



## ASSESSMENT

# BS Mathematics

## Program-Level Student Learning Outcomes

- B.S. Mathematics students will demonstrate the ability to think analytically to decipher challenging problems, utilize appropriate mathematical practices to construct mathematical arguments to solve them, and interpret their solutions.
- B.S. Mathematics students will demonstrate the ability to construct logical arguments and write formal mathematical proofs to establish the truth of mathematical statements.
- B.S. Mathematics students will demonstrate the ability to communicate mathematics effectively.



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# BSE Mathematics

## Program-Level Student Learning Outcomes as prescribed by the specialized accreditor, CAEP

- **Knowing and Understanding Mathematics:** Candidates demonstrate and apply understandings of major mathematics concepts, procedures, knowledge, and applications within and among mathematical domains of Number; Algebra and Functions; Calculus; Statistics and Probability; Geometry, Trigonometry, and Measurement.
- **Knowing and using mathematical processes:** Candidates demonstrate, within or across mathematical domains, their knowledge of and ability to apply the mathematical processes of problem solving; reason and communicate mathematically; and engage in mathematical modeling. Candidates apply technology appropriately within these mathematical processes.
- **Knowing students and Planning for Mathematical Learning:** Candidates use knowledge of students and mathematics to plan rigorous and engaging mathematics instruction supporting students' access and learning. The mathematics instruction developed provides equitable, culturally responsive opportunities for all students to learn and apply mathematics concepts, skills, and practices.
- **Teaching Meaningful Mathematics:** Candidates implement effective and equitable teaching practices to support rigorous mathematical learning for a full range of students. Candidates establish rigorous mathematics learning goals, engage students in high cognitive demand learning, use mathematics specific tools and representations, elicit and use student responses, develop conceptual understanding and procedural fluency, and pose purposeful questions to facilitate student discourse.
- **Impact on student learning:** Candidates assess and use evidence of students' learning of rigorous mathematics to improve instruction and subsequent student learning. Candidates analyze learning gains from formal and informal assessments for individual students, the class as a whole, and subgroups of students disaggregated by demographic categories, and they use this information to inform planning and teaching.
- **Social and professional context of mathematics teaching and learning:** Candidates are reflective mathematics educators who collaborate with colleagues and other stakeholders to grow professionally, to support student learning, and to create more equitable mathematics learning environments.



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- **Secondary field experiences and clinical practice:** Effective teachers of secondary mathematics engage in a planned sequence of field experiences and clinical practice in diverse settings under the supervision of experienced and highly qualified mathematics teachers. They develop a broad experiential base of knowledge, skills, effective approaches to mathematics teaching and learning, and professional behaviors across both middle and high school settings that involve a diverse range and varied groupings of students. Candidates experience a full-time student teaching/internship in secondary mathematics supervised by university or college faculty with secondary mathematics teaching experience or equivalent knowledge base.