

# ELEMENTARY EDUCATION - STEM STUDIES

## Program Overview

Currently, NJ and nearby areas are experiencing an expanding teacher shortage and the need for teachers certified to teach math & science continues to grow. This program offers an attractive option for pre-service teachers interested in STEM subjects at the middle school level as well as for teachers at the elementary level with competence and interest in STEM subjects. This program is specifically tailored to those who aim to become middle school math or science teachers or who would like to be elementary teachers with expertise in the STEM fields.

Students will be interviewed in their first semester using our CAEP screening tool. Students who do not pass the screening interview will meet with the DOTE department chair and their academic advisor to determine if teaching is an appropriate career path for them. Students will be required to pass the Praxis Core by the time they achieve junior status (54 credits) and the Praxis Subject Matter assessment before taking their final semester of methods courses.

## Degree Offered

- B.A. in Elementary Education - STEM Studies

## Contact

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**Program Website:** Elementary Education (<http://www.rider.edu/academics/colleges-schools/college-liberal-arts-education-sciences/school-of-education/undergraduate-teacher-education/>)

**Associated Department:** Department of Teacher Education (<http://www.rider.edu/academics/colleges-schools/college-liberal-arts-education-sciences/school-of-education/undergraduate-teacher-education/>)

### Accreditation Information

Council for the Accreditation of Education Preparation (CAEP) (<http://caepnet.org/>)

### Related Programs

- Secondary Education (<http://catalog.rider.edu/undergraduate/colleges-schools/education/majors-minors-certificates/secondary-education-ba/>)

## Elementary Education - STEM Studies Program Requirements

(123 credits)

In addition to completing the Elementary Education - STEM Studies requirements, all Rider University students are required to complete the Engaged Learning (<https://www.rider.edu/academics/engaged-learning/about/>) requirements.

Code	Title	Credits
<b>Basic Education Core Courses</b>		
Complete the following courses:		
CMP 120	Seminar in Writing and Rhetoric	3
or BHP 100	Honors Seminar: Great Ideas I	
CMP 125	Seminar in Writing and Research	3
or BHP 150	Honors Seminar: Great Ideas II	
COM 104	Speech Communication	3
PSY 100	Introduction to Psychology	3
History Elective <sup>1</sup>		3
Fine Arts elective (Appreciation or Studio)		3
Literature elective		3
EDU 106	Contexts Of Schooling <sup>2</sup>	3
EDU 206	Developmental Education Psychology <sup>2</sup>	3
Foreign Language elective		3
NCT 012	Navigating Rider	0
<b>General Education Electives</b>		<b>17</b>
<b>Professional Education</b>		
Complete the following courses:		
ELD XXX	Stem Methods - new course under development	3
SPE 300	Inclusive Practices for General Education Teachers	3
ELD 307	Emergent Literacy P-3 <sup>3</sup>	3
ELD 375	Methods of Teaching Mathematics in Elementary Classrooms <sup>3</sup>	3
ELD 308	Fostering Language and Literacy Development <sup>4</sup>	3
ELD 376	Teaching Science, Social Studies and the Arts N-6 <sup>4</sup>	3
ELD 350	Early Adolescence	1
ELD 360	Structure and Culture of Middle School Classroom	1
ELD 380	Methods of Teaching Mathematics in the Middle School	3
or ELD 385	Teaching Science in the Middle School	
EDU 465	Student Teaching and Seminar	12
<b>STEM Concentration</b>		
<b>Multidisciplinary Courses:</b>		
ENG 336	Grammar and Style	3
or ENG 236	Applied Grammar & Syntax	
HIS elective (SST 300 is recommended)		3
<b>Mathematics Courses:</b>		
MTH 150	Mathematics for Education Majors I <sup>5</sup>	3
MTH 151	Mathematics for Education Majors II <sup>5</sup>	3
MTH 152	Mathematics for Education Majors III <sup>5</sup>	3
ENV 200 & 200L	Statistical and Computer Applications in the Natural Sciences and Statistical and Computer Applications in the Natural Sciences Lab	4
MTH 105	Algebra and Trigonometry	4
<b>Technology Courses:</b>		
Select one from the list below:		3
TEC 207	Social Media for Education	
TEC 308	Digital Tools for Teaching	
CSC 105	Fundamentals of Computer Science	
CSC 110	Computer Science I	

**Science Requirement: 15**

A minimum of 15 credits in any science and at any level are needed, with at least 3 courses that include a Lab section (12 credits) and one non-Lab science (3 credits). The following are options to select from to complete the credits required for both Basic Education core and Multidisciplinary Concentration in Sciences and Mathematics.

Lab-science courses. Select a total of three 4-credit and 3-credit + 1-credit courses:

BIO 110 & 110L	Life Science: Inquiry Approach and Life Science: Inquiry Approach Lab	
CHE 118 & 118L	Exploration of Chemical Principles and Exploration of Chemical Principles Lab	
ENV 100 & 100L	Introduction to Environmental Sciences and Introduction to Environmental Sciences Lab	
CHE 114 & 114L	Chemistry in the Kitchen and Chemistry in the Kitchen Lab	
GEO 100 & GEO 102	Earth Systems Science and Earth Materials and Processes Lab	
GEO 113 & GEO 102	Environmental Geology and Earth Materials and Processes Lab	
MAR 120 & MAR 121	Oceanography and Introductory Oceanography Lab	

Select one from the list below, or select one additional 3-credit course from the Science Requirement list above.

PHY 180	Astronomy	
BIO 100	Life Science	
ENV 120	Introduction to Climate Change	
ENV 110	Future of Natural Resources	
GEO 168	Mesozoic Ruling Reptiles	

**Total Credits 123**

1

While any HIS course is allowed, either HIS 150 or HIS 151 is recommended.

2

EDU 106 and EDU 206 must be taken concurrently.

3

ELD 307 and ELD 375 must be taken concurrently.

4

ELD 308 and ELD 376 must be taken concurrently.

5

With approval from your advisor, a different MTH course may be substituted.

Course	Title	Credits
<b>Year 1</b>		
<b>Fall Semester</b>		
CMP 120	Seminar in Writing and Rhetoric	3
MTH 150	Mathematics for Education Majors I <sup>1</sup>	3
PSY 100	Introduction to Psychology	3
	Fine Arts Elective	3
	History Elective	3
<b>Semester Credit Hours</b>		<b>15</b>

**Spring Semester**

CMP 125	Seminar in Writing and Research	3
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COM 104	Speech Communication	3
MTH 151	Mathematics for Education Majors II <sup>1</sup>	3
	Foreign Language Elective <sup>2</sup>	3
	Science Elective with Lab <sup>3</sup>	4

**Semester Credit Hours 16**

**Year 2****Fall Semester**

ELD 350	Early Adolescence	1
MTH 152	Mathematics for Education Majors III <sup>2</sup>	3
	English Literature Elective	3
	History Elective	3
	General Studies Elective	3
	Science Elective with Lab <sup>3</sup>	4

**Semester Credit Hours 17**

**Spring Semester**

EDU 106	Contexts Of Schooling <sup>4</sup>	3
EDU 206	Developmental Education Psychology <sup>4</sup>	3
ENG 236	Applied Grammar & Syntax	3
	or ENG 336 or Grammar and Style	
	General Studies Elective	3
	Choose one Technology Elective:	3

TEC 207 Social Media for Education

TEC 308 Digital Tools for Teaching

CSC 105 Fundamentals of Computer Science

CSC 110 Computer Science I

**Semester Credit Hours 15**

**Year 3****Fall Semester**

ENV 200 & 200L	Statistical and Computer Applications in the Natural Sciences and Statistical and Computer Applications in the Natural Sciences Lab	4
MTH 105	Algebra and Trigonometry	4
SPE 300	Inclusive Practices for General Education Teachers	3
	Science Elective with Lab <sup>3</sup>	4

**Semester Credit Hours 15**

**Spring Semester**

ELD 307	Emergent Literacy P-3 <sup>5</sup>	3
ELD 375	Methods of Teaching Mathematics in Elementary Classrooms <sup>5</sup>	3
	General Studies Elective	3
	General Studies Elective	3
	Choose one non-lab science from the following:	3

PHY 180 Astronomy

BIO 100 Life Science

ENV 120 Introduction to Climate Change

ENV 100 Introduction to Environmental Sciences

GEO 110 Geology of National Parks

GEO 168 Mesozoic Ruling Reptiles

**Semester Credit Hours 15**

**Year 4****Fall Semester**

ELD 308	Fostering Language and Literacy Development <sup>6</sup>	3
ELD 376	Teaching Science, Social Studies and the Arts N-6 <sup>6</sup>	3
ELD 360	Structure and Culture of Middle School Classroom	1
ELD 380 or ELD 385	Methods of Teaching Mathematics in the Middle School or Teaching Science in the Middle School	3
STEM Methods Course		3
General Studies Elective		3
General Studies Elective		2

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<b>Semester Credit Hours</b>	<b>18</b>
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**Spring Semester**

EDU 465	Student Teaching and Seminar <sup>7</sup>	12
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<b>Semester Credit Hours</b>	<b>12</b>
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<b>Total Credit Hours for Graduation</b>	<b>123</b>
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1

Or other approved math course.

2

For proper course placement please visit this website (<http://catalog.rider.edu/policies/undergraduate/placement-testing-information/>).

3

Choose one lab science from the following: BIO 110, CHE 118, ENV 100, CHE 114, GEO 100 and GEO 102, GEO 113 and GEO 102, MAR 120 and MAR 121.

4

EDU 106 and EDU 206 must be taken concurrently in either the fall or spring of the second year.

5

ELD 307 and ELD 375 must be taken concurrently. Students must pass all sections of the Core Academic Skills for Educators Test (Test Code 5752) in order to register for these courses.

6

ELD 308 and ELD 376 must be taken concurrently in the semester preceding student teaching. Students must present evidence of a passing score on the Praxis Subject Assessments test: Elementary Education Multiple Subjects test must be passed prior to registering these courses.

7

Students must have a "C+" or higher in all education courses and a minimum cumulative GPA of 3.0 before enrolling in EDU 465. In addition, students must present evidence of a passing score on the Praxis Subject Assessments test: Elementary Education Multiple Subjects test must be passed prior to registering for ELD 308 and ELD 376 and before applying for student teaching.

**Courses and Descriptions****BHP 100 Honors Seminar: Great Ideas I 3 Credits**

Traces the impact of great ideas on society, politics, economics, science, and the arts. This writing-intensive course substitutes for CMP 120 Expository Writing. Freshmen only.

**BHP 150 Honors Seminar: Great Ideas II 3 Credits**

A continuation of Great Ideas I, the introductory Freshman Baccalaureate Honors Seminar. Great ideas are studied in their cultural and historical contexts and from an interdisciplinary perspective. Students are guided in writing an effective research paper. This writing-intensive course substitutes for CMP 125 Research Writing. Freshmen only.

**Prerequisites:** BHP 100 with a minimum grade of C or CMP 120 with a minimum grade of C or BHP100 with a score of WV.

**BIO 100 Life Science 3 Credits**

An introductory course for non-science majors in which students develop an understanding of the nature of science and are introduced to foundational topics in the biological life sciences and how they relate to human affairs. The course may emphasize human evolution, genetics, aging, disease, reproduction, bioethics or other topics in biology. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

**BIO 110 Life Science: Inquiry Approach 4 Credits**

An introductory course for non-science majors in which students develop an understanding of biological evolution, the molecular basis of heredity, the cell, matter, energy and organization in living systems, and the interdependence of organisms. In addition, students will develop an understanding of science as a human endeavor, the nature of scientific knowledge, and historical perspectives. Through investigative activities, students will develop an understanding about scientific inquiry and develop abilities necessary to do scientific inquiry. Three hours of lecture and one three-hour lab per week.

**Corequisite(s):** BIO 110L.

**BIO 110L Life Science: Inquiry Approach Lab 0 Credits**

This lab is a co-requisite and must be taken with the corresponding course.

**Corequisite(s):** BIO 110.

**CHE 114 Chemistry in the Kitchen 4 Credits**

Chemistry permeates aspects of our daily lives in which we are often unaware. In this course, students will learn the core tenets of chemistry including atomic and molecular structure, bonding, intermolecular and macromolecular interactions, and chemical reactivity, and will personally investigate these properties in the context of cooking, baking, metabolism, and other kitchen-related activities. This 4-credit course will include a weekly 3-hour lab in which students will perform experiments that allow them to prepare dishes that illustrate key chemical concepts. As part of the course, students will collaborate with the Trenton Area Soup Kitchen to prepare and serve food to the community, as well as share their understanding about the chemical properties that are involved in the development of various dishes. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

**Corequisite(s):** CHE 114L.

**CHE 114L Chemistry in the Kitchen Lab 0 Credits**

This is the laboratory portion of CHE 114.

**Corequisite(s):** CHE 114.

**CHE 118 Exploration of Chemical Principles 4 Credits**

A one-semester introduction to the principles of chemical sciences. Students will utilize inquiry-based learning methods to examine contextual problems as a means to explore introductory models and concepts of chemistry. Students will also gain an understanding of how scientific models are used to explain experimental observations. The laboratory component of this course is designed to provide students with an experimental context within which to develop some of the models described in the classroom. Three hours of lecture and one three-hour lab per week.

**CHE 118L Exploration of Chemical Principles Lab 0 Credits**

This lab is a co-requisite and must be taken with the corresponding course.

**Corequisite(s):** CHE 118.

**CMP 120 Seminar in Writing and Rhetoric 3 Credits**

Students will increase their competence in the critical reading of challenging college-level texts that engage significant ideas and in writing effective essays that advance a clear and meaningful thesis while demonstrating understanding of those texts. This course counts towards the fulfillment of the Essential Competencies element of the CAS general education curriculum.

**CMP 125 Seminar in Writing and Research 3 Credits**

Introduces students to the process of library research and documented writing. Emphasis will be on the refinement of critical reading, thinking, and writing strategies applied to multiple sources and documented papers. This course counts towards the fulfillment of the Essential Competencies element of the CLAS general education curriculum.

**Prerequisite(s):** CMP 120 or BHP 100.

**COM 104 Speech Communication 3 Credits**

Examines basic communication principles and strategies of public speaking. Various genres of oral communication are studied, with an emphasis on extemporaneous and impromptu forms of delivery. Students research, prepare, and deliver speeches that are then used as the focal point for the discussion of effective speaking and listening. A number of speeches are videotaped. Students who received credit for COM 104S may not take this course. This course counts towards the fulfillment of the Essential Competencies element of the CLAS general education curriculum.

**CSC 105 Fundamentals of Computer Science 3 Credits**

This course offers an introduction to fundamental areas of study in computer science - their applications, capabilities, and boundaries. Topics include computer organization, algorithms design and analysis, programming paradigms, software development process, operating systems responsibilities, applications, and communications. Hands-on python programming is also introduced in this course from a non-mathematical problem-solving point of view. Basic programming constructs include statements, expressions, variables, control structures, functions, and file operation.

**CSC 110 Computer Science I 3 Credits**

This course is an introduction to computer science and modern computing fundamentals. Students will develop programs and algorithms to solve a variety of problems posed in the natural sciences. Students will learn to code in Python, a widely adopted language, and learn the basics of algorithms, data types, program structure and development,

**Prerequisite(s):** MTH 105 or MTH 106 or MTH 210 or concurrent enrollment. MTH 210 or MTH 106 preferred for CSC majors.

**EDU 106 Contexts Of Schooling 3 Credits**

Students in this field-based course will begin to examine aims, practices, and contemporary issues of schooling in their historical, sociological, philosophical, and futuristic contexts and from the perspectives of various multicultural constituencies— students, parents, local community, wider economic community, government, and the profession. In doing so, they will begin to develop professional skills of observation, reflection, analysis, and argument. This course must be taken concurrently with EDU 206. A cumulative GPA of 2.75 is required.

**EDU 206 Developmental Education Psychology 3 Credits**

This field-based course focuses on: a) the cognitive, personality, social, creative, and moral development of children and adolescents; b) influential theories, concepts, and research findings of educational psychology; and c) the translation of psychological theory into classroom practices. This course must be taken concurrently with EDU 106. A cumulative GPA of 2.75 is required.

**ELD 307 Emergent Literacy P-3 3 Credits**

This course is needed to meet the requirements for the specialized endorsement in Early Childhood. The course establishes a solid foundation of knowledge about literacy in the early years and dispels myths regarding readiness to read and write. In addition, the course contains the foundational aspects of literacy, including the relationship between oral language and literacy, the linguistic foundation of literacy, and the social contexts of literacy learning. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** EDU 106 and EDU 206.

**ELD 308 Fostering Language and Literacy Development 3 Credits**

Explores current understanding of the fields of reading/language arts from the perspectives of theory and practice. Students write lesson plans, critique methods of instruction and assessment and develop a portfolio of an individual student from their field site. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** EDU 106 and EDU 206; ELD 307.

**ELD 350 Early Adolescence 1 Credits**

This course will focus on common dilemmas faced by young people as they move from childhood into adolescence. It will examine age-related differences between children and adolescents and consider ways to create stimulating environments that fit this developmental transition. Representations of adolescence in the media and in research will be compared, including common stereotypes.

**ELD 360 Structure and Culture of Middle School Classroom 1 Credits**

This course focuses on the teaching of those concepts critical to the understanding of the structure and culture of middle school education. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** EDU 106 and EDU 206.

**ELD 375 Methods of Teaching Mathematics in Elementary Classrooms 3 Credits**

This course focuses on the teaching of mathematics that is developmentally appropriate for students from nursery to grade eight. In keeping with ACET, NAEYC, and NCTM Standards, emphasis is placed on planning for and implementing an integrated curriculum approach, discovery learning, hands-on experience, theme cycles, use of technology, and traditional and non-traditional assessment strategies. Field experiences will consist of classroom observations and teaching individuals and/or small groups of students. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** EDU 106 and EDU 206, MTH 102 or MTH 105 or MTH 150 or MTH 210.

**ELD 376 Teaching Science, Social Studies and the Arts N-6 3 Credits**

This course focuses on methods and materials of instruction in science, social studies, and the arts that are developmentally appropriate for students in preschool through grade six (based on NCSS, NSTA, and NAEA Standards). Emphasis is placed on an integrated approach to curriculum, with lesson and unit planning activities that incorporate hands-on-experiences, discovery learning and traditional and non-traditional assessment strategies. Field experience will consist of observation and analysis of classroom instruction and the teaching of lessons to individual and/or small groups of children. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** ELD 307 and ELD 375.

**ELD 380 Methods of Teaching Mathematics in the Middle School 3 Credits**

This course focuses on the teaching of mathematics that is developmentally appropriate for students in grades six through eight. In keeping with the National Council of Teachers of Mathematics (NCTM) Standards, emphasis is placed on planning for and implementing an inquiry-based approach, hands-on experience, use of technology, and traditional and non-traditional assessment. Field experiences will consist of observations and teaching to individuals, small groups and whole classes of students. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** EDU 106 and EDU 206.

**ELD 385 Teaching Science in the Middle School 3 Credits**

This course focuses on the teaching of sciences that is developmentally appropriate for students in grades six through eight. In keeping with the National Science Education Standards, emphasis is placed on planning for and implementing an inquiry-based approach, hands-on experiences, use of technology and traditional and non-traditional assessment strategies. Field experiences will consist of observations and teaching to individuals, small groups and whole classes of students. A cumulative GPA of 2.75 is required.

**Prerequisite(s):** EDU 106 and EDU 206.

**ENG 236 Applied Grammar & Syntax 3 Credits**

This course offers a review of the essential elements of English grammar and syntax and fosters understanding of how these elements work in notable argumentative and expository writing as well as in the student's own compositions. Focus is on both expert reading and effective writing. Changing attitudes toward usage, including influence of digital media on language use, are discussed. May be taken as preparation for, or independently of ENG 336, which addresses grammar, syntax, and style at a more advanced level.

**Prerequisite(s):** completion of composition requirements or permission of instructor.

**ENG 336 Grammar and Style 3 Credits**

By building a comprehensive knowledge of the conventions of English grammar, punctuation and syntax, students will learn how to analyze the way words, phrases, sentences, and paragraphs work in expert writing, and they will apply this knowledge to their own writing. Emphasis is on argument, exposition, and analysis.

**Prerequisite(s):** completion of composition requirements or permission of instructor.

**ENV 100 Introduction to Environmental Sciences 4 Credits**

Examines how ecosystems function, with emphasis on the interactions between biological organisms and their physical environment, and the chemical processes that govern these interactions. The impact of human populations on natural ecosystems is investigated in detail using case studies from history and current events. The laboratory provides for hands-on experiences and/or short field trips to local sites for a better understanding of many of the concepts discussed. Weekday and weekend field trips may be required. Three hours of lecture and one three-hour lab per week. CLAS general education areas addressed: DP, SP, GP.

**Corequisite(s):** ENV 100L.

**ENV 100L Introduction to Environmental Sciences Lab 0 Credits**

This lab is a co-requisite and must be taken with the corresponding course.

**Corequisite(s):** ENV 100.

**ENV 110 Future of Natural Resources 3 Credits**

In this course, students are introduced to topics in the natural sciences through studies of human exploitation of selected natural resources (e.g. water, fisheries, mineral resources, energy, etc.). The course work includes a study of the scientific process and how it can contribute to solutions to contemporary issues. Topics covered will include factors that influence real-world decisions to manage natural resources more sustainably (e.g. political, economic, ethical factors). During the three hours of class meetings each week, lecture and exercises will be integrated. Field trips will be required. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

**ENV 120 Introduction to Climate Change 3 Credits**

This course offers students an overview of the human impacts on Earth's climate and emerging solutions to limit future climate change. Students will learn scientific insights into the interconnected components of Earth's climate as a system including the atmosphere, oceans, land, geology, and ice. Human effects on Earth's climate system will be contrasted with natural climate variation that preceded the industrial revolution. Students will also consider the personal, societal, and ethical implications of climate change through the lens of environmental justice.

**ENV 200 Statistical and Computer Applications in the Natural Sciences 4 Credits**

This course introduces important statistical concepts, their application, and the usage of computer technology relevant to biological, environmental, geological, and marine problems. Students will learn various graphical and statistical techniques and how to execute them on personal computers. The curriculum emphasizes the integrated nature of these techniques and their importance to meaningful data evaluation and representation. Laboratory exercises are designed to emphasize useful solutions to problems found in many scientific disciplines using computer-based methodologies. Three hours of lecture and one three-hour lab per week.

**Corequisite(s):** ENV 200L.

**ENV 200L Statistical and Computer Applications in the Natural Sciences Lab 0 Credits**

This lab is a co-requisite and must be taken with the corresponding course.

**Corequisite(s):** ENV 200.

**GEO 100 Earth Systems Science 3 Credits**

Investigates the major global processes that occur on Earth. These processes can be grouped into four major systems: atmosphere, hydrosphere, lithosphere, and cosmosphere. Each system interacts with and affects the other systems creating, in a sense, a single Earth process. With this approach, the student will view the Earth as a whole, and understand that the many seemingly separate components that make up this planet are, in fact, a set of interacting processes, that operate in cycles through time, within a single global system. Three hours of lecture per week. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

**GEO 102 Earth Materials and Processes Lab 1 Credits**

This lab course introduces students to the origin, identification, and significance of geologic materials, processes, and landforms. Hands-on experiences with mineral and rock specimens, topographic and geologic maps, and GPS and other data collection techniques are emphasized, along with field trip and in-lab observations, measurements, and interpretations. One three-hour lab per week.

**Prerequisite(s):** concurrent enrollment in, or prior completion of, GEO 100 or GEO 113 is required.

**GEO 113 Environmental Geology 3 Credits**

Examines the fundamental premise that “society exists by geologic consent subject to change without notice” by studying a number of important global geologic processes and cycles, and the hazards and/or resources they present to individuals, societies, and the natural environment. Topics discussed include earthquakes, volcanism, stream flooding, coastal erosion, global climate change, and global water, soil, mineral, and energy resources. Cost/benefit considerations, hazard mitigation concepts, economic and political ramifications, and interactions among the lithosphere, hydrosphere, atmosphere, and biosphere also are presented. The course is designed to give non-science majors a deeper appreciation and understanding of the basic scientific concepts involved, as well as individual and societal connections to the global geologic environment, leading to better, more informed business, political, policy, and personal decisions. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

**GEO 168 Mesozoic Ruling Reptiles 3 Credits**

This course provides an introduction to the vertebrate groups that dominated the land (Dinosaurs), the seas (Mosasaurs, Plesiosaurs, Pliosaurus, Tylosaurus, and Ichthyosaurs) and the skies (Pterosaurs, Pterodactyls) during the Mesozoic Era (65-250 million years ago). Students study the diversity of skeletal architectures and their reconstructed function and the often controversial, inferred anatomy, physiology, reproductive strategy, habit, and social behaviors of these animals that are different from mainstream reptiles, birds, and mammals. They also learn about the paleogeographical, and paleoclimatological conditions that facilitated the evolutionary rise to dominance and diversification of these vertebrate groups and the debated causes of their eventual extinction. These topics also serve to illustrate how the scientific approach works and how competing hypotheses are evaluated. Three hours of lecture per week. Weekend field trips may be required. This course counts towards the fulfillment of the Disciplinary Perspectives element of the CLAS general education curriculum.

**HIS 150 World History to 1500 3 Credits**

This course traces both regional histories and global interactions, and covers the development of societies and states in Africa, the Americas, Asia and Europe from prehistoric times until about 1500. Certain major topics will be pursued, including agriculture, great empires, the major world religions, long-distance trade, and early modern exploration. While learning about these topics, students will also gain an understanding of the practice of history, especially of the kinds of sources historians use and how they reconstruct and interpret the past.

**HIS 151 World History Since 1500 3 Credits**

Learn what college students should know about history as a discipline and why history matters by tracing the development and interactions of the cultures of Europe, Africa, Asia and the Americas from 1500 to the present. Students will gain an appreciation for the value of historical thinking and a greater understanding of the relationships among modern nations so necessary for global citizenship.

**Prerequisite(s):** HIS 150.

**MAR 120 Oceanography 3 Credits**

In this course, students will investigate the geological, chemical, physical, and biological processes that shape the ocean. Emphasis will be placed on how these processes interact with each other and with human populations. These interactions influence important global phenomena that impact all our lives, including weather and climate, the distribution of marine organisms and other natural resources, and coastal processes. Understanding these phenomena will enable students to make more informed decisions and contribute to serious global marine issues. Students will learn through a combination of hands-on exercises designed to foster a deeper understanding of the scientific content as well as the scientific process, practical experiences with real data, readings, and some lectures. CLAS general education areas addressed: DP & GP.

**MTH 150 Mathematics for Education Majors I 3 Credits**

This is the first course in a three-course sequence for education majors. This course covers the concept of Numbers, starting with counting numbers, decimals, negative numbers, fractions, and real numbers; different ways of representing numbers, and the relations between them are explored; different meanings and applications of the arithmetic operations are studied; standard and non-standard algorithms for arithmetic are considered in light of the representation of numbers. May not be used by CLAS students to satisfy the mathematics component of the core.

**MTH 151 Mathematics for Education Majors II 3 Credits**

This is the second course in a three-course sequence for elementary education majors. In this course, students will study proportional reasoning, Number Theory, Algebra, Geometry, and measurement. May not be used by SLAS students to satisfy the mathematics component of the core.

**Prerequisite(s):** MTH 150.

**MTH 152 Mathematics for Education Majors III 3 Credits**

This is the third course in a three-course sequence for elementary education majors. In this course, students will study area and volume, transformational geometry, statistics and probability.

**Prerequisite(s):** MTH 151.

**MTH 105 Algebra and Trigonometry 4 Credits**

The course is an in depth and rigorous study of functions and graphs, equations and inequalities, polynomial and rational functions, exponential, and logarithmic functions, basic trigonometric functions and their inverses, trigonometric identities.

**Prerequisite(s):** A mathematics SAT score of 570, departmental placement or MTH 100 with a grade of C or higher.

**NCT 012 Navigating Rider 0 Credits****PHY 180 Astronomy 3 Credits**

Examines mankind's quest to understand the origin and form of the universe. Emphasis on the ideas of modern cosmology and their impact on our changing perception of our place in the universe, making use of information gleaned by simply looking at the night sky as well as post Apollo-era views of the solar system and the evolving universe as a whole.

**PSY 100 Introduction to Psychology 3 Credits**

This course covers major facts, principles and concepts about human and animal behavior and experience, research findings, major problems, basic vocabulary, methodologies, and contributions in the field. Topics include psychology as a science; human development; individual differences; intelligence and its measurement; special aptitudes and interests; personality and social behavior; motivation and emotion; frustration and personality deviations; and learning, thinking, remembering and forgetting.

**SPE 300 Inclusive Practices for General Education Teachers 3 Credits**

This online course is designed to introduce preservice general education teachers students to special education and the inclusive classroom. Students will explore current issues and practices in special education. Assignments and activities will enable students to develop the knowledge and skills to design and manage the instructional environment for diverse learners in inclusive and classroom setting. Attitudes and behaviors that influence children with special needs will be addressed. Students will be required to complete a minimum of 15 field hours in addition to regularly scheduled class hours. Prerequisite(s): EDU 106 and EDU 206. A cumulative gpa of 2.75 is required.

**SST 300 Historical & Contemporary Issues in the Social Studies 3 Credits**

This course is designed to provide education and non-education majors a comprehensive introduction to, and understanding of, social studies knowledge. This knowledge covers a broad array of academic disciplines, including American/World History, Government and Politics, Geography, Economics, and the various behavioral sciences. The course is aimed at engendering a theoretical grasp of the essential elements of these disciplines, as well as a practical understanding of how the content areas exist in both human society and contemporary policies/issues.

**TEC 207 Social Media for Education 3 Credits**

Social Media for Education will introduce students to the structure and culture of social media and how social networking applies to the educational environment. This three-credit course will foster a deep understanding of how social media in education can benefit students, teachers, administrators, staff, and stakeholders.

**TEC 308 Digital Tools for Teaching 3 Credits**

Designed to enable the student to develop instructional presentations utilizing the advantages of multimedia technology. Each student will be required to create a multimedia portfolio that contains information presentations, cumulative records, presenter notes, work samples, photo library, video animation, and audio narration. Cooperative learning strategies will be utilized throughout the course. Developmental/reflective strategies will include self-reflection, peer feedback, and interaction with the instructor in class and via E-mail. Expertise will be developed as the course progresses.