

# MATH (MATX)

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## **MATX 333 Mathematical Theory of Interest 3 credits**

Actuaries focus on using math and statistics to evaluate risk and make strategic decisions. This course covers a range of topics relevant to actuaries, including measurement of interest rates, interest theory, and the pricing of bonds, mortgages, annuities, and other financial instruments. This course will also fully cover all content required by the Society of Actuaries Financial Mathematics (FM) Exam and its equivalents. This online course has optional live sessions. This course is offered through Rize. (Prerequisite: C- or higher in MAT145)

## **MATX 383 Probability for Actuaries 3 credits**

Actuaries and quantitative professionals deal primarily in probabilities. This course will cover a wide range of topics and introduce you to core probability concepts needed for Actuarial and Quantitative work. By the end of this course, you will learn all of the content required for the Society of Actuaries P Exam - as well as its equivalents - and be able to apply concepts of probability to real-world scenarios. This online course has optional live sessions. This course is offered through Rize. (Prerequisite: C- or higher in MAT 255)

## **MATX 483 Actuarial Science and Risk Management with R 3 credits**

This course focuses on team-based problem solving in actuarial science & risk management. Students will learn the fundamentals of the R programming language, RStudio and R Markdown, and use these tools to complete a range of projects. Projects vary, but may include bond and loan amortization, analysis of the efficient frontier and the capital asset pricing method, insurance liability & estimates of expected loss. This course culminates in a capstone project that ties together skills from throughout the Actuarial Sciences program. This course is offered through Rize. (Prerequisites: C- or higher in MAT135, CSC115, and MATX 333)

## **MATX 500 Exploring Real-World Connections in Math 3 credits**

Math teachers may hear the refrain, "When are we ever going to use this?" a bit too often, and this course will provide you with a fantastic answer! You'll take a look at whether or not math instruction needs a "makeover" to better address student learning needs. We'll also explore the concept of growth "mathematical mindsets" and how they can counter math myths and misconceptions. You'll create a SMART Goal for inclusive math instruction, review strategies to increase culturally mindful contexts and relevancy in your math instruction, and discuss various ways to infuse mathematical modeling in your teaching. You'll end the course with a solid understanding of connections between math and the real world! This course is offered through the Teaching Channel.

## **MATX 505 Transform Geometry Instruction with Manipulatives 3 credits**

This course will allow you to learn the benefits and importance of incorporating manipulatives into your geometry instruction as you explore ways to implement manipulatives to change the way you teach geometry lessons. From creating your own DIY manipulatives to seamlessly integrating them into your lessons, you'll gain the confidence to implement physical manipulatives that bring geometry concepts to life, making learning more tangible and exciting for students. You'll design a mini-lesson that teaches students how to effectively use manipulatives. Plus, you'll set achievable micro goals to apply your newfound knowledge in the geometry classroom. Join us to learn more about the potential of manipulatives and revolutionize your geometry teaching experience! This course is offered through the Teaching Channel.

## **MATX 509 Promoting Problem-Solving Strategies in Math 3 credits**

Problem solving is an essential skill in school and in life, and this course focuses on best practices to infuse problem solving into your math instruction. Empower students as they develop their Mathematical Habits of Mind, and explore a range of strategies to foster problem-solving skills, both before, during, and after teaching math. Compare and contrast planning practices that effectively incorporate problem solving into math lessons, and learn to emphasize equity and accessibility to promote an inclusive learning experience for all students learning math. Get ready to gain the tools and knowledge to empower students in becoming confident and capable problem solvers in mathematics. This course is offered through the Teaching Channel.

## **MATX 510 Supporting Literacy Skills in the Elementary Classroom 3 credits**

Teaching mathematics in the elementary classroom is different today than in the past. New expectations for students and new understandings about how they learn have led to changes in instructional practices. Today, we know math must be developmentally appropriate and accessible for young students, and the process of learning math content relies on their literacy, problem-solving, and critical thinking skills. In this course, you'll explore strategies for integrating the literacy skills of speaking, listening, reading, and writing into your math instruction for a deeper comprehension and application of mathematical concepts. You'll also learn techniques for using literacy to support English Language Learners and students who struggle with mathematics. You will leave the course feeling confident and ready to apply your new knowledge! This course is offered through the Teaching Channel.

## **MATX 512 Using Literature to Enhance Mathematical Learning 3 credits**

This course explores the relationship between storytelling and mathematics, equipping you with skills to enhance math instruction through literature. You will analyze and categorize children's literature to identify texts suitable for application in math classes, and determine how to include literature in meaningful math tasks. You will design plans for integrating read-aloud sessions with math students, and implement strategies to support student learning in math with literature. This course will provide you with the resources and tools to bring children's literature into the math classroom. This course is offered through the Teaching Channel.

## **MATX 513 Ed Tech for the Math Classroom 3 credits**

Maybe you're already using technology in your math classroom in simple ways and want to learn more, or perhaps you are more of a novice, and are excited about the prospect. In this learning experience, you'll consider the value of integrating technology in the math classroom and gain awareness of challenges and opportunities you may encounter. Explore strategies and frameworks that can help you use technology tools effectively, and learn about different tools and the ways teachers are using them. When you infuse technology in your math instruction, you are helping prepare students to navigate an increasingly complex digital world. This course is offered through the Teaching Channel.

**MATX 519 Teaching Life Skills for Student Success 3 credits**

Preparing students to live their best lives is a mighty task! In today's ever changing world, education must go beyond reading, writing, and arithmetic, to include life skills like financial literacy and cultural awareness. As educators, we can share in, and celebrate, the success of our students by preparing them for the real world. Investigate the practical skills of career planning, resumé writing, and interviewing all of which are covered in this course. Rediscover the lost art of conversation and listening skills, and consider how crucial they are to students' personal and professional growth. Explore ways to educate students to become active, engaged, and involved citizens. The world will thank you! This course is offered through the Teaching Channel.

**MATX 523 Math Works: Teaching Math with the Brain in Mind 3 credits**

Explore the latest brain research and the impact this information has for instructional strategies for mathematics at all grade levels. The course will delve into the cognitive mechanisms for learning math, and the environmental and developmental factors that contribute to math difficulties. Learn how to plan effective mathematics lessons with a host of brain-compatible strategies. This course is offered through the Teaching Channel.

**MATX 524 Mindsets and Math: Enjoyment and Achievement for All 3 credits**

It's time for a mindset makeover in math! Unleash student potential by moving students from a "fixed" to a "growth" mindset about math, and watch them connect with math concepts head-on. After this course, educators will be able to create a classroom environment of growth mindset in math by: evaluating the math tasks and questions they ask, handling the way mistakes are dealt with, grouping appropriately, creating classroom norms, and applying the strategies to fulfill mathematics potential and engagement. This course is offered through the Teaching Channel.

**MATX 525 Deep Thinking Practices for the Math Classroom 3 credits**

Ready to disrupt the "learning-as-mimicry" pattern and replace it with genuine thinking in your math classroom? Explore the philosophy, practice, and long-term benefits of thinking classrooms and see how they apply to math. Your students will thank you for re-setting their expectations of "correctness" and "completion" in mathematics while inspiring them to enjoy the variety and flexibility of solution pathways. This course is offered through the Teaching Channel.

**MATX 526 Math Fluency Beyond the Basic Facts 3 credits**

What does it really mean for students to be fluent in math? Hint: It's not just about basic facts! In this course you'll challenge the traditional narrative of fluency, expanding your understanding to include flexibility with numbers, strategy selection, reasoning, and creativity. Perfect for anyone that teaches or supports K-8 mathematics, this course balances relatable research with usable activities to help you shift your classroom practices and assessments toward a fluency approach. With a robust collection of strategies, games, and activities, this course will give you the tools you need to build a strong foundation of fluency and empower confident mathematical thinkers. This course is offered through the Teaching Channel.

**MATX 527 Moving Math: How to Use Differentiated Mathematics Stations 3 credits**

Math has never been this fun! Dig into this course with a new edition of Dr. Nicki Newton's text to learn how to direct and support students in Guided Math. Both new and seasoned Guided Math practitioners will find much to develop and refine instruction in Guided Math Workshop. Investigate and design strategies to encourage collaboration and math talks, and create 5 new differentiated workstations. Give new life to student-student and student-teacher interactions through effective questioning, and inform your grouping processes by exploring new ideas for assessments. Finally, get great ideas for organizing and maintaining your Guided Math Workshop. Whether you are brand new to this framework or a Guided Math veteran, you'll have the opportunity to create and/or update your materials and activities to meet best practice standards. This course is offered through the Teaching Channel.

**MATX 528 Leading Intentional Talk with Young Mathematics Students 3 credits**

This course prepares K-4 teachers to engage students in meaningful conversations that will help develop their mathematical thinking. Establishing a strong foundation of mathematics thinking, especially in grades K-4, provides the springboard from which students can build higher order critical thinking and mathematics problem-solving skills in later grades. Teachers will learn how to move math talk to the next level – transitioning from asking students to share how they solve mathematics problems to implementing a framework for planning and facilitating purposeful discussions that enrich and deepen student understanding. Additionally, strategies to improve student participation in discussions are an integral part of the course. This course is offered through the Teaching Channel.

**MATX 529 Transforming the Mathematical Experiences of Young Children 3 credits**

Designed to empower educators with the knowledge to teach mathematics effectively to young children, this course explores the variety of ways students can learn math throughout their day. Whether you are an experienced teacher looking for ways to enhance your math instruction or a new teacher finding your footing, you will leave the course with ideas for teaching a variety of math concepts for 3-6 year olds, from counting to algebra. Discover how math happens in informal spaces and ways to encourage families to engage in math at home. Extend your learning using the collegial conversation starters from the colorful course text. Whether you consider yourself a "math person" or not, don't count yourself out! This course will leave you feeling confident, energized, and eager to share your new knowledge with students. This course is offered through the Teaching Channel.