

Secondary Mathematics Education

Related Requirement (3 credits): To best prepare for interdisciplinary teaching, particularly within STEM areas, students are required to take 3 credits, and encouraged to take 6 credits, in a suitable related area such as the following: Computer Science, Environmental Science, Physics, Engineering, Philosophy (Logic), Statistics, or Combinatorics. Note that these credits can overlap with General Education or Common Curriculum (as of fall 2025) courses.

Suggested Related Courses

Below is a list of courses for secondary math ed candidates to use to fulfill their **related** requirement. Please note, there are other courses that could be used as well. Inquire with your advisor.

ACCT 2001: Principles of Financial Accounting - The study of the generation and interpretation of accounting information as a basis for financial statement analysis and management decision-making.

ECON 1201: Principles of Microeconomics - How the invisible hand of the market functions through the economic decisions of firms and individuals. How prices, wages and profits are determined, resources are allocated and income is distributed. Topical subjects (e.g., energy policy and health care). CA 2; TOI-5/TOI-6.

ECON 1202: Principles of Macroeconomics - The organization and function of the economic system as a total unit. Economic decisions, institutions, and policies that determine levels and rates of growth of production, employment, and prices. Topical subjects (e.g., government budget deficits and current interest-rate policy). CA 2; TOI-5/TOI-6.

EEB 2202: Evolution and Human Diversity - The biological bases of human diversity from genetic and evolutionary perspectives. Topics include the genetic basis for human variation and race; adaptations of human populations; the role of genes and environments in producing human variability; cultural evolution; origin and spread of "modern" humans. CA 3. CA 4-INT; TOI-6.

EEB 2208E: Introduction to Conservation Biology - Patterns of biodiversity and extinction; causes of extinction and population declines; ecological restoration; conservation planning; protection of ecosystem services; implementing conservation actions; conservation economics; conservation law; effects of global change. (Recommended Prereq: BIO 1102 or 1108). CA 3; TOI-4/TOI-6.

CSE 1010: Introduction to Computing for Engineers - Introduction to computing logic, algorithmic thinking, computing processes, a programming language and computing environment. Knowledge obtained in this course enables use of the computer as an instrument to solve computing problems. Representative problems from science, mathematics, and engineering will be solved.

ENGR 1166: Foundations of Engineering - Freshmen learn to use the basic software tools needed in subsequent coursework and future electrical engineering practice. This early exposure will greatly enhance their ability and enjoyment of numerous advanced courses in Electrical Engineering and in Computer Engineering. In addition, students learn to distinguish various aspects of electrical engineering, such as circuits, signal analysis and amplifiers, through the use of Arduino microcontroller-based lab projects.

GEOG 1302: GIS Modeling of Environmental Change - An introduction to environmental processes and patterns, especially assessing change in environmental systems using spatial analysis techniques. Students will map field sites using Global Positioning System technology and aerial photographs, collect

field data on various environmental systems, and build and test a Geographical Information System-based environmental model. CA 3-LAB.

GEOG 2000: Globalization - Globalization as a complex-multidimensional process. Linkages and interconnectedness between spatial processes and social, cultural, economic, political, and environmental change around the world today. Theory and impacts of economic, social, political, and cultural globalization through case studies at the local, regional, national, and international scales. CA 2. CA 4-INT; TOI-2/TOI-5.

GEOG 2400E: Introduction to Sustainable Cities - Pathways to make cities more sustainable from social, economic, and environmental perspectives. Topics include sustainable transportation, renewable energy, recycling of waste, and green infrastructure in contemporary metropolitan areas in developed and developing nations. CA 2. CA 4-INT.

MARN 1002E: Introduction to Oceanography - Processes governing the geology, circulation, chemistry and biological productivity of the world's oceans. Emphasis is placed on the interactions and interrelationships between physical, chemical, biological and geological processes that contribute to both the stability and the variability of the marine environment. (Prereq: A background in secondary school physics, chemistry or biology is recommended.). CA 3; TOI-4/TOI-6.

PHYS 1010Q: Elements of Physics - Basic concepts and applications of physics for the non-science major. Scientific principles and quantitative relationships involving mechanics, energy, heat and temperature, waves, electricity and magnetism, and the theory of the atom are covered. A laboratory provides hands-on experience with the principles of physics. CA 3-LAB; TOI-6.

PHYS 1020Q: Introductory Astronomy (also offered with a Lab) - A basic introductory astronomy course without laboratories, including principles of celestial coordinate systems and telescope design; applications of fundamental physical laws to the sun, planets, stars and galaxies; evolution of stars, galaxies and the universe; recent space probe results, modern cosmology, astrobiology. Night observing sessions are an integral part of the course. CA 3.

PHYS 1075Q: Physics of Music - Basic principles of physics and scientific reasoning will be taught in the context of the production and perception of music, emphasizing the historic and scientific interplay between physics and music. Basic quantitative laboratories pertaining to sound, music, and waves. No previous knowledge of physics or music is assumed. See [syllabus](#). CA 3-LAB; TOI-6L.

*Common Curriculum TOI are added as approved.
February 17, 2025*