Mathematics for All:
Implementing UDL in the Middle School Classroom

Self-Directed Course
30 Continuing Education Hours
Final Project Optional: 3 Graduate Credits + 15 Cont. Ed. Hours

Meet the Course Designer

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Jeanne Lazzarini is an acclaimed Master Math Educator, Published Author, Presenter, Teacher Trainer, and an admired promoter of engaging mathematics for all. For over 40 years, her proven abilities in creating engaging learning applications and integrating a wide range of topics with mathematics has inspired hundreds of students from all grade levels. Jeanne has a B.S. in Math from Santa Clara University, post-graduate studies in Teaching Mathematics Education plus a life-time CA Teaching Credential in Mathematics from UC Davis., and post-graduate studies from Santa Clara University. Beyond her 40+ years of experience teaching, Jeanne has taught satellite tracking courses for the Dept of Defense at Moffett Air Force Base, for 9 years was the Math Training Specialist at the RAFT, and has served as the Program Specialist for the American Institute of Mathematics for the past 3 years. Jeanne has a zest for creative innovation, loves combining math with all subjects, collaborating with teachers and students, and discovering equitable techniques that bring out the passion for learning in everyone!

Course Description

Universal Design for Learning (UDL) is a framework for inclusive education that aims to lower barriers to learning and to optimize each individual's opportunity to learn. This course will help you incorporate UDL into your Middle School Mathematics lessons and assessments both in the classroom and online. You will learn how UDL creates accessible and equitable learning environments with a flexible mathematics curriculum that is relevant, authentic, and meaningful for both you and your students!

Each module presents a variety of ideas, self-reflection opportunities, and resources that illustrate how to apply UDL to your math design and instruction and provide you with multiple means of engagement throughout the course! We all have different positions, come from different places, and have different strengths and weaknesses.

The past few years accentuated barriers and inconsistencies in our educational system; it is so important we all share and grow from our experiences. This course is about helping you to personalize your

mathematics teaching journey with UDL in all learning environments so you can personalize the journey for your students! Remember, we are all "math people!"

Course Objectives and Learning Outcomes

By the end of this course, students will:

- Understand and be able to explain the fundamental concepts of UDL and how those concepts provide Middle School Math learning experiences that meet the needs of all learners regardless of mode of delivery.
- Learn how to identify and to change barriers in Middle School Math lesson designs,
- Explore and implement different techniques to help students learn how to better manage their time, improve functioning in all settings, and how to connect Middle School Mathematics in interesting, engaging, and creative ways that are relevant for all learners.

Recommended Prerequisites

101 knowledge of the UDL framework. Recommended options:

- Read: UDL Now! A Teacher's Guide to Applying Universal Design for Learning in Today's Classroom by Katie Novak, OR
- Take the course: UDL Now! Intro to UDL course

Final Project

At the end of the course, learners have the opportunity to take everything they learned in the course and put it together to create a final project. We will encourage you to **create** an amazing product to share with your **network**! Take a **risk** and share your learning in a new way - lots of options and choices available! The final project should take approximately 15 hours to complete.

The **final project is required for students taking the course for 3 graduate-level continuing education credits**, but all are welcome to participate. It is a great opportunity to self-reflect and to implement the course learnings. Share your final project with colleagues, classmates, or on the discussion board! **However, please note you will only receive feedback or a grade from the course instructor unless you signed up for graduate credits.**

Final Project Assignment

The Goal: To demonstrate your mastery of implementing UDL strategies into your Middle School Mathematics lessons and assessments.

The Ask: Choose to create or revamp a course syllabus/outline, lesson, unit, or professional learning experience for your learners. Because this provides you with graduate credits, it is critical that the project

shows depth of knowledge and how the course impacted your design process. You should expect to spend approximately 15 hours on your final project.

This product will be evaluated using the holistic rubric below. Mastery must be met on all four standards to pass this class. Revisions will be allowed. Learn more about universally designed rubrics here.

Not There Yet	Met Expectations! Hooray!	Exceeded Expectations!
	Introduction: Before UDL - This section describes what you have (or would have) done with a syllabus, lesson, unit, course, project, or professional learning experience before you started using UDL or improved upon it because of this course.	
	Annotated Bibliography - You must cite at least 10 resources from the course to support what you have learned in the process of this course and the creation of your final project. To see a sample Annotated Bibliography, click here.	
	Practical Understandings and Implementations: This will be the actual "product" for this final, so it will be something tangible that you are/will/can use in your role. Again, you can choose to create a course syllabus/outline, series of lessons, an entire unit, professional learning experience for your learners, or anything else that will be/demonstrate the practical implementation of what you learned in this course into your role in education. This part of the final project can be presented in any format you choose and even be a combination of formats if/as needed (text/audio/video/multimedia/other).	
	Reflection - In this last section, you should take some time to just reflect on your time in this course, the final product you created, and what's next for you and your work with UDL.	
4 points Meeting the standard, or going above and beyond, will earn you the full point value for the assignment.		

Graduate Credits

You have the option to receive 3 continuing education graduate credits with the course. Register for the course + graduate credits or add on the graduate credit section at any time. Upon successful completion of the course and graduate final project, you will receive 3 accredited continuing education graduate credits from your choice of one of our university partners (University of Massachusetts Global or Teachers College of San Joaquin) and a completion certificate for 15 additional continuing education hours (in addition to the 30 hours you received for the course).

Course Modules

MODULE	TOPICS
	**Module 1: UDL and the Universal Language of Math!** **Objectives:** • To explore UDL as an inclusive teaching model and to investigate why options and choices for students are important for personalized inclusive learning. • To identify and plan to remove barriers to teaching math number sense and how to create equitable learning environments that help eliminate these barriers. • To describe the importance of setting high expectations using flexible means in Middle School math education. **Essential Question** • How does UDL create an equitable, inclusive learning environment in the Middle School Mathematics classroom? **Activities** • Explore 2 to 4 resources • Optional: Participate in the community discussion board • Assessment: Test your knowledge of variability and barriers to learning number sense in mathematics education
	**Module 2: Fractions, Ratios, and Proportions!** **Objectives:** • To remove barriers to teaching fractions, ratios, and proportions, and to identify methods that promote equitable learning environments using firm goals and flexible means.

	Essential Question ● How do UDL flexible options support the standard requirements for learning fractions, ratios, and proportions? **Activities** ● Choose 2-4 resources to deepen your knowledge ● Optional: Participate in the community discussion board ● Assessment: Test your knowledge of strategies for teaching fractions, ratios, and proportions that equitably engage all learners
	**Module 3: Variables, Expressions & Equations, oh my!** **Objective:** ● To become aware of relevant UDL strategies and platforms that equitably engage all students in understanding variables, expressions and equations **Essential Question** ● What UDL strategies promote equitable real-life understandings of variables, expressions and equations? **Activities** ● Choose 2-4 resources to deepen your knowledge ● Optional: Participate in the community discussion board ● Assessment: Test your knowledge of engaging activities and UDL strategies for teaching variables, expressions and equations
	**Module 4: Focus on Functions!** **Objective:** ● To become aware of relevant UDL strategies and platforms that equitably promote all students in understanding functions and their various representations **Essential Question** ● What areas do you find difficult for student understanding of functions, and how can UDL strategies eliminate these barriers? **Activities** ● Choose 2-4 resources to deepen your knowledge

	• Optional: Participate in the community discussion board • Assessment: Test your knowledge of barriers that inhibit understanding functions and explain learning techniques that promote student understanding of functions.
	**Module 5: Statistics and Probability Sense!** **Objectives:** • To identify methods to create equitable learning environments that eliminate barriers to teaching statistics and probability. • To determine UDL strategies that encourage student exploration of real-life sampling techniques. **Essential Question** • Which UDL strategies promote equitable learning of statistics and probability? **Activities** • Choose 2-4 resources to deepen your knowledge • Optional: Participate in the community discussion board • Assessment: Which UDL choices can you make to support student voice and choice in teaching probability and statistical analysis?
	**Module 6: Gee, I'm a tree --- said the sprouting acorn!** **Objectives:** • To identify UDL methods that offer student voice and choice in their explorations of geometry topics. **Essential Question** • How can Middle School Geometry be taught so all students discover its relevance and beauty? **Activities** • Choose 2-4 resources to deepen your knowledge • Optional: Participate in the community discussion board • Assessment: Test your knowledge of online and in-class methods for teaching geometry
	**Module 7: The Final Chapter: Implementing UDL into your Middle School Math Classroom** **Objectives:** • To reflect on your existing teaching practices and how you can start incorporating UDL into your lessons and assessments.

	• To understand the role of a Professional Learning Community (PLC) and how to implement a PLC in your teaching environment to help build collective teacher efficacy and a collaborative learning environment for you. **Essential Question** • How do you plan to incorporate UDL into your math lessons and assessments to make them more equitable, accessible, and engaging for all learners? **Activities** • Choose 2-4 resources to deepen your knowledge • Optional: Participate in the community discussion board • Assessment: Test your knowledge