

## STATISTICS M.S.

All students must meet the Requirements for the Master's Degree (<http://catalogue.uvm.edu/graduate/degreerequirements/requirementsforthemastersdegree/>)

### OVERVIEW

The Statistics Program offers biostatistics, statistics, data science and probability courses for the entire university community along with traditional degree programs and individually designed degree programs emphasizing statistics applied to other fields. The degree programs are designed primarily for students who plan careers in data science, business, actuarial science, industry, and government or advanced training in disciplines that make extensive use of statistical methods and data science. The program faculty is deeply involved in consulting and collaborative research in a wide variety of fields, including industry, agriculture, and in the basic and clinical medical sciences. These research activities along with the research of other quantitative UVM faculty offer students unique opportunities to apply their classroom training to "real world" problems. Qualified students with the goal of learning statistics to use in a specialized area of application are especially encouraged to take advantage of these cooperative arrangements.

Program faculty have active statistics research efforts in areas such as bioinformatics, statistical genetics, Bayesian models, survival data analysis, discriminant analysis, bootstrap methods, machine learning, predictive modeling, networks, categorical data analysis, measurement error models, and experimental design. Students seeking the traditional graduate degree in statistics (along with course work in mathematics and computer science, if desired) have excellent opportunities to participate in the faculty's research.

### SPECIFIC REQUIREMENTS

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

A baccalaureate degree. 3 semesters of calculus, a course in matrix methods, and 1 semester of statistics. Provisional acceptance can be given prior to the completion of these requirements. Computer programming experience is highly recommended.

Current undergraduate students at the University of Vermont should contact the program director for details on the Accelerated Master's Program.

#### Minimum Degree Requirements for the Degree of Master of Science

OPTION A (THESIS)		
A 30 credit program requiring 24 credits of statistics course work. The program must include:		
STAT 221	QR: Statistical Methods II	3
STAT 223	QR:Appld Multivariate Analysis	3

STAT 231	QR: Experimental Design	3
STAT 251	QR: Probability Theory	3
STAT 261	QR: Statistical Theory	3
STAT 360	Linear Models	3
6 additional course credits are required. Other 200-300 level statistics courses (except STAT 211, STAT 241, STAT 281) or (if approved) other courses in mathematics, quantitative methods, or specialized fields of application can be selected.		6
6 credits of thesis research is required:		
STAT 391	Master's Thesis Research	6

OPTION B (NON-THESIS)		
A 30 credit program requiring 27 credits of course work. The program must include:		
STAT 221	QR: Statistical Methods II	3
STAT 223	QR:Appld Multivariate Analysis	3
STAT 231	QR: Experimental Design	3
STAT 251	QR: Probability Theory	3
STAT 261	QR: Statistical Theory	3
STAT 360	Linear Models	3
9 additional course credits are required. Other 200-300 level statistics courses (except STAT 211, STAT 241, STAT 281) or (if approved) other courses in mathematics, quantitative methods, or specialized fields of application can be selected.		9
The research project requirement is met by taking 3 semester hours of:		
STAT 381	Statistical Research	3
or STAT 385	Consulting Practicum	

BOTH OPTIONS		
Under both options, students must have or acquire knowledge of the material in STAT 211. The student is expected to participate in the colloquium series of the program and in the Statistics Student Association Journal Club. The student must pass the comprehensive examination.		

#### Comprehensive Examination

The comprehensive exam is a 3-hour exam that includes a mixture of questions spanning theoretical and applied statistics, probability, study design, and interpretation of analytical results. The questions are formatted as either numerical computation, derivation, or essay. The student can take the exam a maximum of two times. The exam is based on the courses STAT 211, STAT 221, STAT 223, STAT 231, STAT 251, and STAT 261.

**Requirements for Advancement to Candidacy for the Degree of Master of Science**

Successful completion of any prerequisite courses, and at least 15 graded graduate credits earned in compilation of the graduate GPA, including all core courses. A GPA of 3.00 or greater is also required.