SCIENCE (SCIX)

SCIX 511 Integrating the Next Generation Science Standards (NGSS) into the Elementary Classroom 3 credits
The Next Generation Science Standards (NGSS) have redefined science education. This course will help you unpack the complex standards and gain clarity on the essential components, including science and engineering practices, crosscutting concepts, and disciplinary core ideas. Participants will explore practical strategies and resources to support successful implementation of the standards, evaluate exemplar NGSS units, and design lessons using the 5E Lesson Model. Whether you are new to the NGSS or have some previous experience, you'll complete this course with a solid understanding of the components needed to effectively implement the NGSS standards in the classroom! This course is offered through the Teaching Channel.

SCIX 512 Empower Students with Critical Thinking in Science 3 credits
Critical thinking and scientific argumentation open up possibilities for students to enhance their ability to analyze and solve problems in our world! This course gives you the opportunity to incorporate critical thinking principles in your Science instruction by revising existing lessons or activities, evaluating the use of case studies, and developing an engaging activity that applies the model of claim-evidence-reasoning (CER). You will learn ways to empower students with skills to effectively present and support arguments, and will create and implement a new routine for them to practice critical thinking. At the end of this course, you'll be ready to unleash the power of scientific argumentation and critical thinking with Science students! This course is offered through the Teaching Channel.

SCIX 515 Teaching Students About Climate Change 3 credits
As students grow, they come to understand how climate change affects humanity, the planet, and their future. In this course, teachers will find fresh ideas for teaching students about climate change in ways that foster awareness, promote action, and encourage advocacy. Explore how knowledge about climate change empowers students to make environmentally conscious decisions that motivate them to become informed global citizens. Discover resources that provide innovative ideas and learn why people of color and people in poverty are more affected by a changing environment. Learn how you can inspire a generation of students to address the most pressing challenge of our time and commit to creating a sustainable and resilient future. This course is offered through the Teaching Channel.

SCIX 516 Empowering Engagement Strategies in Science 3 credits
Empowering Engagement Strategies in Science equips you with the knowledge and skills to engage students in science education. This course is designed to help educators identify shifts to student-centered science instruction using the Next Generation Science Standards (NGSS) frameworks. Brainstorm teaching ideas within the 5E framework to create dynamic lesson plans that engage and inspire. Apply an active learning approach to a current science lesson or unit and design activities that teach students a collaborative skill. You will also set a goal to improve equity in science lessons to serve all students. Get ready to take your science teaching skills to the next level! This course is offered through the Teaching Channel.

SCIX 517 Engagement wth Inquiry-Based Learning in Science 3 credits
Ready to engage students in science class? In this course, you will gain a deep understanding of the best practices, benefits, and characteristics of inquiry-based learning in science, and how it relates to the Science and Engineering practices of the NGSS. Explore the student and teacher roles in the inquiry-based learning process, and how to effectively engage students using this approach. Identify strategies for lesson planning, effective questioning, and discussions in an inquiry-based classroom, as well as ways that assessment can be used to support and measure student learning. By the end of this course, you will be equipped with the knowledge and skills to implement inquiry-based learning in your classroom, resulting in more engaged and motivated learners. This course is offered through the Teaching Channel.

SCIX 518 Fantastic Phenomena-based Learning with the Next Generation Science Standards (NGSS) 3 credits
Phenomena are events that occur in our world, like volcanic lightning or tsunamis. They create the perfect context for students to explore and learn science concepts, but how exactly do you go about designing phenomena-based lessons? The Next Generation Science Standards (NGSS) can help! This course breaks down the concept of phenomena-based learning to empower the depths of your and your students' curiosity. You'll go through the process of selecting an "anchor" phenomena, develop a way to "solve" a phenomena through Science and Engineering Design, and learn about how storylines can help with planning. Finally, you'll bring your learning together to share with your colleagues, and create a phenomena-based lesson. This course will demystify phenomena's role in NGSS, and provide a foundation to bring back wonder to the science classroom. This course is offered through the Teaching Channel.

SCIX 519 Dimensions of Teaching and Learning with the Next Generation Science Standards (NGSS) 3 credits
Whether you are new to the Next Generation Science Standards?(NGSS), or have started to dig in, we're here to help you navigate! With strong resources and examples, this course will increase your knowledge on the basics of 3D Learning in Science, setting you on a path to discovery-based teaching. Find out how to use the Practices, Cross-Cutting, and Disciplinary Core Ideas to design and align your lessons with the NGSS. Apply Engineering Design to help your students create something spectacular. Finally, discover how to ensure lesson alignment to NGSS using the EQuIP Rubric. Level up your science instruction skills and leave the course with the knowledge you need to apply NGSS 3D Learning. This course is offered through the Teaching Channel.

SCIX 520 Empowering Action with Environmental Science 3 credits
Whether you're a Science teacher, or an educator committed to making a difference, this course offers the tools you need to prepare students to take meaningful action for a sustainable future. Combine environmental science with project-based learning and empower students to engage with authentic, real-world challenges in this timely course. Students of today understand the urgent need to address issues like climate change, ocean pollution, and environmental justice. Apply the Next Generation Science Standards (NGSS) to ensure learning is grounded in best practices and discover how environmental science and social-emotional skills make a perfect partnership. This course is offered through the Teaching Channel.

SCIX 521 STEM is the Future for All Students 3 credits
STEM (science, technology, engineering, and math) knowledge will help our young people change the world, and you can give them a head start! STEM instruction works with real world problems in mind, while engaging in possible partnerships with colleagues, local community, and the world. Explore engineering design and teach students how to solve problems creatively across content areas. Understand why STEM identity matters, and develop strategies to improve access to STEM for all students. Empower students to tackle real-world problems with project-based and student-centered instructional practice. Upon completion of the course, you'll have ready to go lessons and well-rounded knowledge about the importance of STEM now, and in the future. This course is offered through the Teaching Channel.

SCIX 522 Full STEAM Ahead with Arts in STEM Education 3 credits
Power up teaching and learning in STEM content areas by adding the Arts! STEAM education–Science, Technology, Engineering, Arts, and Math–is an interdisciplinary approach that engages students in authentic, inquiry-based learning using "classic" art and building materials or the latest tech tools. Add to your toolkit of active learning strategies and innovative project ideas. Cultivate belonging so all learners can thrive in the STEAM classroom, collaborate with professionals to help students see themselves in STEAM careers, and develop 21st Century skills while exploring real-world problems. Whether you're a classroom generalist, a teacher in one of the STEM content areas, or an Arts specialist, you'll learn strategies to boost creativity, perseverance, and collaboration in your classroom! This course is offered through the Teaching Channel.

SCIX 523 Cultivating Equity in STEM 3 credits
Dream big and empower the next generation of diverse Science, Technology, Engineering, Arts, and Math innovators! In STEM, STEAM, Make, Dream, the author of the course text, Dr. Chris Emdin, reimagines STEM as inclusive, equitable, and accessible for all students, in particular students from historically marginalized communities who have been most excluded from STEM. In this inspiring, actionable course, you'll teach students how to claim a positive STEM identity, cultivate a sense of belonging in your classroom, and integrate the arts to build STEAM with creativity and maker culture. Encourage students to see themselves in STEM by connecting with mentors and learning about the contributions of diverse STEM thinkers. Engage students with real-world applications to address issues that matter to them. Activate students' natural curiosity with play and technology that brings STEM to life, such as augmented and virtual reality. This course will prepare you to foster a STEM culture where all students are "STEM people!" This course is offered through the Teaching Channel.

SCIX 524 Questions and Connections with NGSS Science Storylines 3 credits
This course empowers educators to revolutionize science instruction with the Next Generation Science Standards (NGSS) student-driven Storylines! Just like thinking routines, Storylines emphasize repeatable practices to enable deeper learning. Learners will engage with routines to support the creation and use of Storylines by crafting focus questions, choosing anchoring phenomena, and bundling performance expectations, standards, and content areas. Connect with practical strategies supporting hands-on exploration and critical thinking, and create an engaging classroom environment using the benefits of student-centered and Storylines. This course provides tools to revolutionize science education through student driven learning, shaping a future where curiosity and exploration drive student success. This course is offered through the Teaching Channel.