

COLLEGE OF NATURAL AND APPLIED SCIENCES

MATHEMATICS PROGRAM

PROSPECTUS

The Mathematics major and minor programs are designed to:

1. Prepare secondary school mathematics teachers;
2. Prepare students for other employment requiring the use of mathematics; and
3. Provide an understanding of the fundamental quantitative considerations, symbolized mathematically, which underlie our mechanized society.

Additional requirements for a Mathematics major leading to a general secondary teaching credential are listed in the [Secondary Education](#) program. A student must declare a double major in Mathematics and Secondary Education for a secondary teaching degree.

4. Apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.
5. Show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields.
6. Demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

PROGRAM LEARNING OUTCOMES

Students completing the Mathematics Program at UOG will:

1. Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.
2. Exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).
3. Argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS (59 CREDIT HOURS)

Mathematics majors must complete studies with a cumulative GPA of 2.3 in the courses specified as required courses for the major.

Required Courses (47 credit hours)

Course	Course Title	Credits	Term Offered
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA205	MULTIVARIABLE CALCULUS	4	FALL/SPRING/ ALL YEARS
MA302	FOUNDATIONS OF HIGHER MATHEMATICS	3	SPRING ONLY/ ALL YEARS
MA341	LINEAR ALGEBRA	3	FALL/SPRING/ ALL YEARS
MA411	INTRODUCTION TO ABSTRACT ALGEBRA I	3	FALL ONLY/ ALL YEARS
MA412	INTRODUCTION TO ALGEBRA II	3	SPRING ONLY/ ALL YEARS
MA421	INTRODUCTION TO ANALYSIS I	3	FALL ONLY/ ALL YEARS
MA422	INTRODUCTION TO ANALYSIS II	3	SPRING ONLY/ ALL YEARS
MA301	DIFFERENTIAL EQUATIONS	3	SPRING ONLY/ ALL YEARS

Choose one of the following:

Course	Course Title	Credits	Term Offered
CS201	PROGRAMMING I	4	FALL/SPRING/ ALL YEARS
CS202	PROGRAMMING II	4	FALL/SPRING/ ALL YEARS

Electives (12 credit hours)

A minimum of 12 credit hours of upper division [Mathematics \(MA\) courses](#) in addition to those already required.

MINOR REQUIREMENTS (29 CREDIT HOURS)

Required Courses (17 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA205	MULTIVARIABLE CALCULUS	4	FALL/SPRING/ ALL YEARS
MA302	FOUNDATIONS OF HIGHER MATHEMATICS	3	SPRING ONLY/ ALL YEARS

Elective Courses (12 credit hours)

A minimum of 6 credit hours of upper division [Mathematics \(MA\) courses](#) in addition to:

Course	Course Title	Credits	Term Offered
MA302	FOUNDATIONS OF HIGHER MATHEMATICS	3	SPRING ONLY/ ALL YEARS

FACULTY

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