

BIostatistics M.S.

All students must meet the Requirements for the Master's Degree

OVERVIEW

The program offers a concentration in biostatistics leading to the M.S. degree.

Emphasis is placed on learning how to design studies and perform computerized data analysis as the statistician in a research team. The curriculum takes full advantage of courses taught in the Statistics Program and includes potential experience in a variety of health, biomedical, natural resource and other research projects in the College of Medicine or other departments of UVM. This experience is designed to provide candidates with opportunities to use their academic training and work experience in defining research problems, formulating rational methods of inquiry, and gathering, analyzing, and interpreting data.

Three faculty members are in the College of Medicine's Department of Medical Biostatistics and Bioinformatics, whose research activities cover the full range of studies that take place within an academic medicine environment. These include population-based health surveys of various types and evaluations of health promotion programs and professional education activities, such as community intervention studies to prevent smoking and to promote breast cancer screening. They also include clinical studies of many different interventions, bioengineering experiment design and measurement studies, statistical genetics, as well as data from other preclinical, clinical, and epidemiological studies.

Opportunities are also available for biostatistical research related to problems in agriculture and the life sciences, as well as natural resources and the environment. Opportunities could include multivariate or spatial data analyses for ongoing wildlife and water quality studies, for example. All students gain research and consulting experience through the research requirement: a research project (STAT 381) or a thesis (STAT 391). Other opportunities for experience will arise through involvement in the Statistical Consulting Clinic (STAT 385). (See also Statistics Program and Statistical Consulting Clinic descriptions.)

SPECIFIC REQUIREMENTS

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

An undergraduate major which provides a foundation for the application of statistical methodology and concepts to health and biomedical or agriculture/natural resource problems. For example, premedicine majors who have delayed their application to medical school will be well suited for the program. It is expected that candidates will have completed three semesters of calculus and a course including matrix algebra methods. Also they will have a solid introductory course in statistics (like STAT 211) and a course including undergraduate probability (like STAT 151). However, provisional admission to the program can be given prior

to the completion of these mathematics and statistics requirements. Computer experience is desirable. Satisfactory scores on the general (aptitude) portion of the Graduate Record Examination are required. 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 thirty credit program requiring twenty-four credits of course work. The program must include:		
BIOS 200	Med Biostatistics&Epidemiology	3
BIOS 221	Statistical Methods II	3
BIOS 223	Applied Multivariate Analysis	3
BIOS 231	Experimental Design	3
BIOS 251	Probability Theory	3
BIOS 261	Statistical Theory	3
STAT 360	Linear Models	3
Three additional course credits are required. BIOS 229 or BIOS 235 are recommended. Another 200/300 level statistics course (except BIOS 211, BIOS 241, STAT 281, BIOS 308) or (if approved) other courses in mathematics, quantitative methods, or specialized fields of application can be selected.		
Plus six credits of approved thesis research		6

Option B (Non-Thesis)		
A thirty credit program requiring twenty-seven credits of course work. The program must include:		
BIOS 200	Med Biostatistics&Epidemiology	3
BIOS 221	Statistical Methods II	3
BIOS 223	Applied Multivariate Analysis	3
BIOS 231	Experimental Design	3
BIOS 251	Probability Theory	3
BIOS 261	Statistical Theory	3
STAT 360	Linear Models	3
Six additional course credits are required. BIOS 229 or BIOS 235 are recommended. Another 200/300 level statistics course (except BIOS 211, BIOS 241, STAT 281, BIOS 308) or (if approved) other courses in mathematics, quantitative methods, or specialized fields of application can be selected.		
The research project requirement is met by taking three credits of:		
STAT 381	Statistical Research	3

or STAT 385	Consulting Practicum
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Both Options	
Under both plans, students must have or acquire a knowledge of the material in BIOS 211, attend the regular colloquium series and participate in the Statistics Student Associate Journal Club as part of their training. The comprehensive examination covers knowledge acquired in the core courses of the program. Under the non-thesis option, students will be expected to take major responsibility for a comprehensive data analysis or methodological research project, and are encouraged to present the results from the project.	

Comprehensive Examination

A written comprehensive examination is based on the courses STAT 211, STAT 221, STAT 223, STAT 231, STAT 251, and STAT 261. The comprehensive exam is typically held two weeks after the final exam in the spring semester. The student can take the exam a maximum of two times.

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

Successful completion of any pre-requisite courses, and at least 15 graded graduate credits earned in compilation of the graduate GPA, including all core courses. A GPA of 3.0 or greater is also required.