

# Department of Mathematics, Physical Science and Engineering

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Full Graduate Faculty: Carlisle, Chen, Combs, Davis,  
 Lockwood-Cooke, Mitra, Murty, Ratheal, Van Doren, G. Walls,  
 Woodyard.

The Department of Mathematics, Physical Sciences and Engineering combines the areas of chemistry, engineering, engineering technology, mathematics and physics. At the graduate level, the department offers master's degrees in engineering technology, mathematics, mathematics education and chemistry.

Chemistry and physics faculty are very active in research which includes graduate and undergraduate participation. Equipment includes spectrometers, access to the main-frame computer, personal computers, data-acquisition systems and wind turbines. The chemistry staff regularly receive research grants from such agencies as The Welch Foundation and also from University Research Enhancement Funds. The Alternative Energy Institute receives approximately \$200,000 per year in research funds and is known internationally for its research in wind energy and wind turbines. These research grants allow the faculty to involve students in a very productive research environment. Engineering technology faculty also work with the Alternative Energy Institute.

Primary teaching and research interests of the mathematics faculty is pure and applied mathematics, including algebra, analysis, differential equations and statistics. Accordingly, the master's degree in mathematics is uniquely broad based and strongly oriented toward applications. The master of science degree in mathematics or chemistry is designed to ensure basic knowledge and the capacity for sustained scholarly study. Both a 30-hour thesis option and a 36-hour non-thesis option are available. Six semester hours of real analysis or algebraic systems is required for the mathematics degree. The remainder of course work is selected from differential equations, complex analysis, mathematical statistics, numerical analysis and algebraic systems. The chemistry degree offers biochemistry, inorganic, organic and physical as areas of specialization. Graduate students in chemistry are encouraged to become active research participants with the faculty.

Students are also involved in a variety of departmental activities, including seminars and colloquia. The small size of the program contributes to an atmosphere of informality and accessibility.

Each year, the department has a number of openings for teaching and research assistants.

Discipline	Course Prefix
Chemistry .....	CHEM
Engineering .....	ENGR
Engineering Technology .....	ET
Mathematics and Physical Science .....	MPS
Mathematics .....	MATH
Mechanical Engineering .....	MENG
Natural Sciences .....	NSCI
Physics .....	PHYS

NOTE: See the "Academic Courses and Abbreviations" and "Course Descriptions" sections of this catalog for a complete list of courses offered by the University.

## Master of Science (M.S.) Degree

### Major in Chemistry (Major Code: 5104)

#### Study Area Options

Areas of specialization include biochemistry, inorganic, organic and physical.

#### General Requirements

#### Non-Thesis Option

6110 and at least four courses from 6094, 6312, 6320, 6340 and 6350.

#### Thesis Option

Specific requirements include 6301, 6302, 6110 and three courses from 6312, 6320, 6340 and 6350.

### Major in Engineering Technology (Major Code: 5112)

#### Options

- Plan I (Thesis)
- Plan II (Non-Thesis)

#### General Requirements

Admission to the master of science degree in engineering technology program requires a total Graduate Record Exam (GRE) score of 950 for regular admission. If a student fails to attain a score of 950, the student may be admitted on probation and may be required to retake the GRE. Applicants not meeting these criteria may apply for conditional admission. (See the "Graduate School" section of this catalog.) Probationary admission may be changed to regular admission by achieving an

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acceptable score on the GRE or by maintaining a 3.0 grade point average with no grade below “B” in the first 12–15 hours taken for graduate credit.

Students with undergraduate degrees in a field other than engineering technology or related fields may be required to complete leveling courses chosen and approved by the adviser and the department head.

- Six semester hours advanced mathematics (in education G&I).
- EDPD 6303, 6305, 6304 and EPSY 6310 or EDPD 6329.

\*Students preparing for high school teaching should take six hours from MATH 5306, 5351, 5360, 5391. Students preparing for community college teaching should take six hours of 6000-level mathematics.

## Requirements

### Plan I (Thesis)

Thirty (30) semester hours of approved courses which must include six semester hours in ET 6301, 6302 (Thesis) and 24 hours in 6000-level courses in engineering technology, of which 21 hours must be in organized classes.

### Plan II (Non-Thesis)

Thirty-six (36) semester hours of approved courses which must include at least 24 semester hours in organized 6000-level courses in engineering technology. Students with undergraduate degrees in engineering technology may take up to 12 semester hours of graduate work outside engineering technology upon approval of the adviser and the department head. Students with undergraduate degrees in non-technical fields will be required to complete all 36 semester hours in 6000-level courses in engineering technology in addition to leveling work.

## Major in Mathematics (Major Code: 5115)

### General Requirements

#### Master of Science Degree

An undergraduate degree in mathematics equivalent to the bachelor's degree requirements in mathematics at WTAMU is required.

- Non-Thesis Option: At least 30 hours must be chosen from 6000-level math courses, and of these 30 hours at least six hours must be chosen from one of the sequences 6310, 6311 or 6350, 6351. With graduate adviser approval, the remaining six hours may be chosen from another field of study related to mathematics.
- Thesis Option: At least 18 hours must be chosen from 6000-level math courses and of these 18 hours at least six hours must be chosen from one of the sequences 6310, 6311 or 6350, 6351. With graduate adviser approval, the remaining six hours may be chosen from another field of study related to mathematics.

#### Master of Education Degree

- 12 semester hours of 6000-level mathematics.
- Six semester hours advanced mathematics\*.