

2014-2015 Catalogue

MATHEMATICS: STATISTICS B.S.M.

All students must meet the University Requirements .

The statistics major offers two concentrations:

Pre-Medical Concentration

Quality Concentration

MAJOR REQUIREMENTS

Students receiving the B.S. in Mathematics may select statistics as their major. In addition, students receiving a Bachelor of Arts from the College of Arts and Sciences may concentrate in statistics as a part of their mathematics major. Statistics is a mathematical science extensively used in a wide variety of fields. Indeed, every discipline which gathers and interprets data uses statistical concepts and procedures to understand the information implicit in their data base. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/ biostatistics or another field where quantitative ability is valuable (operations research, medicine, public health, demography, psychology, etc.). Students are encouraged to undertake special projects to gain experience in data analysis, design, and statistical computing. Also, experience may be gained with local industry and other organizations for those interested in quality control, industrial statistics, survey and market research or forecasting, for example.

Statistics majors may also minor in mathematics by completing:

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 052	Fundamentals of Mathematics	3
MATH 121	Calculus III	4
Credits in mathematics at the 100-level		6

Since statistics majors normally take MATH 021, MATH 022, MATH 121 and MATH 124, they just need two more mathematics courses at the 100-level or above.

Students may earn a double major in mathematics and statistics by meeting the requirements of the statistics major and earning an additional fifteen credits in mathematics, to include:

MATH 052	Fundamentals of Mathematics	3
Choose two of the following:		6
MATH 230	Ordinary Differential Equation	
MATH 237	Intro to Numerical Analysis	
MATH 241	Anyl in Several Real Vars I	
MATH 251	Abstract Algebra I	

Further details on the statistics major and minor curricula may be obtained from the director of the Statistics program. The Handbook for Mathematics and Statistics majors, available from the Department of Mathematics and Statistics office, also provides a wealth of useful information.

PRE-MEDICAL CONCENTRATION IN STATISTICS

Each student electing the Pre-Medical concentration in statistics will fulfill the general requirements for the statistics major. STAT 200 is recommended as an important elective for students interested in medicine or allied health. In addition, the pre-medical concentration should include, at a minimum:

Two semesters of general chemistry and two semesters of organic chemistry with laboratory:		16
Choose one of the following sequences:		
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
Complete the following sequence:		
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	
Choose one of the following physics sequences with laboratory:		7-8
PHYS 031 & PHYS 125	Physics for Engineers I and Physics for Engineers II	
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
At least one year of biology with laboratory:		8
BIOL 001	Principles of Biology	
BIOL 002	Principles of Biology	

Exposure to medical research problems may be provided through supervised experiences in the College of Medicine's Medical Biostatistics and Bioinformatics facility.

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CONCENTRATION IN QUALITY

Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in Quality. Regularly offered courses include STAT 224 and related courses in business administration such as BSAD 178 and others in the Production and Operations Management and Quantitative Method areas. Project experience in industrial quality control or in health care quality can be gained in STAT 191 and STAT 281, or STAT 293 - STAT 294.