Continuing Education
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MAT-905 – Multiplication and Division with Manipulatives

Independent Study Correspondence Course Syllabus

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Course Description

Basic Facts of Multiplication and Division is a standards-based methods course which offers third grade teachers a guide for designing a learning experience for their students which focuses on the memorization of the basic facts in multiplication and division and the application of computation through problem solving. Materials and activities included in this class have been developed to provide teachers with concrete, pictorial, and abstract experiences to help students construct an understanding of basic facts. Over 100 math focused tasks directly tied to specific Common Core State content standards are presented for students to experience individually, in small learning groups, or with the whole class are included in the course materials. The assignments may be completed with or without student participation. Built into the course requirements, are several contacts between the course instructor and the student via email. Focused questions are addressed and assistance is offered through these contacts between the instructor and student.

Creating a learning environment that supports the development of understanding math concepts for our young learners is as critical as the choice of curriculum expectations. If lessons are developed to encourage and promote understanding, children will learn that mathematics makes sense and is applicable to their everyday needs. Children need to learn that mathematics makes connections and is related to many other disciplines.

This course is designed to help teachers of elementary children establish a classroom that is supportive of an active, meaning-based approach to the teaching and learning of mathematics. It is hoped that this course will give teachers the information and support they need to create a positive and effective learning environment for their children.

Note: There is no required textbook for this course.

Required Texts and Course Materials

Course Instruction Manual: This manual was developed by Carol Gossett and contains background information, and practice lessons in computation problem solving formats, links to Common Core State Math Standards, course assignments; including descriptions of classroom activities and reflective writing assignments, and more to help you complete this course.

- **Basic Computation Books E and F** contains blackline masters for use by students for practice of the basic facts. (on course CD)
- **A Variety of Learning Games** are included to reinforce the basic facts of multiplication and division using a problem-solving format.

Course Packet: The course packet includes information about the course, instructions and rubrics for completing course assignments, information about Fresno Pacific University (FPU), and specifics on FPU and Continuing Education policies and procedures.

Course Dates

Self-paced; students may enroll at any time and take up to one year, from the date of registration, to complete assignments. Students may complete assignments in no less than three weeks for a 3-unit course (one week per unit).

National Standards Addressed in This Course

National Board for Professional Teaching Standards (NBPTS)
(http://www.nbpts.org/standards-five-core-propositions/)

First published in 1989 and updated in 2016, *What Teachers Should Know and Be Able to Do* articulates the National Board's Five Core Propositions for teaching. The Five Core Propositions - comparable to medicine's Hippocratic Oath — set forth the profession's vision for accomplished teaching. Together, the propositions form the basis of all National Board Standards and the foundation for National Board Certification. Course assignments have been designed so students can demonstrate excellence against these professional teaching standards whenever possible.

- Proposition 1: Teachers are committed to students and their learning
- Proposition 2: Teachers know the subject they teach and how to teach those subjects to students
- Proposition 3: Teachers are responsible for managing and monitoring student learning
- Proposition 4: Teachers think systematically about their practice and learn from experience
- Proposition 5: Teachers are members of learning communities

Common Core State Standards (CCSS) (www.corestandards.org)

Students will make connections to activities included in this course to the standards in the following Domains:

• Operations and Algebraic Thinking (3.OA)

1. Represent and solve problems involving multiplication and division.
2. Understand properties of multiplication and the relationship between multiplication and division.
3. Multiply and divide within 100.

• Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Continuing Education Program Student Learning Outcomes

CE 1	Demonstrate proficient written communication by articulating a clear focus, synthesizing arguments, and utilizing standard formats in order to inform and persuade others, and present information applicable to targeted use.
CE 2	Demonstrate comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
CE 3	Reflect on their personal and professional growth and provide evidence of how such reflection is utilized to manage personal and professional improvement.
CE 4	Apply critical thinking competencies by generating probing questions, recognizing underlying assumptions, interpreting and evaluating relevant information, and applying their understandings to the professional setting.
CE 5	Reflect on values that inspire high standards of professional and ethical behavior as they pursue excellence in applying new learning to their chosen field.
CE 6	Identify information needed in order to fully understand a topic or task, organize that information, identify the best sources of information for a given enquiry, locate and critically evaluate sources, and accurately and effectively share that information.

Student Learning Outcomes (SLOs) for This Course

Student Learning Outcomes for This Course By the end of this course student will be able to:	**National Standards Addressed in This Course***	**Continuing Education Program Student Learning Outcomes Addressed****
1. Students will identify, reflect on, and apply Common Core State Standards for the grade level they are teaching.	CCSS Third Grade Operations and Algebraic Thinking (3.OA) Mathematical Practices	
2. Students will apply Best Practices and National Professional Teaching standards, through developmentally appropriate teaching strategies in their classroom	NPTSS 1-5	
3. Students will apply critical thinking skills and create opportunities for their classroom students to apply critical thinking skills.	CCSS Third Grade Mathematical Practices	
4. Students will design lesson plans which address a specific Common Core Standard for their grade level, which reflect the methods and techniques described throughout the course.	CCSS Third Grade Mathematical Practices	
5. Students will reflect on their teaching.	NPTSS 1-5	

* Please refer to the section on **National Standards Addressed in This Course**

** Please refer to the section on **Continuing Education Program Student Learning Outcomes**

Topics, Assignments, and Activities

Module Module Title	Module Assignments and Activities	Points Possible for Each Assignment
Module 1 – Instructor Contact #1	• As soon as you receive your course materials, please contact your course instructor.	25 pts
Module 2 – Reflective Writing & Critical Thinking	• Read and reflect on the reading materials provided in the course materials (Minimum 2 pages)	25 pts
Module 3 – Reflective Writing & Critical Thinking	• After reading all course materials, reflect on how this information might assist you in determining a plan of instruction for multiplication and division and the design of a child-centered and engaging curriculum plan based on specific student needs in your classroom.	25 pts
Module 4 – *Connecting to Standards*	• Go to: http://www.corestandards.org/the-standards and review the Common Core State Standards in Mathematics for the grade level you are currently teaching • Reflect on these standards and give specific examples of how you plan to apply these standards in your curriculum.	25 pts
Module 5 – Reflective Writing & Classroom Application	• Go to The Best Practices http://www.eed.state.ak.us/tls/frameworks2/teachers/math/primary/best/home.shtml **and** then to the Best Practices in Mathematics: http://www.eed.state.ak.us/tls/frameworks2/teachers/math/primary/best/research.shtml • At this website, study each area of each of the 10 sections listed. • Give a brief overview of how you will apply these Best Practices in your mathematics curriculum plan	25 pts
Module 6 – Classroom Application	• After reviewing the course materials, identify various activities that can be used to directly address multiplication and division standards for your grade level. • Select a minimum of 10 different activities. • Review Design a matrix that shows the various connections and plans	50 pts
Module 7 – Instructor Contact #2	• As soon as you have completed the matrix above, please your instructor by emailing a copy of this assignment to her	25 pts
Module 8 – Classroom Application	• After identifying the 10 activities above, select 5 to present to a group of students, and complete a Reflective Writing Form for each of these activities.	50 pts

Module Module Title	Module Assignments and Activities	Points Possible for Each Assignment
Module 9 – Classroom Application & Critical Thinking	• Design one lesson plan to teach a math concept in an area of your choice from either the Common Core Standards for your grade level.	75 pts
Module 10 – Classroom Application	• Present 2 activities included in the text as learning games to a group of students • Reflect on the effectiveness of the format of games and how you would incorporate these in your math curriculum plan.	25 pts
Module 11- Professional Application	• Prepare a PowerPoint presentation using a minimum of 10 Slides that can be used to share with colleagues about your math learning environment OR • prepare a Display Board that will inform parents about your math learning environment.	75 pts
Module 12 – Reflective Writing	• Once you have presented the PowerPoint to colleagues, ask them to complete an evaluation form to give you feedback on the presentation. • Submit these forms and a summary of the results OR • after you have displayed the Parent information board for at least one week, write a summary of any discussions, comments, questions parents may have had regarding the information on the board.	25 pts
Module 13 – Reflective Writing	• Reflective Writing	50 pts
Module 14 – Instructor Contact #3	• As soon as you have completed your presentation, please contact your instructor by emailing a copy of the PowerPoint or photos of the presentation board you have designed.	25 pts
	TOTAL POINTS	**525 pts**

Grading Policies, Rubrics, and Requirements for Assignments

Grading Policies

- Assignments will be graded per criteria presented in the course rubrics.
- A = 90-100% and B = 80-89%, (anything below 80% will not receive credit.)
- The discernment between an A or a B letter grade is at the discretion of the instructor based on the quality of work submitted (see course rubrics).
- Coursework falling below a B grade will be returned with further instructions.
- All assignments must be completed to receive a grade and are expected to reflect the quality that teacher-training institutions require of professional educators. If completed assignments do not meet this standard, students will be notified with further instructions from the instructor.

Grading Rubrics

Grade	Percent	Description	Rubric

A	90-100%	Excellent	Meets all course/assignment requirements, significant evidence of subject mastery – excellent demonstration of graduate level professional development scholarship.
B	80-89%	Very good	Adequately meets the criteria for all course/assignment requirements - demonstrates subject competency and very good graduate level professional development scholarship.
NC	Below 80%	Unacceptable	Does not meet the minimum criteria for all course/assignment requirements and demonstrated little, if any, evidence of acceptable graduate level professional development scholarship.

Writing Requirements

- **Superior:** Writing is clear, succinct, and reflects graduate level expectations. Clearly addresses all parts of the writing task. Maintains a consistent point of view and organizational structure. Include relevant facts, details, and explanations.
- **Standard:** Writing is acceptable with very few mistakes in grammar and spelling. Addresses most parts of the writing task. Maintains a mostly consistent point of view and organizational structure. Include mostly relevant facts, details, and explanations.
- **Sub-standard:** Writing contains noticeable mistakes in grammar and spelling. Does not address all parts of the writing task. Lacks a consistent point of view and organization structure. May include marginally relevant facts, details, and explanations.

Lesson Plan Requirements

- **Superior:** Instructional goals and objectives clearly stated. Instructional strategies appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is clearly delineated and authentic. All materials necessary for student and teacher to complete lesson clearly listed.
- **Standard:** Instructional goals and objectives are stated but are not easy to understand. Some instructional strategies are appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is present. Most materials necessary for student and teacher to complete lesson are listed.
- **Sub-standard:** Instructional goals and objectives are not stated. Learners cannot tell what is expected of them. Instructional strategies are missing or strategies used are inappropriate. Method for assessing student learning and evaluating instruction is missing. Materials necessary for student and teacher to complete lesson are missing.

Instructor/Student Contact Information

This course requires a minimum of three contacts between the student and the instructor. The first contact point occurs after the student enrolls in the course. The instructor contacts the student by phone to welcome them to the course and Fresno Pacific University. The instructor provides an overview of the course, material, assignments, and expectations for successful completion of the course. This initial interaction also establishes a foundation for future interactions (via email or phone). The second interaction should occur when the student is approximately half-way through the course. The instructor can field any assignment questions and learn what has been most

beneficial to the student so far. The final conversation occurs at the end of the course. This interaction provides a final check that all assignments have been completed, final grade request has been submitted, and answer any final questions or concerns.

Coursework Hours

Based on the Carnegie Unit standard, a unit of graduate credit measures academic credit based on the number of hours the student is engaged in learning. This includes all time spent on the course: reading the textbook, watching videos, listening to audio lessons, researching topics, writing papers, creating projects, developing lesson plans, posting to discussion boards, etc. Coursework offered for FPU Continuing Education graduate credit adheres to 45 hours per semester unit for the 900-level courses. Therefore, a student will spend approximately 90 hours on a typical 2-unit course or 135 hours on a typical 3-unit course.

Services for Students with Disabilities

Students with disabilities are eligible for reasonable accommodations in their academic work in all classes. In order to receive assistance, the student with a disability must provide the Academic Support Center with documentation, which describes the specific disability. The documentation must be from a qualified professional in the area of the disability (i.e. psychologist, physician or educational diagnostician). Students with disabilities should contact the Academic Support Center to discuss academic and other needs as soon as they are diagnosed with a disability. Once documentation is on file, arrangements for reasonable accommodations can be made. For more information and for downloadable forms, please go to https://www.fresno.edu/students/academic-support/services-students-disabilities.

Plagiarism and Academic Honesty

All people participating in the educational process at Fresno Pacific University are expected to pursue honesty and integrity in all aspects of their academic work. Academic dishonesty, including plagiarism, will be handled per the procedures set forth in the Fresno Pacific University Catalogue - https://www.fresno.edu/students/registrars-office/academic-catalogs

Technology Requirements

To successfully complete the course requirements, course participants will need Internet access, can send and receive email, know how to manage simple files in a word processing program, and have a basic understanding of the Internet. Please remember that the instructor is not able to offer technical support. If you need technical support, please contact your Internet Service Provider.

Final Course Grade and Transcripts

When all work for the course has been completed, students will need to logon to the Continuing Education website (https://ce.fresno.edu/my-account) and “Request Final Grade”. Once the instructor receives the requests and submits the grade online, students may log back in to view their Final Grade Report or order transcripts online. Please allow at least two weeks for the final grade to be posted. For more information, see the Continuing Education Policies and Procedures at https://ce.fresno.edu/ce-policies-and-procedures.

University Policies and Procedures

Students are responsible for becoming familiar with the information presented in the Academic Catalog and for knowing and observing all policies and procedures related to their participation in the university community. A summary of university policies may be found on the university website at https://www.fresno.edu/students/registrars-office/academic-catalogs.

Fresno Pacific University Student Learning Outcomes

Student Learning Outcomes Oral Communication: Students will *exhibit* clear, engaging, and confident oral communication – in both individual and group settings – and will critically *evaluate* content and delivery components.
Written Communication: Students will *demonstrate* proficient written communication by *articulating* a clear focus, *synthesizing* arguments, and utilizing standard formats in order to *inform* and *persuade* others.
Content Knowledge: Students will *demonstrate* comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
Reflection: Students will *reflect* on their personal and professional growth and *provide evidence* of how such reflection is utilized to manage personal and vocational improvement.
Critical Thinking: Students will *apply* critical thinking competencies by *generating* probing questions, *recognizing* underlying assumptions, *interpreting* and *evaluating* relevant information, and *applying* their understandings to new situations.
Moral Reasoning: Students will *identify* and *apply* moral reasoning and ethical decision-making skills, and *articulate* the norms and principles underlying a Christian world-view.
Service: Students will *demonstrate* service and reconciliation as a way of leadership.
Cultural and Global Perspective: Students will *identify* personal, cultural, and global perspectives and will employ these perspectives to *evaluate* complex systems.
Quantitative Reasoning: Students will accurately *compute* calculations and symbolic operations and *explain* their use in a field of study.
Information Literacy: Students will *identify* information needed in order to fully understand a topic or task, *explain* how that information is organized, *identify* the best sources of information for a given enquiry, *locate* and critically *evaluate* sources, and accurately and effectively *share* that information.