

MAT 142 Model Syllabus
Mathematics and Statistics
Quantitative and Logical Reasoning
(Approved March 2010)

Course Catalog Description: MAT 142. Concepts of Mathematics: Geometry, Measurement, and Problem Solving (3). Prerequisite: Satisfactory performance on the UNCW mathematics placement test or MAT 105. A conceptual examination of mathematics content that is aligned with elementary and middle grades curriculum. Topics include geometry, measurement, probability, and data analysis.

Goals: The purpose of MAT 142 is to develop a better understanding of the areas of mathematics that are covered in the standard course curriculum of kindergarten through 8th grade. Content focuses on the concepts of problem solving, logical reasoning, geometry, measurement, probability, and data analysis. Students will extend their ability to understand and use mathematics in ways that have them move beyond from trying to get a correct answer to that of a future-teacher who understands the content and sees the connections between topics. As future elementary or middle grades teachers, in addition to being able to *do* mathematics, students are expected to *explain* mathematics. There is an emphasis on the NCTM Principles and Standards for School Mathematics and the North Carolina Mathematics Standard Course of Study. We will look at multiple representations of topics, connections between topics, and problem solving. Where appropriate, technology is used to support content and improve student proficiency with technology and problem solving.

MAT 142 will count for the Mathematics and Statistics requirement in University Studies by supporting all the Common Student Learning Outcomes (MS) for that category. If another course is used to meet the Mathematics and Statistics requirement of University Studies, MAT 142 may count for the Quantitative and Logical Reasoning requirement by supporting all the Common Student Learning Outcomes (QRE) for Quantitative and Logical Reasoning.

Course Student Learning Objectives: Upon completing the MAT 142,

1. Students demonstrate knowledge of problem solving, logical reasoning, geometry, measurement, probability, and data analysis.
 - a. Represent and communicate about content in different ways, through visual, verbal, and numerical methods (MS 1, 3, GRE 1, 2, 3)
 - b. Summarize topics with a short verbal explanation and explain why various procedures and formulas are appropriate (MS 3, GRE 2, 3)
 - c. Pose, model, and solve mathematical problems (MS 1, 2, GRE 1)
2. Students work effectively, both individually and in groups, to solve mathematical problems (MS 3, GRE 3)
3. Students use technological tools appropriate for elementary and middle grades teaching in ways that support content and enhance problem-solving situations (MS 2, GRE 2)

Topics to be covered:

1. Statistics and Data Analysis
2. Probability
3. Geometric Topics
4. Measurement