EDML. EDML

EDML-5003. SCIENCE IN MIDDLE LEVEL INSTRUCTION
Credits: 3
This course consists of the basic concepts pertaining to the study of middle level (grades 4-8) science. Topics include the main concepts within science inquiry, physical science, chemistry, earth and space science, and life science with developmentally appropriate pedagogy for middle level science instruction. This course is not required for students selecting a middle level science concentration.

EDML-5004. ENGLISH AND LANGUAGE ARTS IN MIDDLE LEVEL EDUCATION
Credits: 3
This course provides an overview of language arts and reading strategies for use at the middle level (4-8) with emphasis on the following: reading fiction and nonfiction texts, critical literacy, understanding different types of writing, and common approaches to composition. This course is not required for students selecting a middle level English concentration.

EDML-5005. SOCIAL STUDIES IN MIDDLE LEVEL EDUCATION
Credits: 3
This course presents the basic concepts pertaining to instruction of middle level (grades 4-8) social studies. Topics include the main concepts from within the social studies disciplines: U.S. history, world history, geography, government and civics, and economics. This course is not required for students selecting the middle level social studies concentration.

EDML-5007. DEVELOPMENT OF THE ADOLESCENT LEARNER AT THE MIDDLE LEVEL
Credits: 3
This course builds a deeper understanding of early adolescent learners with an emphasis on cognitive, emotional, physical, psychosocial, and abnormal development and how this can impact teaching and learning.

EDML-5008. STUDENT TEACHING INTERNSHIP IN MIDDLE LEVEL EDUCATION
Credits: 6
This is the culminating course for middle level certification (4-8). Students seeking initial Pennsylvania teaching certification will apply their knowledge of middle-level content and research-based practices in the field by working with young adolescents. For initial certification, 12 weeks of student teaching are required.

Pre-Requisites
Successful completion of all required EDML program coursework.

EDML-5009. INTERNSHIP IN MIDDLE LEVEL EDUCATION
Credits: 3
This is the culminating course for middle level certification (4-8). Students will apply their knowledge of content and research-based practices in the field by working with young adolescents. A 90-hour teaching internship is required for PA certified teachers having no documented evidence of successful teaching at the middle level.

Pre-Requisites
Successful completion of all required EDML program coursework.

EDML-5010. NUMBER THEORY FOR MIDDLE LEVEL EDUCATION
Credits: 3
This course examines topics that encompass the three main categories in the Number and Operations strand of Principles and Standards of School Mathematics (NCTM): understanding numbers and number systems, operations with numbers and how they relate to one another, computation and estimation. Also included are content-related pedagogy and best-practice instructional strategies.

EDML-5011. CONCEPTS OF MEASUREMENT FOR MIDDLE LEVEL EDUCATION
Credits: 3
This course explores concepts and procedures for measuring and learning about standard units in the metric and customary systems, the relationships among units, and the approximate nature of measurement. Topics are how measurement can illuminate mathematical concepts such as irrational numbers, properties of circles, and area and volume formulas. Also included are content-related pedagogy and best-practice instructional strategies.

EDML-5012. DATA ANALYSIS, PROBABILITY AND STATISTICS IN MIDDLE LEVEL EDUCATION
Credits: 3
This course introduces statistics as a problem-solving process. Skills are built through investigations of ways to organize and represent data and describe and analyze variation in data. The association between two variables, probability, random sampling, and estimation are covered. Also included are content-related pedagogy and best-practice instructional strategies.

EDML-5013. ALGEBRAIC CONCEPTS IN MIDDLE LEVEL EDUCATION
Credits: 3
This course explores the ‘big ideas’ in algebraic thinking. Topics include algebraic thinking, patterns in context, functions and algorithms, proportional reasoning, linear functions and slope, solving equations, nonlinear functions, and algebraic structure. Also included are content-related pedagogy and best-practice instructional strategies.
EDML-5014. GEOMETRY ESSENTIALS IN MIDDLE LEVEL EDUCATION
Credits: 3
This course introduces the essentials of geometry as a method for problem solving. Content includes exploring the properties of geometric figures, making constructions using pencil and paper and dynamic software, using mathematical language to express ideas to justify reasoning while exploring the basis of formal mathematical proofs and solid geometry. Also included are content-related pedagogy and best-practice instructional strategies.

EDML-5015. MATHEMATICAL PROBLEM SOLVING IN MIDDLE LEVEL EDUCATION
Credits: 3
This course provides a context for teachers to explore issues about learning and teaching mathematics. Interactions of middle level students engaged in authentic mathematical activities are examined with implications for learning, teaching and assessment. This course is an elective in the middle level mathematics program.

EDML-5020. SCIENTIFIC INQUIRY FOR MIDDLE LEVEL SCIENCE
Credits: 3
This course focuses on addressing the demands required of students to comprehend discipline-specific scientific text. Strategies learned in this course support students in learning how to read a wide range of scientific genres. Students will focus on the implementation of inquiry learning and the positive aspects of this approach as related to various scientific disciplines.

EDML-5021. PHYSICS AND SCIENTIFIC TECHNIQUES FOR MIDDLE LEVEL EDUCATION
Credits: 3
This course presents the basic concepts pertaining to physical and chemical properties of matter. Topics include nuclear and anatomic structure, thermodynamics, heat, energy, matter, laboratory safety procedures, data manipulation, measurement and mathematics, and the methodology and philosophy of science, as well as effective pedagogy to teach these concepts. This course is an elective in the middle level science program.

EDML-5022. BIOLOGY AND LIFE SCIENCES FOR MIDDLE LEVEL EDUCATION
Credits: 3
This course presents the basic concepts pertaining to the study of the biological sciences. Topics include the nature of science, anatomy and physiology of structures associated with life functions of organisms, the cell, evolution, genetics, ecology, as well as effective inquiry-based pedagogy to teach these concepts.

EDML-5023. PHYSICAL SCIENCES FOR MIDDLE LEVEL EDUCATION
Credits: 3
This course presents the basic concepts of physics including: basic relationships between matter and energy, mechanics, electricity, magnetism, and waves. Topics include the conservation of energy, heat and thermal dynamics, atomic and nuclear structure, electricity, and the effective pedagogy to teach these concepts.