

# CURRICULUM & INSTRUCTION (CURR)

## Courses and Descriptions

### **CURR 501 Coaching Principles and Practices 3 Credits**

This course is an introduction to the profession of coaching for educators. It is designed to fulfill the educational requirements for certification as a Board Certified Coach through the Center for Credentialing and Education (CCE). The CCE competencies for certification provide the basis for course material.

### **CURR 504 Vocational/Career Development in Educational Settings 3 Credits**

This course provides a comprehensive and practical approach to career counseling, coaching, and curriculum design for educators who work in Kindergarten through postsecondary settings. Theories of vocational development and decision making form the foundation for designing career counseling curriculum. The problems and techniques of using college and career information, assessment tools, educational and vocational goal setting, conflict management strategies, and individual and organizational change processes are stressed. Concepts of career/life planning and the interrelationships among life roles, family, ecosystemic influences, and work in a diverse and changing society are explored.

### **CURR 508 Organizing and Administering Cooperative Work Experience Programs 3 Credits**

An overview of the current administrative and instructional strategies used in organizing and administering cooperative work experience programs at the secondary and post-secondary levels. Up-to-date concepts are reviewed relative to program approval, teacher coordinator certification, work agreements, labor laws, funding, reporting supervision of student learners, related instruction, student wages, and vocational student organizations. Evaluation of and improvement in the organization and administration of cooperative work experience programs are the goals of the course.

### **CURR 510 Reflection and Mentoring in Professional Teaching Practice 3 Credits**

This course serves as an introduction to professional teaching work in classrooms. The hands-on work in the course complements required classroom observations and reflections. The course uses participants' classroom observations and reflections as the bases for targeted, practical discussions and study on topics such as classroom management, teacher identity and diversity, teaching and content, asking for feedback, and working with mentors.

**Prerequisite(s):** Permission of Program Director.

### **CURR 517 Teaching and Learning Number and Operations 3 Credits**

This course provides an in-depth study of the content and pedagogy for understanding early number theory. It addresses students' mathematical understanding of representing numbers, relationships among numbers, and number systems; operations and how they relate to one another; and computation. Strong emphasis is placed on the cognitive development of children's thinking in number and operations, and the instructional, curricular, and assessment implications for teaching. The course includes the NCTM Principles of problem solving, reasoning and proof, connections, communication, and multiple representations and the Common Core State Standards for Mathematics Practices.

### **CURR 518 Teaching and Learning Rational Numbers and Proportional Reasoning 3 Credits**

This course provides an in-depth study of the content and pedagogy for understanding rational numbers and proportional reasoning. Content includes a variety of situations involving proportions, for example, real-world problems involving ratios, rates, and percents; geometry involving similarity; algebra involving linearity; and probability involving assigning a probability to an event. Distinguishing proportional situations from those that are not and reasoning proportionally in appropriate situations are emphasized. Emphasis is placed on children's cognitive development of rational numbers and proportional reasoning, and the instructional, curricular, and assessment implications for teaching. The course includes the NCTM Principles of problem solving, reasoning and proof, connections, communication, and multiple representations and the Common Core State Standards for Mathematics Practices.

### **CURR 519 Teaching and Learning Algebraic Reasoning 3 Credits**

This course provides an in-depth study of the content and pedagogy necessary to facilitate the transition from concrete arithmetic reasoning to abstract algebraic reasoning. It addresses students' mathematical understanding of equality, variable, generalization, and functions; cognitive development of algebraic reasoning; and the instructional, curricular, and assessment implications for fostering algebraic reasoning in students. Strong emphasis is placed on the NCTM Principles of problem solving, reasoning and proof, connections, communication, and multiple representations and the Common Core State Standards for Mathematics Content and Mathematical Practices.

### **CURR 520 Teaching and Learning Geometric Understanding 3 Credits**

This course provides an in-depth study of the content and pedagogy for geometric understanding. It addresses students' mathematical understanding of shapes and their properties, location, transformation of shapes, and visualization; the cognitive development of geometric thinking; and the instructional, curricular, and assessment implications for teaching. Emphasis is placed on the NCTM Principles of problem solving, reasoning and proof, connections, communication, and multiple representations and on the Common Core State Standards for Mathematics Practices.

### **CURR 522 Teaching and Learning Measurement and Data 3 Credits**

This course provides an in-depth study of the content and pedagogy for measurement, data analysis, and probability. Mathematical content includes units, systems, and processes of measurement; techniques, tools, and formulas to determine measurements; data collection and display; statistical methods to analyze data; and, evaluating inferences and predictions. Emphasis is placed on children's cognitive development of measurement and data, and the instructional, curricula, and assessment implications for teaching. The course includes the NCTM Principles of problem solving, reasoning and proof, connections, communication, and multiple representations and the Common Core state Standards for Mathematics Practices.

### **CURR 523 Teaching and Learning Mathematics in the High School 3 Credits**

This course addresses issues central to teaching and learning mathematics in the high school; building learning communities, how students learn mathematics, use of worthwhile mathematical tasks, instructional modes, technology options, and assessment to inform instruction. Mathematical topics examined are number and quantity, algebra, trigonometry, geometry, and statistics and probability, and modeling. Strong emphasis is placed on the NCTM Principles of problem solving, reasoning and proof, connections, communication, and multiple representations and on the Common Core State Standards for Mathematics Practices.

**CURR 524 Teaching Mathematics in the Middle School 3 Credits**

This course has been designed to guide both in-service and pre-service teachers towards growth in teaching mathematics in middle school classrooms, according to the best of current practices. It is accepted that teaching and learning is an ongoing process throughout our careers. Teaching math well requires: a) Deep understanding of the mathematics content, b) Understanding of how students develop mathematical ideas, and c) The ability to shape appropriate learning environments and tasks. Realistically, the process of teaching mathematics, how student learn it, and how to build appropriate learning environments in courses like this one is only the first step towards developing the content and pedagogical skills needed to teach in the 21st century. The objective is to help students construct ideas that take them in the right direction, providing models for the continued long-term learning they will develop with their own classrooms clearly in mind. According to the best of current practice, this involves learning through exploration, inquiry and discovery. As students communicate and then reflect on teaching situations, they will form what has been described as a community of practice, a prototype for how groups of educators join forces, over months and years, to strengthen both their understanding and school practice.

**CURR 526 Place Value Instruction: Navigating the Decimal 3 Credits**

K-8 teachers examine the theory and practice of K-8 place value instruction during a weeklong course. Incorporating the ideas of the successful CONNECT-ED project, this seminar will examine place value theory and model instructional design that traces children's developmental levels and aligns with national and state standards. Participants will work with peers and experienced University faculty to design longitudinal instructional modules on other math topics. By engaging in this multi-grade design process, teachers will examine new ideas about mathematics, children's mathematical thinking, and mathematics instruction. Participants can earn professional development hours or college credit.

**CURR 527 Curricular and Instructional Design for Fraction Understanding 3 Credits**

K-8 teachers examine the theory and practice of K-8 fraction instruction during a weeklong course. Based on the successful CONNECT-ED project, this seminar will model how to design fraction instruction that traces children's developmental levels, and aligns with national and state standards. Participants will work with peers and experienced University faculty to design similar instructional activities. By engaging in this multi-grade design process, teachers will examine new ideas about mathematics, children's mathematical thinking, and mathematics instruction. Participants can earn professional development hours or college credit.

**CURR 531 Strategies for Curriculum Development, Innovation and Change 3 Credits**

This course will address the importance of philosophy, historical precedents, learning theory, developmental theory, emerging social trends and issues, and recent trends in content knowledge as bases for designing and developing the K-12 curriculum. The articulation of curriculum aims and goals, the development and selection of learning experiences, the organization of learning experiences, and plans for evaluating curriculum outcomes are used as steps for developing the curriculum. Students investigate the roles teachers, teacher leaders, supervisors and administrators play in implementing curriculum designs in school settings. Students are expected to demonstrate course understandings through actual school applications and field experiences that are referenced to state and national standards.

**CURR 532 Strategies for Curriculum Change 3 Credits**

This course will examine organizational skills and knowledge necessary to effect curriculum development and change, K-12. The course will address the socio-political context of curriculum change along with alternative strategies for initiating, implementing and sustaining standards-based curriculum improvements. Topics of study include strategic planning, problem-solving strategies, needs assessments, curriculum alignment, program evaluation, staff development and the organization of staff members for collaborative deliberation and decision making as essential means for promoting successful curriculum change at all levels of schooling. Students will demonstrate course understandings through actual classroom and school applications that are referenced to state adopted core curriculum content standards and professional development standards, the Standards for School Leaders of the Interstate School Leaders Licensure Consortium, and the candidate proficiencies developed by the Educational Leadership Constituent Council.

**Prerequisite(s):** CURR 531.

**CURR 533 Elementary School Curriculum 3 Credits**

A review of principles, curriculum, and methodology in elementary education, examined in the framework of social, cultural, and psychological developments. Recent developments in theory and empirical knowledge are analyzed. Emphasizes developing the content and organization of an integrated curriculum with a concern for individual differences with provision for social environments best adapted to fulfill basic needs and interests.

**Prerequisite(s):** CURR 531.

**CURR 534 Secondary School Curriculum 3 Credits**

A survey of the changing aims and programs of the secondary school. General, specialized, vocational, and activity programs are discussed with an analysis and evaluation of recent curriculum developments and projects. Current issues and controversies, in addition to research findings affecting secondary curriculum, are studied.

**Prerequisite(s):** CURR 531.

**CURR 535 Theory and Practices of Bilingual Education 3 Credits**

Introduces the rationale and research as a basis for bilingual education as well as the varied and current approaches to implementing programs. Implications drawn from the social, psychological, and linguistic problems of bilingual learners are considered as they apply to the needs, goals, and issues of bilingual/bicultural programs.

**CURR 536 Special Studies in Curriculum, Instruction, and Supervision 3 Credits**

The content of this course varies for each offering. In-depth treatment of issues, problems, concerns, or developments in curriculum, instruction and/or supervision will be provided. Topics such as global education, teaching and learning styles, classroom management, etc., are announced in advance and serve as the focus of course content.

**CURR 538 Assessment of Curriculum and Instruction to Improve the Performance of Teachers and Diverse Learners 3 Credits**

This course establishes the implemented curriculum by establishing the relationship between curriculum goals and the instructional strategies needed to realize those purposes. Emphasis will be placed on analyzing and using various instructional models to meet the learning expectations embodied in curriculum goals and core curriculum content standards from pre-school to high school. Students will examine instructional strategies from the perspectives of assessing research findings on effective practices, realizing curriculum standards, adapting the classroom to diverse learner needs, establishing appropriate staff development agendas, and providing forms of supervisory support to optimize learning and achievement. Students will demonstrate course understandings through actual classroom and school applications that are referenced to state adopted core curriculum content standards, professional development standards, and national school leadership standards.

**Prerequisite(s):** CURR 531.

**CURR 541 Assessment and Student Learning 3 Credits**

This course provides hands-on opportunities to create and design varied classroom assessments that help teachers align their teaching goals with student learning goals. With a focus on NJ Student Learning Standards across the curriculum content areas and grade levels, assessments will be designed for use in individual teaching practice and with a variety of diverse learners. Topics include designing assignment rubrics and effective essay prompts as well as developing evaluation criteria.

**Prerequisite(s):** CURR 510 and CURR 700.

**CURR 548 Curriculum and Instruction for Diverse Learners 3 Credits**

This course will examine the curricular and instructional issues that educational leaders must address in accommodating the school program to the needs and abilities of diverse learners. A historical perspective will be developed with an emphasis on how schools have responded to meet the needs of the exceptional child. Legal issues and programmatic trends will be examined and assessed since the inception of the Individuals with Disabilities Education Act. Multicultural issues will be introduced within the context of school and society. The responsibility of the educational leader in fostering a multicultural perspective pertaining to curriculum and instruction, governance, bias and prejudice and school climate and culture will be emphasized. Students will identify and develop curricular possibilities and solutions in school settings to accommodate learners' diverse needs. Students will demonstrate course understandings through actual classroom and school applications that are referenced to state adopted core curriculum content standards, professional development standards, state adopted core curriculum content standards, professional development standards, standards and national school leadership standards.

**Prerequisite(s):** CURR 531, CURR 538.

**CURR 552 Creative, Ethical Teacher Leadership 3 Credits**

In order to be effective, teacher leaders require in-depth understanding of the complex, threat-filled, 21st-century globalized environment that provides the context for their work. They must understand the problems, opportunities, and pressures generated by the current socioeconomic, political, and cultural system of the United States, which is characterized by dogmatism-saturated disputes over the purposes of education and the allocation of resources. In addition, they must appreciate the ways in which the larger forces of globalization influence these national trends and issues. Finally, they must understand the ways in which the principles of wise, ethical, intelligent, and creative leadership can help them and their colleagues in their efforts to maintain and strengthen student learning in these daunting conditions.

**CURR 580 Action Research Tchg & Learn 3 Credits****CURR 585 Practicum Conducting Action Rsch 3 Credits****CURR 590 Seminar and Practicum in Curriculum, Instruction and Supervision 3 Credits**

Taken at the completion of all course work in the program. Students study in seminar fashion the current literature and research in the general areas of curriculum, instruction and supervision. Each student is involved in an individualized field experience. Typically the experience involves work with supervisory assistance in a selected segment of the student's school district, or in an approved location. The cooperation of the administrative staff of the student's school district is essential for the effective completion of this project. The instructor is free to observe the project in progress, and to evaluate the completed research project and the finished project paper.

**Prerequisite(s):** all course work including EDUC 500, permission of instructor.

**CURR 592 Internship III 1-3 Credits**

The continuation of Internship I, this 1 to 3-credit course is required for those students who were unable to complete the 300-fieldwork hours of Internship I in the fall or spring semester. Students will continue at their Internship I fieldwork site and will be responsible for completing the remainder of their 300-hours. A grade will not be granted in Internship I until the successful completion of Internship III. The approval and cooperation of the intern's agency or school field supervisor for continuing placement must be obtained at the conclusion of the prior semester. Prior to enrollment, students must submit documentation of supervisor permission and a comprehensive plan for fieldwork- hour completion to the clinical coordinator. Clinical coordinator approval is required.

**Prerequisite(s):** COUN 590 and all other required course work must be completed or in progress and permission of the clinical coordinator is required.

**CURR 600 Independent Study and Research 1-3 Credits**

Course content varies with academic research interests of students who wish to engage in independent study related to the overall content of curriculum, instruction and/or supervision.

**CURR 640 Teaching and Learning Physical Science 3 Credits**

This course provides an in-depth study of content and pedagogy for understanding selected physical science (physics and chemistry) topics aligned with Next Generation Science Standards (NGSS). The course will be structured around big ideas identified in NGSS, common misconceptions, and appropriate learning progressions. While addressing the content, emphasis will also be placed on: effective instructional strategies and science practices through the use and study of such practices and strategies.

**CURR 641 Teaching and Learning Life Science 3 Credits**

This course provides an in-depth study of content and pedagogy for understanding selected life science topics aligned with state and national standards. The course will be structured around big ideas identified in standards, common misconceptions, and appropriate learning progressions. While addressing the content, emphasis will also be placed on: effective instructional strategies and science practices through the use and study of such practices and strategies.

**CURR 642 Teaching and Learning Earth and Space Science 3 Credits**

This course provides an in-depth study of content and pedagogy for understanding selected earth and space science topics aligned with state and national standards. The course will be structured around big ideas identified in standards. While addressing the content, emphasis will also be placed on: effective instructional strategies and science practices through the use and study of such practices and strategies.

**CURR 643 Engineering Solutions to the Challenges of Contemporary Science Issues 3 Credits**

This course provides an in-depth study of the content and pedagogy for understanding selected technology, engineering and design topics aligned with state and national standards. The course will be structured around big ideas identified in standards, common misconceptions, and appropriate learning progressions. While addressing the content, emphasis will also be placed on: effective instructional strategies and science practices through the use and study of such practices and strategies.

**CURR 644 Teaching and Learning Chemical Science 3 Credits**

This course provides an in-depth study of content and pedagogy for understanding selected chemistry topics aligned with Next Generation Science Standards (NGSS). The course will be structured around big ideas identified in NGSS, common misconceptions, and appropriate learning progressions. While addressing the chemistry content, emphasis will also be placed on: effective instructional strategies and science practices for the K-8 classroom through the use and study of such practices and strategies. Participants will engage in experiences with the states and properties of matter, develop models of the atom, and gain an understanding of the major principles of chemistry. The course will focus on states of matter, characteristic physical and chemical properties of matter, and chemical and physical transformations of matter.

**CURR 650 Understanding Gifted Learners 3 Credits**

The course explores the ways in which the gifted and talented can differ from more typical learners in terms of their cognition, social-emotional dimensions, behavior, and long-term development. It focuses on theories of intelligence, differing conceptions of giftedness and talent development, and learning processes. Some specific topics include underachievement, perfectionism, dual exceptionality, gender issues, and underserved populations. The course also addresses the ways in which gifted education can evolve to fit the demands and opportunities embedded in complex, 21st-century socioeconomic, cultural, and technological contexts.

**CURR 652 Differentiating Instruction for the Gifted and Talented 3 Credits**

This course provides the rationale and practical strategies for effective instructional differentiation for the gifted and talented within and beyond the regular classroom. Participants will learn how to differentiate within subject areas by adjusting content, process, product, and learning environment to meet the needs of learners. They also will explore the nature and nuances of differentiation by ability, readiness, and interest, as well as the implications of instructional differentiation for formative and summative assessment. Throughout the course they will design and share examples of differentiation including tiered assignments, complex instruction, independent studies, graphic organizers, and learning contracts.

**CURR 654 Innovative Instructional Strategies for Gifted Education 3 Credits**

This hands-on, experiential course immerses participants in simulations and analyses of new and revised student-centered teaching models and strategies that are conducive to creative and critical thinking, advanced content mastery, and the invigoration of students' interests. Participants analyze the potential of each model/strategy while considering the ways in which it can apply to content learning in various subject areas/domains. The course also engages participants in studying the fundamental principles of program design in gifted education so they can make the best possible use of the instructional models and strategies.

**CURR 656 Creative, Interdisciplinary Thinking 3 Credits**

This course facilitates creative thinking through the exploration of important insights from a wide variety of disciplines in the social sciences, humanities, natural sciences, and education. The process of creative association enables participants to combine diverse, remotely associated constructs to create new products and processes. Applications of interdisciplinary thinking to curriculum and instruction are explored. These applications include novel methods for curriculum integration, discovery and development of children's interests, and instructional modifications for the gifted and talented. Exploration of concepts and processes in multiple academic domains and professional fields also provide appreciation for the domain-specific natures of giftedness and creativity.

**CURR 660 Authentic Data in the Elementary STEM Classroom. 3 Credits**

Young learners can think deeply about content and make meaningful connections between their experiences, natural phenomena, and authentic data when teachers integrate data in purposeful ways. In this course, teachers construct student-centered STEM investigations integrating real-world scientific and mathematical data and build their understanding of the theoretical basis for this work. Participants gain knowledge of STEM resources, learn to access entry points for STEM in elementary classrooms and foster engaging contexts, like engineering, coding, and NASA mission exploration. Teachers explore the synergies between Common Core State Standards and Next Generation Science Standards for a productive and exciting learning environment that prepares students for ongoing interest in STEM. This course is recommended as a foundation for the STEM certificate program.

**CURR 661 Authentic Data in the Secondary STEM Classroom 3 Credits**

Middle and High School students are capable of deep sense making when teachers utilize engaging STEM classroom practices to teach content with authentic data connections. In this course, teachers learn to apply research-based best practices central to today's classrooms. In a collaborative professional learning environment, they build knowledge of resources for accessing, analyzing, and making use of authentic data in meaningful activities. Coursework includes planning student-centered lessons that integrate data, building cultural relevance with engaging phenomena, and developing meaningful assessments for STEM activities. Participants identify how to integrate engineering design into the STEM classroom and learn how to represent the Nature of Science as students develop conceptual understanding and apply critical thinking to real-world decisions. A library of content rich lessons becomes available to all participants through a shared online community. This course is recommended as a foundation for the STEM certificate program.

**CURR 662 Eyes on Earth: Teaching Earth Science from Space (PK-8) 3 Credits**

This course will take participants through a journey about space exploration and specific NASA missions that examine components of earth. Participants will learn science content grounded in Earth's Lithosphere, Hydrosphere, Atmosphere, and Biosphere. By learning to use authentic data from NASA and other sources participants will experience an exploratory approach to learning about the Earth, and then bring these experiences to their own classrooms. Teachers will utilize several web-based tools and real-time data along with the three-dimensional learning in the Next Generation Science Standards to create lessons that can be used directly in the classroom.

**CURR 663 Lessons from the Ocean: Science on the Water Planet (Grades 2-12) 3 Credits**

Bring the ocean into your classroom by using Earth's waters as a context for standards-based STEM content. The ocean is critical to the functioning of the Earth system, and is an authentically integrated context for learning about topics such as density, weather and climate, heat transport, environmental issues, biogeochemical cycles, mathematics, and much more. Access a myriad of data sets to apply science concepts and make connections between the ocean and atmosphere, living and nonliving parameters, and life on land, as well as in the deep sea. Use the context of the ocean to teach Next Generation Science Standards topics with deep understanding and meaning for learners.

**CURR 664 The Arts in STEM: Advancing Meaningful Integration (K-12) 3 Credits**

Apply art in the context of exciting STEM concepts and learn to integrate art, science, math, technology, and engineering in more meaningful ways in your classroom. At the core of the STEM Education movement are critical thinking, creativity, problem solving, and authentic learning environments that engage diverse students in meaningful ways with content. The many mediums for art and artistic expression are a valuable component of communication and expression. Scientists and researchers at NASA and across the globe use myriad forms of art in their work. This course invites students to take a close look at the incorporation of art in the STEM classroom and provides resources, exemplars, and access to collaborative support for arts integration.

**CURR 665 Climate Change with NSF SPRINTT 3 Credits**

Award-winning curriculum and eloquent, online student investigations help students study science concepts emphasized in the Next Generation Science Standards, in the context of Earth's Polar Regions to better understand the complexity of Earth's climate and how it is changing. View the Earth using real scientific data from satellites and western researchers. Then, consider the lens of indigenous peoples of the Arctic. Examine tons of data and changes in ice, permafrost, weather patterns, biological change, and more as you conduct research with simple-to-use, web-based instructional tools, using authentic data sets and models to study our planet's past, present, and future climate. Interdisciplinary investigations address many Common Core State Standards in reading, writing, science, and technical subjects as well as mathematics in the context of climate science.

**CURR 666 Exploring Mars: A New Twist on Science (or Math) 3 Credits**

Use a wealth of data sets and technological tools to explore and understand features of Earth's neighbor, the Red Planet. Look for and study the physical and chemical evidence of water and ice; compare erosion patterns on Mars and Earth; and make inferences about the planet's history as you study both its geologic features, including volcanoes and craters, and the physics of the atmosphere. Teach Next Generation Science Standards topics in Earth, physical, and chemical science integrating mathematics, in the context of Mars using recent data from Curiosity Rover and other missions.

**CURR 667 Physical Science in Motion: Classroom Applications 3 Credits**

Physical science, when applied, makes tough-to-understand concepts easy and fun. Participants learn to solve problems relating to one-dimensional motion; become acquainted with and apply Newton's Laws of Motion and equilibrium of forces; learn about constant acceleration and gravitational acceleration; investigate concepts in aerodynamics; and learn about two-dimensional motion. Participants will use free, simple-to-use, software simulations from NASA Glenn Research Center, which help to present these concepts for you, and, then, your students, in the context of aeronautics, including airplane design, rocketry, sports, and more. A carefully developed resource page provides access to excellent resources and engaging activities for implementing course content in your classroom with important connections to Next Generation Science Standards and Common Core mathematics.

**CURR 668 Coding, Robotics, and 1:1 Devices 3 Credits**

Learn applications of Coding as a mathematics pedagogy, explore opportunities for Robotics, and learn cutting-edge implementation of One-to-One Devices (1:1) in K-12 classrooms. Participants learn about and explore best practices in the newest learning pedagogies and technologies. Whether you are already involved, or looking to integrate these cutting-edge tools and strategies for the classroom, you will begin to expand your reach for enhancing student learning. Scaffolded to allow success at all grade levels, Coding, Robotics, and 1:1 Devices offers resources for application into elementary, middle, and high school. Participants will interact with no-fee computer programming, robotics opportunities, and the latest uses of devices. All participants have the opportunity to work with innovative technologies and interact with talented educators, practitioners and special guests who are already making a difference in K-12 classrooms.

**CURR 669 Culturally Relevant Pedagogy in the STEM Classroom 3 Credits**

Classrooms comprise individual learners, each bringing their own culture and experiences to the learning environment. The value and strength of diversity has become increasingly described in educational literature. This course introduces teachers to the curriculum and pedagogical issues relevant to race, language, gender, and socio-economic differences. Participants apply content and pedagogy involving science and mathematics contexts for effective learning. STEM activities will integrate meaningful, engaging practices for teaching diverse learners. The course is differentiated for elementary and secondary school educators to provide relevant connections, to be directly applied, in each participant's classroom.

**CURR 670 Life and Marine Science: Tracking Live Marine Animals 3 Credits**

Follow marine animals (e.g., polar bears, sea turtles, sharks, and whales) in real-time, and apply life and Earth science topics to the ocean. Study topics such as ecosystems, biodiversity, cell structures, food webs, and conservation, as you make connections to ocean currents, seafloor features, density and more. Discover the importance of the ocean to humans, as well as our impacts, both positive and negative, on marine environments. The in-depth use of data lends itself to Next Generation Science Standards by integrating instructional technology with life, Earth and physical science.

**CURR 671 Life in Space: NASA ISS and Astrobiology 3 Credits**

The International Space Station (ISS) is an amazing undertaking comprising technology, engineering, science and math—the perfect context for exciting students for learning. NASA research leads to technological advances on Earth and in human space exploration. As NASA plans for manned missions to Mars, scientists explore our solar system and beyond for determining if and where life could exist. Extremophiles are fascinating for teaching Earth science in a context for astrobiology research. The course explores how space travel impacts the human body; growing food in space; engineering protection from radiation, and searching for habitable environments. With its application of subject matter, it offers excellent resources and interactions with NASA scientists, and data for educators to bring the exciting context of space travel to the classroom.

**CURR 672 Math Connections to STEM Education 3 Credits**

The course introduces a wealth of applied mathematics exercises and activities relevant to integrated STEM assets and science activities. Some are in the realm of topics seen in Earth and Space science and physics. Live presenters break down authentic examples and projects, and demonstrate to educators how problems incorporate Common Core State Standards-based mathematics with applications that meet Next Generation Science Standards performance expectations. Educators survey math and science examples and tools as the course promotes the use of applied mathematics in science, or science in mathematics, to meet content goals in the classroom.

**CURR 673 NASA Astronomy and Space Science 3 Credits**

Harness your students' enthusiasm for space and astronomy by using astronomical images to enrich your physical, Earth, and life science courses. Measure the speed of an asteroid, learn about erosion on Mars, and see the tracers of life that are visible from space. In this course, we explore the many ways in which real data from NASA's space science and astronomy missions can be used to teach math and science content in your classroom, meeting science and math standards in Next Generation Science Standards and Common Core State Standards. Through the use of cutting-edge technology tools, and with a NASA scientist visiting our class, you will not only learn more about the universe, you will learn how to bring the universe into your education context.

**CURR 674 NASA Physics for Real Beginners: Earth, Moon, and Space 3 Credits**

Gain an introduction to physics in this conceptual course that uses NASA's space initiatives as the context for content. Learn about gravitation between celestial bodies, how to get a satellite into orbit, what it takes to blast off into space, and more. This course will discuss these and related topics while exploring NASA content related to space and the Hubble Space Telescope and Kepler Missions. Bring cutting-edge examples to your classroom while addressing Next Generation Science Standards performance expectations.

**CURR 675 Reading and Writing in the Science Classroom 3 Credits**

Discuss and analyze the ways that literacy and science connect in the science classroom, and highlight how reading and writing can be used to increase students' understanding of science content. Focus on how to integrate important literacy skills from Common Core State Standards in your science and STEM classroom to address content standards from Next Generation Science Standards. Cutting-edge strategies and well-founded principles pave the way to success with non-fiction reading material. The manner in which information and scientific content is presented shapes student success, not just for reading, but student writing, organization, and presentation.

**CURR 676 The E in STEM: Meaningful Content for Engineering 3 Credits**

Learn how to use engineering to make your classroom come alive. Bridge and teach math and science concepts through exciting applications in the Engineering Design Process where you and your students design, test, and evaluate models and real-life applications. Activities are hands-on and emphasize the reciprocities between science, technology, engineering, and mathematics in formal design challenges. Educators enrich classroom curriculum with elements of design in science, mathematics, or technology activities, addressing important Next Generation Science Standards' engineering design practices.

**CURR 677 WDL - Weather Data Learning Center 3 Credits**

Use weather data to teach and learn math. This course teaches content in a math curriculum that uses weather data. Weather Data Learning Center demonstrates increases in student performance in grade 4 mathematics. Collect, access, and interpret current real-time imagery, maps and data. Make connections from weather to learn Common Core-based mathematics using various STEM pedagogical strategies. Learn the basics of clouds, air masses, humidity, fronts, pressure, jet stream, and climatic patterns as you apply these ideas to math concepts such as measurement, fractions, number sense, data collection, and analysis.

**CURR 678 Action Research in the STEM Classroom 3 Credits**

A Capstone Course requirement "option", this course may be part of joint Master's Degree programs, or Endeavor's "5-course" certificate program earning Research Distinction and an award.

**CURR 679 Practicum in STEM Leadership 3 Credits**

Share your knowledge of STEM teaching and learning with colleagues in your building, district, or region.

**CURR 680 STEM Leadership Seminar 3 Credits**

The course contains STEM pedagogical content knowledge, incorporating authentic data and using technology as a tool for learning. The course provides a springboard for cultivating problem solving skills, inspiring student research projects, and integrating STEM methods and essential principles addressed in new standards.

**CURR 681 Chemistry in the STEM Classroom 3 Credits**

In this course, the many facets by which even the layman can come to appreciate chemistry in the world will be explored; be it in the materials that make up your clothes, the technology that created the age of plastics, or the chemicals in your brain that tell you how to feel as you read these words. A wide array of topics based on 'grocery-store' science will be introduced, allowing you to get your hands in the chemistry without the need of expensive materials or lab equipment.

**CURR 682 Climate Science: Socioscientific Issues in the STEM Classroom 3 Credits**

Socioscientific issues are important avenues through which to teach scientific literacy and to create the next generation of critical thinkers and sustainable solution engineers. Anthropogenic climate change is one of the most complex and critical issues the global community faces today. Understanding climate change and the scientific, social, and economic ramifications is crucial for science pedagogues. This course examines the ideas of socioscientific issues and critical thinking in science education and how they can be taught through NGSS-aligned global change pedagogies that highlight climate and energy literacy. Pedagogues will learn to utilize authentic data resources that elucidate the story of our changing climate and think critically about how to implement data into their teaching. The philosophical, ethical, and scientific basis of these problems and their solutions will be discussed.

**CURR 700 Educational Foundations for Inclusive Practices 3 Credits**

This course provides psychological and interdisciplinary perspectives on teaching and learning. Within the theme of optimal development of creative intelligence, and in concordance with important NJ and national professional standards, candidates will use these perspectives to begin their career-long processes of reflective professional development. More specifically, the course develops knowledge, skills, and dispositions pertinent to (a) child and adolescent development, (b) learning theories, (c) learner diversity, (d) classroom management, (e) career readiness skills, (f) philosophical and historical perspectives on education, (g) sociocontextual and interdisciplinary influences on education, and (h) higher-order, creative and critical thinking. The emphases on student development and learner diversity entail in-depth investigation of the following subtopics: the philosophical, legal, and historical foundations of special education; the characteristics of students with disabilities and learning strengths; inclusive practices; professional partnerships for support of diverse learners; and strategies for modification of curriculum content and materials aligned to NJ Student Learning Standards, learning environments and processes.

**CURR 702 Early Literacy Development for Diverse Learners 3 Credits**

This course addresses current strategies for teaching beginning learners' vocabulary, comprehension, composition, and language study. It addresses strategies for the development of literacy for all learners ranging from the gifted and talented to those with learning disabilities or other special needs. The course develops proficiency with the management of literacy instruction for content areas in general education in preschool and primary grades and planning aligns with NJ Student Learning Standards. It provides candidates with the pedagogical literacy proficiency necessary for the development of their students' career readiness skills (employability skills, employment readiness through enhanced literacy capacities). Field experiences include observation and interaction in classes focusing on literacy instruction in inclusive classrooms.

**Prerequisite(s):** CURR 700 with a minimum grade of C+.

**CURR 703 Inclusive Literacy Practices Across Content Areas 3 Credits**

This course addresses varied literacy strategies for teaching diverse adolescents across content areas in secondary schools. Professional educators use a variety of instructional methods, curriculum unit/lesson planning, and assessment strategies to help diverse students actively construct their own learning as well as critically access and assess new information. Through in-class workshops and discussions, reading, group and individual work, the course uses various methods, models, and strategies for integrating literacy for diverse adolescent learners across settings and subject matters aligned with NJ Student Learning Standards. The course also provides candidates with the pedagogical literacy proficiency necessary for the development of their students' career readiness skills (employability skills, employment readiness through enhanced literacy capacities). Field experiences include observation and interaction in classes focusing on various literacy strategies in inclusive classrooms.

**Prerequisite:** CURR 700.

**CURR 704 Inclusive Methods for Teaching English Language and Theater Arts 3 Credits**

This course provides experience with various methods of teaching and learning integrated English language and theater arts and with diverse adolescent students. Teacher candidates explore methods, classroom management, and strategies for teaching and learning through reading/literature, language development, writing/composing processes, representing and performing, speaking, listening, and viewing/creating media. Candidates design curriculum and assessments using NJ Student Learning Standards for Language Arts Literacy and Theatre and Visual Arts curriculum standards. Aligned with NCTE's Guidelines for the Preparation of Teachers of English Language Arts, the course uses collegial collaboration during the review of student work, co-planning curriculum and assessment in the development of employability skills such as collaborative planning, teaching, and assessment review. A field-based middle school partnership embedded in the course allows candidates to work with a range of diverse students and explore implications for teaching, learning, and providing access to the general curriculum for all students.

**Prerequisite(s):** CURR 720 with a minimum grade of C+ and maintain a 3.0 grade point average.

**CURR 705 Inclusive Methods for Teaching Social Studies 3 Credits**

This course addresses the practical and theoretical aspects of teaching social studies to diverse adolescents in secondary schools. Using the NJ Student Learning Standards in Social Studies, candidates will prepare and design curriculum and assessment for students in various learning environments and with diverse learning needs. The course also examines the characteristics of secondary students with disabilities as well as strategies for modifying social studies curriculum planning, learning environments, and instructional materials to address diverse learning needs. The clinical, field-based component of the course requires that candidates provide instructional support for diverse learners.

**Prerequisite(s):** CURR 720 with a minimum grade of C+ and maintain a 3.0 grade point average.

**CURR 706 Inclusive Methods for Teaching Science 3 Credits**

Classroom interaction analysis systems are used in the study of the instructional processes that support inquiry-based science learning. Candidates develop their own repertoires of teaching strategies, classroom management strategies, and awareness of career requirements in STEM fields. Emphases are on the investigation and interpretation of recent curriculum developments in NGSS and NJ Student Learning Standards in Science as well as the use of lab-based processes in science learning. The course also examines the characteristics of secondary students with disabilities as well as strategies for modifying science curriculum planning, learning environments, and instructional materials to address diverse learning needs. The clinical, field-based component of the course requires that candidates provide instructional support for diverse learners.

**Prerequisite(s):** CURR 720 with a minimum grade of C+ and maintain a 3.0 grade point average.

**CURR 707 Inclusive Methods for Teaching Mathematics 3 Credits**

This course critically analyzes the aims of teaching mathematics in secondary schools. Research pertaining to mathematics teaching and learning is analyzed. Demonstration lessons including reflective teaching and individual and group processing are created and carried out to clarify teaching, mathematics curriculum planning using NJ Student Learning Standards in Mathematics, the organization of materials and subject matter, assessment processes classroom management strategies, and awareness of career requirements in STEM fields. The course also examines the characteristics of secondary students with disabilities as well as strategies for modifying mathematics curriculum planning, learning environments, and instructional materials to address diverse learning needs. The clinical, field-based component of the course requires candidates provide instructional support for diverse learners.

**Prerequisite(s):** CURR 720 with a minimum grade of C+ and maintain a 3.0 grade point average.

**CURR 708 Inclusive Methods for Teaching Business 3 Credits**

Emphasis is placed on the enhancement of teaching inclusive business education. Special attention is devoted to the new technology and its use in business education. Current instructional materials are presented and utilized. Master practicing business education teachers will augment the instructor's presentations.

**CURR 710 Math Methods for the Inclusive Elementary Classroom 3 Credits**

This course introduces teacher candidates to effective mathematics instruction based on learning trajectories of diverse learners in preschool and elementary classrooms. The course will guide candidates as they consider how to create inclusive, equitable, supportive yet challenging mathematics learning environments for their students. In alignment with the NJ Student Learning Standards and NAEYC and NCTM professional standards, emphasis is placed on planning and implementing an inquiry-based approach with hands-on experiences, use of technology, and traditional and non-traditional assessment strategies. The course provides candidates with the pedagogical proficiency necessary to foster mathematical understanding, engagement, and enjoyment. Field experiences consist of classroom observations with instructional analysis and assessment of children's mathematical thinking.

**Prerequisite(s):** CURR 702 with a minimum grade of C+.

**CURR 711 Pedagogy and Methodology in Dance 3 Credits**

This course provides the student with first-hand experience inside a classroom setting to broaden the students' understanding of dance techniques, teaching styles and strategies, analysis of skills and critical feedback, class preparation and design, and assessment. Course requirements include off-campus field work. The existing methods course in Dance for beginning teachers is cross-listed with DAN 450.

**CURR 712 Inclusive Methods for Teaching Music 3 Credits**

This course provides experience with various methods of teaching and learning music K-12. Course readings and field observations focus on inclusive teaching practices in music and explore implications for teaching, learning, and providing access to the general curriculum for all students across diverse settings. Candidates also design curriculum and assessments using NJ Student Learning Standards for Music/Visual and Performing Arts.

**Prerequisite(s):** CURR 720 with a "C+" or better, and maintain a 3.0 grade point average or better.

**CURR 713 Inclusive Methods for Teaching Art 3 Credits**

This course provides experience with various methods of teaching and learning Art K-12. Course work and fieldwork focus on inclusive teaching practices in art and explore implications for teaching, learning, and providing access to the general curriculum for all students across diverse settings. Candidates also design curriculum and assessments using NJ Student Learning Standards for Visual and Performing Arts.

**Prerequisite(s):** CURR 510, CURR 700, CURR 703.

**CURR 714 Inclusive Methods for Teaching Health and Physical Education 3 Credits**

This course provides experience with various methods of teaching and learning Health and Physical Education K-12. Course work and fieldwork focus on inclusive teaching practices in health and physical education and explore implications for teaching, learning, and providing access to the general curriculum for all students across diverse settings. Candidates also design curriculum and assessments using NJ Student Learning Standards for Comprehensive Health and Physical Education.

**Prerequisite(s):** CURR 510, CURR 700, CURR 703.

**CURR 715 Inclusive Elementary Science, Arts, & Social Studies Teaching 3 Credits**

This course provides aspiring elementary school teachers with a variety of developmentally appropriate options for designing, implementing, and evaluating curriculum and instruction in science, social studies, and the arts. Using NJ Student Learning Standards, emphasis is placed on inclusive practices and differentiation of instruction (e.g., modifying curriculum planning, learning environments, and instructional materials, content, processes, and products), curriculum integration, thematic unit and lesson planning, various teaching strategies, hands-on learning experiences, inquiry learning, career readiness skills, higher-order thinking, reflective practice, and various assessment strategies. Other facets of teaching also are addressed or reviewed in the course. These include the characteristics and needs of students with disabilities motivation, classroom management, and becoming a team member of a school faculty. Candidates also refine their pedagogical knowledge and skills by participating in the modification of instruction to meet the needs of diverse learners in nearby school settings.

**Prerequisite(s):** CURR 702.

**CURR 719 Math Applications and Connections in the Elementary Classroom 3 Credits**

This course explores innovative strategies for integrating mathematics into various content areas within preschool and elementary classrooms. This course emphasizes the importance of making math engaging, relevant, and accessible for preschool and elementary students. Teacher candidates will explore a variety of interdisciplinary approaches that connect math with art, science, language arts, social studies, STEM, music, technology, and everyday life skills. Through a blend of theoretical knowledge and practical application, candidates will learn to design and implement lessons that foster a positive attitude towards math and enhance students' critical thinking and problem-solving abilities across the elementary curriculum.

**Prerequisite(s):** CURR 702 with a minimum grade of C+.

**CURR 720 Inclusive Curriculum Design & Instruction 3 Credits**

This course offers an overview of curriculum designs and their relation to teaching, learning, assessment, and providing curriculum access for all students. The course assumes that professional educators use a variety of instructional methods, curriculum unit/lesson planning and assessment strategies to help a variety of diverse students, especially adolescents, actively construct their own learning and enjoy access to the general curriculum. Using NJ Student Learning Standards, candidates acquire skills in instructional planning, classroom management, and the development of career readiness skills along with required field-based observations and experiences.

**Prerequisite(s):** CURR 700 with a minimum grade of C+, and maintain a 3.0 grade point average or better.

**CURR 722 Advanced Studies in Literacy Development and Assessment 3 Credits**

This course emphasizes evidence-based approaches to literacy instruction, including differentiated strategies for diverse learners, with particular attention to students who experience reading difficulties or are at risk for reading disabilities. The course emphasizes the importance of culturally responsive pedagogy and the role of diverse literature in the literacy development process. Teacher candidates will engage with multicultural and multilingual children's literature, exploring its potential to foster inclusivity and enhance literacy and language learning for all students. The course also explores formative and summative assessment techniques for evaluating literacy skills and using assessment to inform instruction. Through case studies, research reviews, and field observations, beginning teachers will develop skills to design and implement effective literacy instruction and assessment practices in early childhood and elementary classrooms.

**Prerequisite(s):** CURR 700 with a minimum grade of C+.

**CURR 770 Clinical Experience and Seminar in Teaching 9 Credits**

This course, designed for those seeking teacher initial certification, requires full-time supervised daily participation in a school setting with diverse students including students with disabilities. These experiences test and strengthen the translation of educational theory and research into meaningful teaching practice. On-campus or site-based seminar accompany the clinical experience and emphasize the reflective development toward professionalism through sharing and analyses of how to support the learning needs of diverse students and connecting clinical experiences with content knowledge and pedagogical knowledge from prior course work. The clinical experience is augmented with a series of additional seminars that include the following: introductory/ orientation seminars prior to the beginning of the semester; strategies for designing inclusive education practices and positive behavioral supports, assistive technology for diverse learners, transition planning; classroom management strategies; awareness of methods for strengthening student achievement and career readiness.

**CURR 771 Supervised Clinical Experience in Teaching 9 Credits**

The Supervised Clinical Experience in Teaching is available only to candidates seeking initial teacher certification and who currently work full-time teaching. Candidates may apply to the program for Supervised Clinical Experience in Teaching by providing evidence of successful, full-time teaching experience, planning, and evaluation. Once approved, candidates continue teaching within the appropriate certification area and under university supervision for a semester. On-campus or site-based seminar accompany the clinical experience and emphasize the reflective development toward professionalism through sharing and analyses of how to support the learning needs of diverse students and connecting clinical experiences with content knowledge and pedagogical knowledge from prior course work. The clinical experience is augmented with a series of additional seminars that include the following: introductory/ orientation seminars prior to the beginning of the semester; strategies for designing inclusive education practices and positive behavioral supports, assistive technology for diverse learners, transition planning; classroom management strategies; awareness of methods for strengthening student achievement and career readiness.

**CURR 772 Clinical Experience in Teaching Seminar 3 Credits**

The Clinical Experience in Teaching Seminar is available only to candidates completing teacher certification through the Alternate Route program and who currently work full-time teaching. Candidates may apply to the program for the Clinical Experience in Teaching Seminar by providing evidence of successful, full-time teaching experience, planning, and evaluation. Once approved, candidates continue teaching within the appropriate certification area and to attend and participate in an on-campus seminar.

**Prerequisite(s):** CURR 510, CURR 700, CURR 541 and Permission of Program Director.

**CURR 777 International Student Teaching 0 Credits**

This course provides an immersion opportunity for student teachers to learn about the different cultures and the education system of other countries while living and teaching abroad. Students will explore topics such as global awareness, international curriculum, global educational issues, and pedagogy to support diverse student needs. Through seminar discussion, research, observation, reflection and practical experience, students will develop and share their understanding of diversity in an international setting to increase global awareness, inclusive practice, and professional skills to develop a culturally responsive classroom. A fee is required for this course. **PREREQUISITES:** 3.25 GPA, letter of recommendation, successful completion of required PRAXIS exams, interview, essay, and successful completion of local student teaching. POI required.