B.A. & B.S. in Secondary Education (Math)

Learning Outcomes

Students should:

- Demonstrate interpretive, normative, critical understanding of educational phenomenon and/or praxis through the use of the humanities, social sciences and psychological sciences within the disciplinary foundations of education (anthropology of education, history of education, philosophy of education, psychology of education and sociology of education).
- Demonstrate an understanding of the human transformative dimensions of educational phenomenon and/or praxis at the level of the self and/or the social.
- Understand the dynamic nature of identity development and maintain the role of individual agency in bringing about personal and social transformation.
- Understand the multiple subjectivities and social relations of race, ethnicity, class, gender, and sexuality as they define a range of lived experiences and understand pedagogy as a project aimed at helping to realize the greatest range of possibilities for all youth irrespective of difference.
- Know, understand and apply the process of mathematical problem solving.
- Be able to create reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.
- Be able to communicate own mathematical thinking orally and in writing to peers, faculty and others.
- Recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.
- Use varied representations of mathematical ideas to support and deepen students’ mathematical understanding.
- Demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.
- Emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.
- Use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.
- Demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.
- Apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.
- Demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.
- Apply and use measurement concepts and tools.
- Understand how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development.
- Understand how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.
- Support a positive disposition toward mathematical processes and mathematical

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learning consistent with reform in mathematics teaching and learning.

- Use an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
- Plan instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- Use a variety of instructional skills and strategies to encourage students' development of critical thinking, problem solving, and performance skills in the social sciences.
- Use knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- Understand and use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.
- Implement appropriate assessment and instruction that supports students with disabilities in mainstream/inclusive settings.
- Be able to learn about and to use technology, as appropriate for the discipline.
- Understand and use technology to enhance his/her teaching.
- Know a broad range of literacy techniques and strategies for every aspect of communication and must be able to develop each student's ability to read, write, speak and listen to his or her potential within the demands of the discipline.
- Model effective reading, writing, speaking, and listening skills during both direct and indirect instructional activities.
- Provide a variety of instructional strategies, constructive feedback, criticism, and improvement strategies to help students improve oral and written language skills.
- Understand the process of reading and demonstrate instructional abilities to teach reading in the discipline (math, science, social science & visual arts).
- Undertake independent inquiry and use technology as one tool to assist him or her in the overall inquiry process.
- Foster relationships with school colleagues, parents, and agencies in the larger community to support students’ learning and well-being.
- Be a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
- Understand education as a profession, maintains standards of professional conduct, and provides leadership to improve student learning and well-being.