SYLLABUS

COURSE NAME
Math – Deepening Conceptual Understanding - EDIC 9005 (ID# 410)

COURSE STATEMENT
Create instruction centered around building conceptual understanding of mathematics by exploring the importance of language, contextual relationships, multiple perspectives, and making connections between ideas.

COURSE DESCRIPTION
In this course, you will explore the world of math as a language through definitions, symbols, visual representations, and interconnections between different mathematical concepts. You will investigate and build upon your own experience with learning math at a deeper and more meaningful level. You will focus on answering the why of math (e.g., why do we perform operations and use algorithms the way we do?) What are the relationships between mathematical concepts and the world we live in?

You will work on building a deeper understanding of some specific mathematical concepts in number sense, including arithmetic operations, fractions, and proportions. You will then have the opportunity to extend this approach to building a deeper understanding of other areas of math, integrating the strategies you have learned into your daily practice.

LEARNING OBJECTIVES
Upon successful mastery of this course, you will be able to:

- Articulate the challenges in student understanding of mathematical concepts and possible gaps in teacher understanding.
- Describe the connections between language and math and the implications for math instruction.
- Make connections between mathematical concepts and the language, symbolism, visual representations and contextualized applications that are used in instruction.
- Explain the meaning behind common mathematical concepts taught in K-6 classrooms from multiple perspectives.
- Build integrated approaches that incorporate history of mathematical concepts, storytelling, and organic problem solving into math instruction to deepen conceptual understanding.

DEMONSTRATING MASTERY: A TWO-STEP PROCESS

Step One: Learning and Understanding

This course is broken down into **Learning Objective**s and related **Topics**. For each objective, you will participate in **Learning Activities** designed to enhance and reinforce understanding. Learning Activities include Interactive Discussions, readings, video and audio clips, slide presentations, Discussion Board prompts. Learning Journal prompts, practice exercises, demonstrations, as well as links to web and library resources.

Course Structure
The table below details the Learning Objectives along with their corresponding Topics.

Module	Topics
Moving Towards Concept-Based Instruction	• Math Education Today • The Importance of Language • Connections, Symbolism, and Visual Representation
Deepening – A Closer Look at Math Topics	• Addition, Subtraction, Multiplication, & Division • Fractions • Averages, Order of Operations, Proportions, and Area
Putting it All Together	• Building Better Connections • Integrated Approaches • Synthesis

Step Two: Final Assessment
Once you have successfully progressed through the Learning Activities, you are ready to demonstrate that you have mastered the course. In order to demonstrate mastery, you must be evaluated as proficient or exemplary on each rubric category for the corresponding performance-based assessment (paper, presentation, project, etc.). Please note that submissions may be checked for plagiarism.

Student Resources

Library Resources
The UMass Global Library provides you with access to an extensive collection of research materials and support services. You can familiarize yourself with library resources by watching this brief video introduction. Help is always available through the Ask a Librarian service.

For more information, visit: https://www.umassglobal.edu/library

Writing and Math Help
UMass Global's Online Writing and Math Center (OWMC) offers subject-specific tutoring services, live workshops, video tutorials, tutorial office hours, and links to top academic sites in order to ensure student success. Students can access the OWMC directly when logged into their courses.

Netiquette
Communicating in an efficient and respectful manner is critical to the learning process. Please view and adhere to any netiquette guidelines outlined within the competency and the Online Etiquette video.

Standards of Academic Integrity
Academic integrity is a core University of Massachusetts Global value which ensures respect for the academic reputation of the University, its students, faculty and staff, and the degrees it confers. Students are required to

read, understand, and apply the standards set forth concerning academic integrity found University of Massachusetts Global catalog.

Americans with Disabilities Act Statement

University of Massachusetts Global is committed to ensuring equal educational access and opportunity for all members of our academic community. Students will be provided timely, efficient, and equitable accommodations and services that are in compliance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA)/Americans with Disabilities Act Amendments Act of 2008 (ADAA). More details are available in the current University of Massachusetts Global Catalog or on the Office of Accessible Education web site.