand student's thinking.	Limited evidence of using questions to clarify and/or probe the child's thinking. Limited reflection on the effectiveness of questions asked.	Does not provide evidence of asking questions to probe the child's thinking. and/or Does not reflect on the effectiveness of questions asked.

Reflection: Overall experience, strengths, adjustments, own learning (TPE 6.1 A)	Thoughtful and reflective about their experience with interviewing and analyzing the child's math knowledge; identifies specific examples of strengths from the interview and provides realistic and appropriate suggestions that would improve future interviews with strong and clear justification.	Reflective about their experience with interviewing and analyzing the child's math knowledge; identifies general examples of strengths from the interview and provides appropriate suggestions that might improve future interviews with limited justification.	Somewhat reflective about their experience with interviewing and analyzing the child's math knowledge; examples of strengths and suggestions for future interviews are not related to the interview, are very general, or would not be appropriate adjustments.	Reflections and suggestions are unrelated to the experience from the interview.
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Final Project: Mathematics Centers Unit (75 points) (TPE 1.4 A, 1.5 P, 1.7 P, 3.1 A, 3.2 A, 3.5 P, 3.6 P, 3.7 P, 4.1 A, 4.2 P, 4.7 P, 5.2 P, 5.3 P, 6.5 P, 7.7 P, 8.1 A, 8.2 A, 8.3 P, 8.4 A, 8.5 A, 8.6 A, 8.8 PA)

Instructions: Teacher candidates will work in small groups to plan mathematics centers on an assigned mathematics content area (geometry, measurement, data analysis, or algebra and functions). The group will find, adapt and/or create at least 4 different centers related to the math content standards for 2 grade levels. One center must be teacher-led and one must be a self-initiated play-based center. All centers must include hands-on tools; one center must include a **developmentally appropriate instructional technology tool for children to be engaged in mathematics**. Provide the following information for each center: description of the activity, materials needed, mathematics content standards, Standards for Mathematical Practice, strategies for differentiating the center for students with different learning needs, teacher questions or prompts for engaging students in mathematical discussions and to build connections, and how to assess students' learning in the center. For the school-home connection, the group will create a letter or flyer that could be shared with families/guardians about their assigned mathematics topic and provide specific suggestions about how the parents/guardians can extend and support their child's mathematics learning at home. Each group will present their completed

project in class and provide an opportunity for their classmates to engage in some of the center activities during the presentation.

	Fully Accomplished	Accomplished	Partially Accomplished	Needs Improvement	Missing/Unsatisfactory
MATH CENTER #1 MATH STANDARDS and CONTENT Math content in the center is accurate and aligned with the listed math content standards for one of the two grade levels and Standards for Mathematical Practice. Viable assessment plan aligned with the math standards. (TPE 3.1 A, 4.7 P, 5.2 P, 5.3 P, 8.1 A, 8.2 A, 8.4 A)		3 pts Accurate information about the math content; identifies the math content standard, MP Standards, and assessment that are well-aligned with the selected math topic; planned assessment is realistic and appropriate for the young child.	2 pts Most information is mathematically accurate; identifies the math content standard, MP Standards, and assessment that are partially aligned with the selected math topic; planned assessment is somewhat realistic and/or appropriate.	1 pt Most of the mathematics is inaccurate; the math content standard and/or MP Standards are not aligned with the selected math content area; assessment plan is unclear or not appropriate for assessing young child or the mathematics content.	0 pts Missing the math standards: the math content standard and/or the MP standards; assessment plan is missing.

	Fully Accomplished	Accomplished	Partially Accomplished	Needs Improvement	Missing/Unsatisfactory
MATH CENTER #1 CENTER ACTIVITY (TEACHER-LED) Center activity description includes role of the teacher, hands-on materials, (or educational technology for 1 center) and opportunities for children to engage in critical thinking and discussions using academic math language. Materials listed for activities. Includes questions to pose to the children. (TPE 1.7 P, 3.5 P, 3.6 P, 3.7 P, 4.1 A, 4.7 P, 7.7 P, 8.2 A, 8.3 P, 8.5 A, 8.6 A, 8.8 P)	4 pts Clear description about the center and the role of the teacher; hands-on materials and activities to support learning the math topic are integrated in the center; includes a variety of higher-order questions for teacher to pose; multiple opportunities for children to use academic math language.	3 pts Description about the center and the role of the teacher; includes some hands-on materials and activities to support learning the math topic; includes a few higher-order questions for teacher to pose; limited opportunities for children to use academic math language.	2 pts Description about the center is somewhat unclear; includes some hands-on materials or activities, but they are not appropriate for learning the math topic; includes only lower-level questions for teacher to pose; academic math language used mostly by the teacher and not the children.	1 pt Brief description about the center; does not include hands-on materials or activities to support learning the math topic; questions for teachers to pose are not appropriate or are not related to math topic; opportunities for children to learn math academic language are missing.	0 pts Missing OR activities for the math center activities do not support learning of mathematics.

	Fully Accomplished	Accomplished	Partially Accomplished	Needs Improvement	Missing/Unsatisfactory
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MATH CENTER #1 ACCESSIBILITY Math centers are developmentally appropriate for the children's age and developmental needs; includes UDL principles, relevant contexts, differentiation strategies, and opportunities to provide support for the children. (TPE 1.4 A, 3.5 P, 4.1 A, 4.7 P, 8.1 A, 8.5 A)		3 pts Developmentally appropriate center activities that can be differentiated to provide support based on the child's levels and needs; identify several specific UDL strategies for the center; connect learning to meaningful and relevant contexts for children.	2 pts Center activities are mostly developmentally appropriate; limited differentiation or suggestions for supporting children with different needs; suggest some general UDL strategies; some connection to relevant contexts.	1 pt Center activities are generally developmentally appropriate based on the grade level, but does not provide suggestions for differentiation, supporting children with different needs, or using UDL strategies; connection to relevant contexts is missing.	0 pts Center activities are not developmentally appropriate for the children's age and developmental needs.
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MATH CENTER #2 MATH STANDARDS and CONTENT Math content in the center is accurate and aligned with the listed math content standards for one of the two grade levels and Standards for Mathematical Practice. Viable assessment plan aligned with the math standards. (TPE 3.1 A, 4.7 P, 5.2 P, 5.3 P, 8.1 A, 8.2 A, 8.4 A)		3 pts Accurate information about the math content; identifies the math content standard, MP Standards, and assessment that are well-aligned with the selected math topic; planned assessment is realistic and appropriate for the young child.	2 pts Most information is mathematically accurate; identifies the math content standard, MP Standards, and assessment that are partially aligned with the selected math topic; planned assessment is somewhat realistic and/or appropriate.	1 pt Most of the mathematics is inaccurate; the math content standard and/or MP Standards are not aligned with the selected math content area; assessment plan is unclear or not appropriate for assessing young child or the mathematics content.	0 pts Missing the math standards: the math content standard and/or the MP standards; assessment plan is missing.
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MATH CENTER #2 CENTER ACTIVITY (CHILD-LED)	4 pts Clear description of a self-initiated play-based center; hands-on materials and activities to support learning the math topic are integrated in the center; includes a variety of higher-order questions for teacher to pose; multiple opportunities for children to use academic math language.	3 pts General description of the play-based center; includes some hands-on materials and activities to support learning the math topic; includes a few higher-order questions for teacher to pose; limited opportunities for children to use academic math language.	2 pts Description about the center is partially unclear, but has some play-based aspects; includes some hands-on materials or activities, but they are not appropriate for learning the math topic; includes only lower-level questions for teacher to pose; academic math language used mostly by the teacher and not the children.	1 pt Description about the center does not include play-based aspects; does not include hands-on materials or activities to support learning the math topic; questions for teachers to pose are not appropriate or are not related to math topic; opportunities for children to learn math academic language are missing.	0 pts Missing OR activities for the math center activities do not support learning of mathematics .
Description of the self-initiated play-based center with hands-on materials, (or educational technology for 1 center) and opportunities for children to engage in critical thinking and discussions using academic math language. Materials listed for activities. Includes questions to pose to the children. (TPE 1.7 P, 3.5 P, 4.1 A, 4.7 P, 7.7 P, 8.2 A, 8.3 P, 8.5 A, 8.6 A, 8.8 P)					

MATH CENTER #2 ACCESSIBILITY Math centers are developmentally appropriate for the children's age and developmental needs; includes UDL principles, relevant contexts, differentiation strategies, and opportunities to provide support for the children. (TPE 1.4 A, 3.5 P, 4.1 A, 4.7 P, 8.1 A, 8.5 A)		3 pts Developmentally appropriate center activities that can be differentiated to provide support based on the child's levels and needs; identify several specific UDL strategies for the center; connect learning to meaningful and relevant contexts for children.	2 pts Center activities are mostly developmentally appropriate; limited differentiation or suggestions for supporting children with different needs; suggest some general UDL strategies; some connection to relevant contexts.	1 pt Center activities are generally developmentally appropriate based on the grade level, but does not provide suggestions for differentiation, supporting children with different needs, or using UDL strategies; connection to relevant contexts is missing.	0 pts Center activities are not developmentally appropriate for the children's age and developmental needs.
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MATH CENTER #3 MATH STANDARDS and CONTENT Math content in the center is accurate and aligned with the listed math content standards for one of the two grade levels and Standards for Mathematical Practice. Viable assessment plan aligned with the math standards. (TPE 3.1 A, 4.7 P, 5.2 P, 5.3 P, 8.1 A, 8.2 A, 8.4 A)		3 pts Accurate information about the math content; identifies the math content standard, MP Standards, and assessment that are well-aligned with the selected math topic; planned assessment is realistic and appropriate for the young child.	2 pts Most information is mathematically accurate; identifies the math content standard, MP Standards, and assessment that are partially aligned with the selected math topic; planned assessment is somewhat realistic and/or appropriate.	1 pt Most of the mathematics is inaccurate; the math content standard and/or MP Standards are not aligned with the selected math content area; assessment plan is unclear or not appropriate for assessing young child or the mathematics content.	0 pts Missing the math standards: the math content standard and/or the MP standards; assessment plan is missing.
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MATH CENTER #3 CENTER ACTIVITY (TEACHER OR CHILD-LED)	4 pts Clear description about the teacher-led or play-based center; hands-on materials and activities to support learning the math topic are integrated in the center; includes a variety of higher-order questions for teacher to pose; multiple opportunities for children to use academic math language.	3 pts General description about the teacher-led or play-based center; includes some hands-on materials and activities to support learning the math topic; includes a few higher-order questions for teacher to pose; limited opportunities for children to use academic math language.	2 pts Description about the teacher-led or play-based center is partially unclear; includes some hands-on materials or activities, but they are not appropriate for learning the math topic; includes only lower-level questions for teacher to pose; academic math language used mostly by the teacher and not the children.	1 pt Brief description about the center; does not include hands-on materials or activities to support learning the selected math topic; questions for teachers to pose are not appropriate or are not related to math topic; opportunities for children to learn math academic language are missing.	0 pts Missing OR activities for the math center activities do not support learning of mathematics .
Description of the teacher-led or self-initiated play-based center activity, hands-on materials, (or educational technology for 1 center) and opportunities for children to engage in critical thinking and discussions using academic math language. Materials listed for activities. Includes questions to pose to the children. (TPE 1.7 P, 3.5 P, 4.1 A, 4.7 P, 7.7 P, 8.2 A, 8.3 P, 8.5 A, 8.6 A, 8.8 P)					

MATH CENTER #3 ACCESSIBILITY Math centers are developmentally appropriate for the children's age and developmental needs; includes UDL principles, relevant contexts, differentiation strategies, and opportunities to provide support for the children. (TPE 1.4 A, 3.5 P, 4.1 A, 4.7 P, 8.1 A, 8.5 A)		3 pts Developmentally appropriate center activities that can be differentiated to provide support based on the child's levels and needs; identify several specific UDL strategies for the center; connect learning to meaningful and relevant contexts for children.	2 pts Center activities are mostly developmentally appropriate; limited differentiation or suggestions for supporting children with different needs; suggest some general UDL strategies; some connection to relevant contexts.	1 pt Center activities are generally developmentally appropriate based on the grade level, but does not provide suggestions for differentiation, supporting children with different needs, or using UDL strategies; connection to relevant contexts is missing.	0 pts Center activities are not developmentally appropriate for the children's age and developmental needs.
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MATH CENTER #4 MATH STANDARDS and CONTENT Math content in the center is accurate and aligned with the listed math content standards for one of the two grade levels and Standards for Mathematical Practice. Viable assessment plan aligned with the math standards. (TPE 3.1 A, 4.7 P, 5.2 P, 5.3 P, 8.1 A, 8.2 A, 8.4 A)		3 pts Accurate information about the math content; identifies the math content standard, MP Standards, and assessment that are well-aligned with the selected math topic; planned assessment is realistic and appropriate for the young child.	2 pts Most information is mathematically accurate; identifies the math content standard, MP Standards, and assessment that are partially aligned with the selected math topic; planned assessment is somewhat realistic and/or appropriate.	1 pt Most of the mathematics is inaccurate; the math content standard and/or MP Standards are not aligned with the selected math content area; assessment plan is unclear or not appropriate for assessing young child or the mathematics content.	0 pts Missing the math standards: the math content standard and/or the MP standards; assessment plan is missing.
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MATH CENTER #4 CENTER ACTIVITY (TEACHER OR CHILD-LED)	4 pts Clear description about the teacher-led or play-based center; hands-on materials and activities to support learning the math topic are integrated in the center; includes a variety of higher-order questions for teacher to pose; multiple opportunities for children to use academic math language.	3 pts General description about the teacher-led or play-based center; includes some hands-on materials and activities to support learning the math topic; includes a few higher-order questions for teacher to pose; limited opportunities for children to use academic math language.	2 pts Description about the teacher-led or play-based center is partially unclear; includes some hands-on materials or activities, but they are not appropriate for learning the math topic; includes only lower-level questions for teacher to pose; academic math language used mostly by the teacher and not the children.	1 pt Brief description about the center; does not include hands-on materials or activities to support learning the selected math topic; questions for teachers to pose are not appropriate or are not related to math topic; opportunities for children to learn math academic language are missing.	0 pts Missing OR activities for the math center activities do not support learning of mathematics .
Description of the teacher-led or self-initiated play-based center activity, hands-on materials, (or educational technology for 1 center) and opportunities for children to engage in critical thinking and discussions using academic math language. Materials listed for activities. Includes questions to pose to the children. (TPE 1.7 P, 3.5 P, 4.1 A, 4.7 P, 7.7 P, 8.2 A, 8.3 P, 8.5 A, 8.6 A, 8.8 P)					

MATH CENTER #4 ACCESSIBILITY Math centers are developmentally appropriate for the children's age and developmental needs; includes UDL principles, relevant contexts, differentiation strategies, and opportunities to provide support for the children. (TPE 1.4 A, 3.5 P, 4.1 A, 4.7 P, 8.1 A, 8.5 A)		3 pts Developmentally appropriate center activities that can be differentiated to provide support based on the child's levels and needs; identify several specific UDL strategies for the center; connect learning to meaningful and relevant contexts for children.	2 pts Center activities are mostly developmentally appropriate; limited differentiation or suggestions for supporting children with different needs; suggest some general UDL strategies; some connection to relevant contexts.	1 pt Center activities are generally developmentally appropriate based on the grade level, but does not provide suggestions for differentiation, supporting children with different needs, or using UDL strategies; connection to relevant contexts is missing.	0 pts Center activities are not developmentally appropriate for the children's age and developmental needs.
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SCHOOL-HOME CONNECTION MATH CONTENT	5 pts	4 pts	3pts	2pts	0 pts
Created product is geared towards families and includes information, and visuals (except for podcasts), and recommended community and/or online resources aligned with math content standards and describes how the math is used at home and the community. (TPE 1.4 A, 3.1 A, 8.8 A)	Provides accurate math information, vocabulary, visuals and resources aligned with content standards so families can understand ideas; math examples from home and community are accurate and relevant to children and their families.	Provides accurate math information, vocabulary, visuals and resources aligned with standards; it may be difficult for families to understand; math examples from home and community are somewhat relevant to children and their families.	Provides math information, vocabulary, visuals and/or resources that are partially aligned with standards; some information may be inaccurate or unclear; math examples from home and/or community are not relevant to most children and their families.	Math information, vocabulary, visuals and/or resources are not aligned with math standards; some information is inaccurate; examples from home and/or community are missing or not connected to the math content.	Missing OR information provided is not related to mathematics content.

SCHOOL-HOME CONNECTION PARENT ROLE	5 pts Includes specific culturally responsive activities and discussion ideas for families to appropriately support a young child's learning for the math topic; using home language is encouraged; provides contact information and an invitation to collaborate with the teacher.	4 pts Includes some culturally responsive activities and discussion ideas for families to support the child's learning for the math topic; most activities are appropriate for a young child; may encourage home language; provides contact information.	3pts Includes activities and/or discussion ideas to support the child's learning but not aligned well with the selected math topic OR most activities are not culturally responsive or development ally appropriate; provides contact information.	2pts Includes activities for families to support the child's learning but not for the selected math content; may or may not provide contact information.	0 pts Missing OR suggested activities are not relevant and/or appropriate for supporting the child's math learning.
Created product provides culturally responsive and developmentally appropriate suggestions for engagement with family activities, math and discussions; information about how families can collaborate and contact the teacher. (TPE 1.5 P, 3.1 A, 3.2 A, 7.7 P, 8.2 A, 8.8 A)					

GROUP PRESENTATIONS CONTENT Provides information about the math content aligned with grade level standards; includes information about the math centers and home-school document. (TPE 3.1 A, 4.7 P, 6.5 P)	5 pts Provides information about their group's project including math centers and the home-school document; information is mathematically accurate and clearly aligned with math standards.	4 pts Provides information about their group's project including math centers and the home-school document; math information is mostly accurate and generally aligned with math standards.	3pts Provides information about the math centers and/or the home-school document; some of the information is mathematically inaccurate and/or not well-aligned with math standards.	2pts Provides information about the math centers and/or the home-school document; most information is inaccurate and/or not connected to the math standards.	0 pts Information provided is not related to the math center or the home-school document.
GROUP PRESENTATIONS ENGAGEMENT Organized presentation and all group members participate in the presentation; engage classmates in some hands-on math center activities and through other means (e.g. discussions, partner talk, visuals, questions). (TPE 6.5 P)	5 pts All members are involved in a well-planned and organized presentation; includes time for classmates to engage in 2 or more math center activities; use additional engagement strategies so classmates are usually actively participating, thinking, and learning.	4 pts All members are involved in the presentation that is mostly organized; includes time for classmates to engage in 2 or more math center activities; use additional engagement techniques so classmates are sometimes participating and learning.	3pts All or most members are involved in a presentation that is partially disorganized; uses limited engagement techniques such as providing the activity from 1 or more math centers so classmates are occasionally participating.	2pts Few members are involved in the presentation and/or it is a mostly / fully disorganized presentation; engagement techniques are missing or very limited; participants are mostly just watching and listening to the presentation.	0 pts One group member is leading all or most of the presentation;

	Accomplished 3pts	Partially Accomplished 2pts	Needs Improvement 1pt	Missing/ Unsatisfactory 0pts
REFLECTION #1: RESOURCES What resources did you find most helpful for learning about and teaching this topic? Why were these resources most helpful to you? (TPE 3.1 A, 4.1 A, 8.1 A, 8.2 A)	Reflects on resources; identifies specific resources that were helpful for learning about and teaching the specific math topic; provides personal reasons why these resources were useful to the teacher candidate.	Reflects on resources; identifies general resources that were helpful for learning about and teaching the specific math topic; provides some reasons why these resources are useful in general, but might not provide personal reasons.	Reflects on using resources for learning about and teaching a math topic in general, but doesn't identify resources that were helpful to the teacher candidate; provides few or no reasons why resources are useful.	Did not reflect on using resources for learning about and/or teaching a math topic.
REFLECTION #2: ENGAGEMENT As you were planning the mathematics centers, what did you learn about creating engaging and meaningful learning opportunities for young students? (TPE 1.4 A, 4.2 P, 8.2 A)	Reflects on creating engaging and meaningful learning opportunities for young students; connections shared are developmentally appropriate for young children and support learning math content.	Reflects on creating engaging and meaningful learning opportunities for students in general; connections are mostly appropriate for young children and generally support learning math content.	Limited reflection on creating engaging and/or meaningful learning opportunities for students; connections may not be appropriate for young children and/or may not support learning math content.	Did not reflect on creating engaging and/or meaningful learning opportunities for students.

	Accomplished 3pts	Partially Accomplished 2pts	Needs Improvement 1pt	Missing/ Unsatisfactory 0pts
REFLECTION #3: STANDARDS How did the mathematics content standards and Standards for Mathematical Practice support your group's planning and decision-making? (TPE 3.1 A, 3.2 A, 4.7 P, 6.5 P, 8.1 A, 8.2 A, 8.4 A)	Clearly provides several specific examples how the group used the math content standards and the Standards for Mathematical Practice for co-planning and making decisions when developing the math centers.	Provides some specific examples how the group used the math content standards or the Standards for Mathematical Practice for co-planning and making decisions when developing the math centers.	Provides general examples how the group or individuals used the math content standards or the Standards for Mathematical Practice for planning and/or making decisions when developing the math centers.	Did not reflect on how the math content standards or the Standards for Mathematical Practice were connected to planning the unit.

REFLECTION #4: HOME-SCHOOL CONNECTIONS How did this assignment help you think about how to build connections between school and home? What are some other ways you would want to build a collaborative partnership with families in the future? (TPE 1.5 P, 8.8 P)	Reflects on how to build connections between school and home, specifically related to mathematics content; provides realistic and meaningful ways to build a positive collaboration with families to support children's mathematics learning in the future.	Reflects on how to build connections between school and home, partially related to mathematics content; provides realistic ways to build a positive collaboration with families to support children's learning in the future.	Reflects on how to build connections between school and home to support children's learning in general; provides limited or impractical ways to build a positive collaboration with families to support children's learning in the future.	Did not reflect on building connections between home and school or a collaborative partnership with families.
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REFLECTION #5: GROUP COLLABORATION Describe how you collaborated with your group, effectively communicated, and contributed to the group project. Do you feel like you contributed in an equitable way to your group? Why or why not? (TPE 6.5 P)	Clearly and reflectively describes how the teacher candidate effectively communicated and collaborated with their group for this project; explains how and why they were contributing to the group in an equitable way.	Reflectively describes how the teacher candidate communicated and collaborated with their group for this project; explains how and why they were not contributing to the group in an equitable way.	Generally describes how the group communicated and/or collaborated with each other for this project; explains how they and/or other group members were not contributing to the group in an equitable way.	Did not describe how the group was communicate and/or collaborated with each other on this project.
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Attendance: Class sessions will provide an opportunity for you to engage in learning connected to course readings and assignments. Teacher candidates are expected to: engage in whole class and small group activities and discussions; be sensitive to people's beliefs and feelings; maintain a positive attitude; and conduct their actions in a respectful, professional manner. If we need to meet on Zoom for synchronous class sessions, find a place to work where you will be able to focus on the class so you can be mentally engaged in learning and participating in class. If you will be absent from a class session, notify the instructor via email. It is your responsibility to check information provided on Canvas about the class, get notes from classmates, and contact the instructor if you need additional assistance. In the case of authorized absences due to university-sponsored activities, students should expect to submit their work to the instructor on or before the due date, or as arranged with the instructor. If you are absent from multiple class sessions, your final grade in this course may be negatively impacted. When a student is absent for an extended time period, a viable make-up plan may not be feasible. In these circumstances, other options such as dropping the class for a serious and compelling reason or withdrawal from the university may be appropriate. Please see [APM 232: Policy on Student Absences](#).

Grading Policy:

Detailed directions and materials for the course assignments (including scoring sheets and rubrics) will be provided on Canvas. The course is organized by weekly class session modules with detailed information and resources provided for each week. These modules will be available the day before our weekly class session. Below the weekly modules, directions and materials for the major course assignments will be provided. The assignment modules will be available before the assignment is introduced in class.

Check the Canvas course at least 2 to 3 times per week to prepare for class sessions, get assignments (including weekly reading homework), and submit completed work.

A grade of _ or better is required to pass this class.

Table 1 Assignment and Point Distribution

Assignment	Points/Percent
Class Attendance & Participation	70
Homework/Asynchronous Activities	80-100
Counting and Early Number Interviews	40
Journal Article Presentations	20
Integrating Mathematics and Literature	30
Student Interview	50
Math Centers Unit	75
Total	385

Table 2 Distribution of Letter Grade to Percent and Points

Letter Grade	Percent	Points
A	90-100%	347-385
B	80-89%	308-346
C	70-79%	270-307
D	60-69%	231-269
F	59% & below	0-230

Course Policies & Safety Issues

Collaborative Work: There will be many opportunities to work collaboratively with your classmates during class sessions, on homework/asynchronous activities, and for specific assignments. When participating in group work, teacher candidates are

expected to come prepared to work with their group, include all group members, share the responsibilities for completing tasks, be aware of differing opinions and ideas, treat others respectfully, and compromise as needed. If you have members in your group who are not contributing to the work or learning, please speak with the instructor.

Diversity Statement: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups

Technology Use: It will be helpful to have your computer available for use during class sessions. Please make sure that you have the electronic course materials needed for class and other tabs/apps are closed or minimized so they don't distract you from participating and learning during class time. Please turn your cell phone to silent or vibrate mode during class time. Out of respect for everyone's learning experience, cell phones and computers should not be used for calls, texting, gaming, or social media during class time. Please step out of the classroom if you need a few minutes to address a personal issue on your phone.

Audio and Video Recording: Audio and video recordings of class lectures are prohibited unless I give you explicit permission to do it. Students with an official letter from the Services for Students with Disabilities office may record the class if SSD has approved that service.

Confidentiality: The privacy and identity of children and their families should be protected in all written materials. Therefore, when writing about a child, please use a pseudonym or initials instead of the child's real name. For example, you may write, "for the purpose of this study, I will refer to the observed student as *Child A*."

Revising assignments: You may revise and resubmit course assignments to improve your overall grade in the course. If you want to earn an A in the course, you should revise and resubmit any of the major course assignments with a score less than 80%. If you want to earn a B in the course, you should revise and resubmit major course assignments with a score less than 70%. If you are just at the borderline between two letter grades at the end of the semester, your grades on the major assignments will be taken into consideration for your final grade.

The revised assignments should be submitted within 2 weeks after receiving your graded assignment. All revised work must be submitted by the last day of instruction for the semester. *The Mathematics Centers Unit (final project) cannot be revised.*

Late assignments: Assignments are due by the end of the day on the date listed in the syllabus. If you cannot turn in an assignment by the due date, you may request an extension by emailing the instructor. Late assignments without prior instructor notification/approval can earn up 90% of the full score (calculated by taking 90% of the grade if the paper had been submitted on time). All late work must be submitted by the last day of instruction for the semester. Late work due to an absence is subject to the policies listed by APM 232. Please refer to APM 232 for "Make-Up Work Policy".

The following sections regarding COVID are subject to change given changing circumstances on-campus and in the community. Please check the [COVID website](#) for the most up-to-date information

Vaccination: The California State University system's COVID-19 vaccination requirement remains unchanged and is in effect for fall 2023. All students, faculty and staff are required to have a COVID-19 vaccination and booster when eligible on file in order to access campus facilities and programs and participate in any campus-sponsored in-person activities on or off-campus. As previously announced, the CSU's COVID-19 vaccination policy allows students and employees to seek exemptions on medical and religious grounds. As a reminder, you are eligible for a booster five (5) months after receiving a final dose of the Pfizer or Moderna vaccine; or two (2) months after receiving a Johnson & Johnson vaccine.

Face Coverings:

Based on updated guidance from public health experts, Fresno State highly recommends that all students, faculty and staff, regardless of vaccination status, wear a surgical grade or KN95 mask indoors. Free surgical grade masks are available at the Student Health and Counseling Center, Atrium, University Warehouse, Student Recreation Center, Library and the University Student Union (USU). ***Faculty will continue to have the discretion to require face coverings for their in-person classes as they evaluate the health and safety needs of their individual classroom environments.***

Testing:

Our COVID-19 Testing Center will continue to be open and available this Fall at no cost for our entire campus community. The Testing Center will be located on the main level of the USU and will have saliva PCR tests available to retrieve from a vending machine Monday through Friday. Testing is available for all students and employees.

Please remember that the same student conduct rules that are used for in-person classroom instruction also apply for virtual/online classrooms. Students are prohibited

from any unauthorized recording, dissemination, or publication of any academic presentation, including any online classroom instruction, for any commercial purpose. In addition, students may not record or use virtual/online instruction in any manner that would violate copyright law. Students are to use all online/virtual instruction exclusively for the educational purpose of the online class in which the instruction is being provided. Students may not re-record any online recordings or post any online recordings in any other format (e.g., electronic, video, social media, audio recording, web page, internet, hard paper copy, etc.) for any purpose without the explicit written permission of the faculty member providing the instruction. Exceptions for disability-related accommodations will be addressed by Student Disability Services working in conjunction with the student and faculty member.

Plagiarism Detection: The campus subscribes to Turnitin, a plagiarism prevention service, through Canvas. You will need to submit written assignments to Turnitin. Student work will be used for plagiarism detection and for no other purpose. The student may indicate in writing to the instructor that he/she refuses to participate in the plagiarism detection process, in which case the instructor can use other electronic means to verify the originality of their work. Turnitin Originality Reports WILL/WILL NOT* be available for your viewing. ***FACULTY: Please choose for your course WILL or WILL NOT be available for your viewing.**

Dispute Resolution: If there are questions or concerns that you have about this course that you and I are not able to resolve, please feel free to contact the chair of the department to discuss the matter:

DEPARTMENT CONTACT

Chair's Name: Dr. Imelda Basurto

Department Name: Literacy, Early Childhood, Bilingual, and Special Education (LEBSE)

Chair's Email: ibasurto@mail.fresnostate.edu

Department Phone Number: (559) 278-0285

Intellectual Property: All course materials, including but not limited to the syllabus, readings, quiz questions, exam questions, and assignments prepared by the instructor are property of the instructor and University. Students are prohibited from posting course materials online (e.g., Course Hero) and from selling course materials to or being paid for providing materials to any person or commercial firm without the express written permission of the professor teaching this course. Doing so will constitute both an academic integrity violation and a copyright violation. Audio and video recordings of class lectures as well as images of chat or messages shared during course sessions are prohibited unless I give you explicit permission in advance. Students with an official letter from the Services for Students with Disabilities office may record the class if SSD has approved that service. Otherwise, recordings of lectures are included in

the intellectual property notice described above. These provisions exist regardless of the modality of the course. That is, they apply to in-person, hybrid, and online courses.

University Policies

Students with Disabilities: Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities in the Henry Madden Library, Room 1202 (278-2811).

The following University policies can be found on the web at:

- [Adding and Dropping Classes](#)
- [Cheating and Plagiarism](#)
- [Computers](#)
- [Copyright Policy](#)
- [Disruptive Classroom Behavior](#)
- [Honor Code](#)
- [Title IX](#)

Fresno State is committed to fostering a safe, productive learning environment for all students. Title IX and CSU policy prohibit discrimination on the basis of sex, which includes sexual harassment, domestic and dating violence, sexual assault, sexual exploitation, and stalking. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to access appropriate resources so they can get the support they need and deserve.

As an instructor, I have a mandatory reporting responsibility as a part of my role. It is my goal that you feel comfortable sharing information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep the information you share private to the greatest extent possible. However, I am required to report information I receive regarding sexual misconduct or information about a crime that may have occurred during your time at Fresno State.

Students can report incidents of alleged sexual misconduct to either or both of the following resources:

Title IX and Clery Compliance Office | fresnostate.edu/titleix | 559.278.5003

Fresno State Police Department | fresnostate.edu/police | 559.278.8400

Students can access confidential support from two separate resources on campus:

Survivor Advocates | fresnostate.edu/survivoradvocate | 559.278.6796

Counseling Services | studentaffairs.fresnostate.edu/health/counseling | 559.278.2734

If you have concerns and you are unsure who to contact, please visit the Concern & Action Guide.

University Services

The following University services can be found on the web at:

- [Associated Students, Inc.](#)
- [Students with Disabilities](#)
- [Dream Success Center](#)
- [Library](#)
- [Learning Center Information](#)
- [Student Health and Counseling Center](#)
- [SupportNet](#)
- [Survivor Advocacy](#)
- [Writing Center](#)

Subject to Change Statement

THIS SYLLABUS AND SCHEDULE ARE SUBJECT TO CHANGE IN THE EVENT OF EXTENUATING CIRCUMSTANCES.

Course Calendar & Tentative Course Schedule²

Week/ Date	Topic	Reading Assignments (complete after class meeting)	Major Assignments DUE DATES
0	Course Overview Module Syllabus and Surveys TPE 6.2 I		
1	Beliefs about mathematics and learning TPE 1.4 I, 1.7 I, 3.6 I, 4.1 I, 5.2 I, 6.1 I, 8.3 I, 8.6 I	Preschool Learning Foundations reading, pp. 143-159. First Steps to Math Success (link) Math Dispositions TPE 3.1 I, 8.1 I	

² The course schedule is subject to change in the event of extenuating circumstances

Week/ Date	Topic	Reading Assignments (complete after class meeting)	Major Assignments DUE DATES
2	Preschool Learning Foundations Asset-Based Learning Counting principles; assessing and developing counting skills Counting Collections activity TPE 1.4 I, 1.7 I, 3.1 I, 3.2 I, 3.5 I, 4.7 I, 3.6 I, 4.1 I, 5.2 I, 5.3 I, 5.7 I, 6.1 I, 7.7 P, 8.1 I, 8.2 I, 8.3 I, 8.6 I, 8.8 I	Common Core State Standards videos & reading TCM article: "Counting Collections" (link) TPE 1.4 I, 3.1 I, 3.6 I, 4.7 P, 8.1 I, 8.4 I	
3	Addition and subtraction word problem types Common Core State Standards & Standards for Mathematical Practice Intro to Site Visitation Project (Teaching Performance Assessment) TPE 1.4 I, 1.7 I, 3.1 I, 3.2 I, 3.6 I, 4.7 I, 8.2 I, 8.3 I, 8.4 I, 8.8 I	<i>Children's Mathematics</i>: Introduction, Chapters 1 and 2 (+/- problem types), pp. 1-16 SVP Directions and Quiz TPE 1.4 I, 1.7 I	
4	Extending counting to problem solving Children's strategies for addition and subtraction Site Visitation Project: Class Profile TPE 1.4 I, 1.7 I, 3.2 I, 3.4 I, 3.5 I, 3.6 I, 4.1 I, 5.2 I, 5.3 I, 7.7 IP, 8.2 IP, 8.3 I, 8.5 I, 8.6 I, 8.8 I	<i>Children's Mathematics</i>: Chapter 3 (+/-strategies), pp. 17-48 TPE 1.7 IP, 3.6 P, 5.2 P, 5.3 P, 8.6 P	

Week/ Date	Topic	Reading Assignments (complete after class meeting)	Major Assignments DUE DATES
5	Multiplication and division word problem types and strategies Integrating ELA and ELD standards in mathematics instruction TPE 1.4 I, 1.7 I, 3.2 I, 3.4 I, 3.5 IP, 3.6 I, 4.1 I, 4.7 I, 5.2 I, 5.3 I, 7.7 I, 7.11 I, 8.1 I, 8.2 IP, 8.3 I, 8.4 I, 8.6 I, 8.8 I	<i>Children's Mathematics:</i> Chapters 4 (x/÷ problem types and strategies) pp. 49-75; and Chapter 5 (Beginning to Use CGI), pp. 76-83 TPE 1.7 IP, 3.6 P, 5.2 P, 5.3 P, 8.6 P	Counting and Early Number Concepts Interviews
6	Base ten development Lesson design: Engagement and Problem Launch Site Visitation Project: Lesson Plan and Activity/Strategy Table TPE 1.4 I, 1.7 I, 3.1 I, 3.2 I, 3.4 I, 3.6 I, 4.1 I, 4.7 I, 5.2 I, 5.3 I, 7.8 I, 7.11 I, 8.1 I, 8.2 IP, 8.3 P, 8.4 I, 8.6 I, 8.7 IP	<i>Children's Mathematics:</i> Chapters 6 (base ten) pp. 84-95; and Chapter 8 (classroom practice), pp. 129-133 <i>NCTM</i> journal article (sign-up sheet) TPE 1.7 IP, 3.6 P, 5.2 P, 5.3 P, 8.6 P	
7	Operations with multidigit numbers (addition and subtraction) Lesson design: Eliciting students' thinking through questioning Site Visitation Project: Subject Specific Pedagogy and Standards for Mathematical Practice TPE 3.1 P, 3.2 P, 3.5 IP, 4.1 P, 4.7 IP, 5.2 I, 5.3 I, 7.8 I, 7.11 I, 8.1 P, 8.2 IP, 8.3 P, 8.4 I, 8.6 I, 8.7 I	<i>Children's Mathematics:</i> Chapter 7 (multidigit problems), pp. 96-111; and Chapter 9 (eliciting thinking), pp. 134-152 TPE 1.7 IP, 3.6 P, 5.2 P, 5.3 P, 8.3 I, 8.6 P, 8.7 P	Journal Article Presentations

Week/ Date	Topic	Reading Assignments (complete after class meeting)	Major Assignments DUE DATES
8	Operations with multidigit numbers (all operations) Interviews as assessments: Student interview practice Questioning strategies TPE 4.1 P, 5.2 I, 5.3 I, 7.8 P, 8.2 IP, 8.3 P, 8.5 I, 8.6 P, 8.7 P	<i>Children's Mathematics</i>: Chapter 7 (multidigit problems) pp. 111-128 Mid-semester survey TPE 1.7 P, 3.6 P, 5.2 P, 5.3 P, 8.6 P	<i>Integrating Mathematics and Literature</i>
9	Integrating play with mathematics: - Mathematics centers - Math Games "Math Talks" Lessons - Child-to-child interactions Differentiation and UDL strategies TPE 1.4 P, 1.7 P, 3.1 IP, 3.2 P, 3.4 IP, 3.5 P, 3.6 IP, 4.1 P, 4.7 P, 5.2 I, 5.3 I, 6.1 P, 7.7 P, 7.8 P, 8.1 P, 8.2 I, 8.3 P, 8.4 P, 8.5 IP, 8.7 I, 8.8 P	MTLT article "Creating joy in PK-grade 2" (link) MTLT article "Children's games and games for children" (link) TPE 3.1 I, 3.6 I, 4.1 P, 4.7 P, 6.1 P, 8.3 I, 8.5 P, 8.7 P	
10	Math Focus: Geometry and Spatial Awareness Academic Vocabulary TPE 1.4 P, 1.7 P, 3.1 P, 3.2 P, 3.5 IP, 3.6 P, 4.1 P, 4.7 IP, 6.1 P, 7.7 P, 8.1 P, 8.2 IP, 8.3 P, 8.4 P, 8.5 P, 8.8 IP	TCM article "Avoiding the Ineffective Keyword Strategy" (link) TPE 3.2 P, 4.7 P, 7.7 P, 8.1P, 8.3 P, 8.4 P	
11	Math Focus: Equality and Algebra Discourse in mathematics lessons TPE 1.4 P, 1.7 P, 3.1 P, 3.2 P, 3.5 IP, 3.6 P, 4.1 P, 6.1 P, 7.8 P, 8.1 P, 8.2 IP, 8.3 P, 8.4 P, 8.5 P, 8.7 I, 8.8 P	No Assigned Homework	

Week/ Date	Topic	Reading Assignments (complete after class meeting)	Major Assignments DUE DATES
12	Math Focus: Measurement Connecting mathematics to children's experiences TPE 1.4 P, 1.7 P, 3.1 P, 3.2 P, 3.6 P, 4.1 P, 6.1 P, 7.7 P, 8.1 P, 8.2 IP, 8.3 P, 8.4 P, 8.5 P, 8.8 P	<i>Children's Mathematics</i>: Chapter 10 (Engaging Students with Each Other's ideas), pp. 153-172 TPE 7.8 P, 8.7 P, 8.8 P	Student Interview
13	Math Focus: Data Analysis Using instructional technology tools to engage children in mathematics TPE 1.4 P, 1.7 P, 3.1 P, 3.2 P, 3.6 P, 3.7 P, 4.1 P, 4.7 P, 6.1 P, 8.1 P, 8.2 IP, 8.3 P, 8.4 P, 8.5 P, 8.6 P, 8.8 P	<i>Children's Mathematics</i>: Chapter 11 (math principles) pp. 173-183 TPE 8.1P, 8.2 P, 8.4 P	
14	Math Focus: Fraction Concepts Building connections to family and community Reflection on teaching mathematics TPE 1.5 P, 1.7 P, 3.1 P, 3.2 P, 3.6 P, 4.1 P, 5.7 I, 6.1 P, 6.2 P, 7.7 P, 8.1 P, 8.2 IP, 8.4 P, 8.5 P, 8.7 P, 8.8 IP	MTLT article "We are different, but the same!" (link) TPE 4.1 P, 7.7 I, 8.8 I	
15	Planning mathematics instruction: • Problem-solving lesson format • Problem-solving vs. direct instruction • 3 Act Tasks • Selecting and sequencing tasks Reflection on teaching mathematics TPE 3.4 P, 3.5 P, 3.6 P, 4.1 P, 4.7 P, 6.2 P, 7.8 P, 8.2 I, 8.6 P	<i>Children's Mathematics</i>: Chapter 12 (conceptual basis) and 13 (conclusion), pp 184-199 TPE 6.1 P, 6.2 P	

Week/ Date	Topic	Reading Assignments (complete after class meeting)	Major Assignments DUE DATES
Finals week	Mathematics Centers Unit – Group presentations		<i>Mathematics Centers Unit</i>

Weekly Class Sessions (TPE 3.2 IP, 4.7 IP, 7.7 IP, 7.8 IP, 7.9 IP, 8.1 IP, 8.2 IP, 8.8 IP)

During the class sessions, teacher candidates will explore different mathematics topics. They will examine the relevant Preschool Learning Foundations for young students and the Mathematics content standards for kindergarten through third grades. Teacher candidates will be introduced to and practice using subject specific pedagogy for mathematics as they explore and engage in hands-on activities and problem-solving tasks designed for children in P-3 grades. Videos of children engaged in problem-solving tasks in individual, small group and whole class lessons will provide a realistic lens about how students engage in meaningful mathematical learning and use academic language.

By engaging in the activities, observing children through video, and participating in collaborative conversations with their colleagues, the teacher candidates will identify ways to plan, adapt, and implement mathematics instruction based on their children's age, grade and developmental levels. The important academic mathematics vocabulary for each content area will be addressed through the activities and discussions about the mathematics content strand. Through the videos, teacher candidates will observe how children can be engaged in collaborative discussions and speak about mathematics. The teacher candidates will discuss how to plan instruction that provides opportunities for children to be engaged in collaborative discussions with their peers using academic language.