

## Middle Grades Math/Science Education Course Descriptions

There are three options within the Middle Grades Math/Science program:

- Math
- Science
- Math & Science

The courses below are not all required in any single option. Elective math and science courses are not listed below.

### **BSC 1011C: Principles of Biology II**

This course is a continuation of BSC 1010C and surveys organisms with emphasis on plants and animals. Vertebrate systems are studied with emphasis on applied physiology. Evolution, inheritance, and ecology in major phyla or divisions will be included with an emphasis on man's role in shaping the biosphere. 4 hours

### **CHM 1025: Chemical Science**

This course covers fundamental principles and theories of matter and energy including atomic theory, periodicity, properties, structure, kinetic molecular theory, bonding, solutions, scientific method, and carbon compounds. 4 hours

### **EDF 3131C: Learning and the Developing Adolescent**

This course covers adolescent growth and development, learning theory, and behavioral analysis applied to instruction and to the organization and management of classroom. 3 hours

### **EDF 3430: Measurement, Evaluation & Assessment in Education**

This course covers the basic principles and methods of measurement, evaluation, and methods of test construction. Students will interpret standardized test scores, construct teacher-made tests and other classroom assessments, and evaluate portfolio and performance assessment. 3 hours

### **EDG 3343: Instructional Strategies**

This course provides an overview of instructional models and strategies. Emphasis is placed on principles of state standards, instructional methods, and lesson planning and instruction. Students will develop knowledge of instructional models and lesson plan construction for effective implementation including the diverse student populations. 3 hours

### **EDG 3410C: Classroom Management, School Safety, Law & Ethics**

In this course, pre-service teachers are provided strategies for managing a safe, stimulating learning environment for all learners. This course emphasizes school safety, law, and ethics as they apply to schools, districts, and the learning environment. 3 hours

### **EEX 3070: Methods of Inclusion & Collaboration**

This course examines the basic identification techniques and strategies used to promote academic and social integration and interaction of "mainstreamed" exceptional students. 3 hours

### **EME 3410C: Integrating Technology in the Classroom**

In this course students will learn how to design a technology-rich classroom while contemplating the changing role of the teacher as a mentor/guide and the student as a self-directed learner. Students will explore models of technology integration, classroom management, and administrative tasks that can be performed more efficiently using technology and learn strategies to select software and deal with legal and ethical issues when planning for technology integration. 3 hours

### **ISC 4145: Global Systems**

Global Systems will expose students to a broad overview of the structure and processes occurring on Earth. Students will gain a broad understanding of the interactions between the atmosphere, biosphere, lithosphere, and hydrosphere. Course topics will be related to current environmental issues and our local ecosystems. This course is focused on Earth system science content with development of methods specific to teaching middle school science as a secondary objective. 3 hours

### **MAC 1114: Trigonometry**

This course covers right triangle trigonometry, vectors, radian measure, graphing and inverse functions, identities and formulas, trigonometric equations, the Law of Sines, the Law of Cosines, complex numbers and polar coordinates. 3 hours

### **MAC 2311: Calculus I**

This is the first course in a three-course sequence. The course covers limits and continuity, rules of differentiation, the chain rule, implicit differentiation, applications of derivatives to curve sketching, and maximum/minimum problems, the Mean Value Theorem and L'Hopital's rule, the definitions of indefinite and definite integrals, integration by substitution, and the Fundamental Theorem of Calculus. 4 hours

### **MAE 4312C: How Children Learn Math**

This course is designed to develop the skills and concepts necessary to deliver the mathematics curriculum effectively in the classroom. The content strongly reflects the curriculum emphases of the National Council of Teachers of Mathematics, and topics are presented using a process-oriented approach. 3 hours

### **MAE 4320C: Teaching Methods in Middle School Math**

This course addresses instructional methods and materials for teaching mathematics in middle schools. 3 hours

### **MAE 4930C: Seminar in Math Education**

This course is designed to prepare the pre-service teacher to transition into the workplace and includes resume writing, professional dress and demeanor, interview techniques, refining professional portfolio, class discussion of issues common to teacher interns in mathematics, and review strategies for certification exams.

1 hour

### **MAE 4940C: Teaching Methods in Middle School Math Practicum**

In this course students will apply knowledge of teaching strategies, and methods and materials for teaching mathematics in a middle school classroom.

1 hour

### **MAE 4945: Student Teaching in Math**

This is the culminating course in the professional teacher education program. Teacher candidates must demonstrate competency on the twelve Florida Educator Accomplished Practices (FEAPs) at the pre-professional level during one semester of full-day internship in approved public or private schools.

9 hours

### **MHF 4404: The History of Math**

This course provides a chronological study of the evolution of mathematical thought from primitive counting to modern ideas of the twentieth century. 3 hours

### **MTG 2206: College Geometry**

This course emphasizes Euclidean geometry and its relationship to logic, trigonometry and coordinate geometry. The problems, proofs, constructions, and graphs involve line segments, angles, triangles and polygons, parallel and perpendicular lines, slope of lines, circles, and similarity. Trigonometry is presented in terms of right triangle relationships, logic is the basis for deductive reasoning in proofs of theorems, and lines and other geometric figures are graphed in the rectangular coordinate system.

3 hours

### **PHY 1020: Physical Science**

This course presents the fundamental classical and modern concepts of physics in the area of mechanics, energy, wave motion, electromagnetism, and atomic structure. Topics in earth science and astronomy will also be discussed. 4 hours

### **RED 3324C: Teaching in the Middle School Curriculum**

This course presents theory and methodology for teaching reading at the middle school level with emphasis on strategies for vocabulary and comprehension, evaluating student progress in reading, and integrating reading and study skills into content area instruction across the middle school curriculum.

3 hours

### **RED 3335C: Teaching Reading in the Content Areas**

This course addresses strategies, materials, and skills for teaching reading in content areas. 3 hours

### **SCE 4320C: Teaching Methods in Middle School Science**

This course provides techniques and materials of instruction for teaching science in the middle grades.

3 hours

### **SCE 4930C: Seminar in Science Education**

This course is designed to prepare the pre-service teacher to transition into the workplace and includes resume writing, professional dress and demeanor, interview techniques, refining professional portfolio, class discussion of issues common to teacher interns in science, and review strategies for certification exams.

1 hour

### **SCE 4940C: Teaching Methods in Middle School Sciences Practicum**

In this course students will apply knowledge of teaching strategies, and methods and materials for teaching science in a middle school classroom.

1 hour

### **SCE 4945: Student Teaching in Science**

This is the culminating course in the professional teacher education program. Teacher candidates must demonstrate competency on the twelve Florida Educator Accomplished Practices (FEAPs) at the pre-professional level during one semester of full-day internship in approved public or private schools.

9 hours

### **TSL 4081C: TESOL Issues and Practice**

This course integrates the theories and principles of teaching English to Speakers of Other Languages and enables students to apply them to classroom instruction. ESOL methodology and curriculum will be emphasized as they relate to current best practice in ESOL instruction. 3 hours