BIOSTATISTICS, MS

The Master of Science in Biostatistics program provides an innovative curriculum to meet a range of professional needs and interests. The program trains students in study design, appropriate use of statistical and computational techniques, and interpretation of data analysis results arising from public health and biomedical research. Students learn both classical and modern statistical methods and apply their statistical skills and knowledge to solve "big data" problems. They have the opportunity to work with faculty on cutting edge research projects, such as discovering genetic causes of common diseases, developing statistical algorithms to monitor treatment efficacy, and reducing medical costs through electronic health record.

Please email applyph@uwm.edu to learn more about the MS in Biostatistics degree.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (http://uwm.edu/graduateschool/program-deadlines/) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (https://uwm.edu/onestop/dates-and-deadlines/).

Admission

1. An applicant must meet Graduate School requirements plus the following program requirements to be considered for admission to the program. These materials will be considered in a holistic admissions process with special attention to ensure a diverse student body.
   a. Three letters of recommendation from persons familiar with the applicant's academic experience and potential for graduate work in biostatistics.
   b. CV or resume.
   c. Score report from the General Test of the Graduate Record Examination (GRE) (http://uwm.edu/graduateschool/admission/#gre), taken within the last five years.
   d. The admissions committee may consider GMAT (http://uwm.edu/graduateschool/admission/#gmat), LSAT, MCAT scores in place of GRE (http://uwm.edu/graduateschool/admission/#gre) scores. Students requesting this or any other exception should apply in writing for consideration by the Applications Review Committee.
   e. Address the following two Short Essay questions, limiting responses to no more than 500 words (approximately 250 words per question):
      • Describe how your professional, volunteer, and educational background has led you to seek a Master's of Science in Biostatistics.
      • How will an MS in Biostatistics help you reach your personal and professional goals?
   f. International applicants must also meet admission standards set and monitored by UWM's Center for International Education.
   g. **All applicants** must use SOPHAS (https://sophas.org/) to apply. When applying applicants must select the Master's of Science in Biostatistics.

Credits and Courses

The Master of Science in Biostatistics is a two-year program, preparing graduates to be effective collaborators in many settings, including the biomedical industry, academia, and public service at all levels of national and international government. Students will be trained to lead the design and data analysis of health research studies both in applied and academic settings. Coursework focuses on applied biostatistical methods, statistical consulting, computing, and the intersection of public health and statistical research. Students must complete 39 graduate credits beyond the bachelor's degree, plus an additional 3 credits dedicated toward thesis writing and research, for a total of 42 credits. Completion of a high-quality master thesis based on original research is a key indicator of the student's capacity to integrate and apply various biostatistical methods and public health knowledge in real world problems.

Code	Title	Credits
Required Coursework		
PH 702	Introduction to Biostatistics	3
PH 704	Principles and Methods of Epidemiology	3
PH 711	Intermediate Biostatistics	3
PH 712	Probability and Statistical Inference [1]	3
PH 715	Applied Categorical Data	3
PH 716	Applied Survival Analysis	3
PH 717	Applied Longitudinal Data Analysis	3
PH 718	Data Management and Visualization in R	3
PH 801	Seminar in Public Health Research	3
PH 813	Practice of Biostatistical Consulting	3
PH 895	Research and Thesis for MS in Biostatistics	3
Subject Matter S Electives		**6**
Choose two:		
COMPSCI 708	Scientific Computing	
COMPSCI 711	Introduction to Machine Learning	
ED PSY 823	Structural Equation Modeling	
ED PSY 832	Theory of Hierarchical Linear Modeling	
PH 714	Statistical Genetics and Genetic Epidemiology	
PH 721	Introduction to Translational Bioinformatics	
PH 722	An Introduction to Bayesian Statistics	
PH 723	Design, Conduct and Analysis of Clinical Trials	
PH 812	Statistical Learning & Data Mining	
PH 818	Statistical Computing	
Public Health & Biology Electives [2]		**3**
Choose one:		
BIO SCI 490	Molecular Genetics	
PH 703	Environmental Health Sciences	
PH 705	Principles of Public Health Policy and Administration	

PH 706	Perspectives on Community & Behavioral Health	
Total Credits		**42**

[1] Or other elective.
[2] Other courses may be approved.

Additional Requirements

Applied Research Project

Near the end of their programs, students will consult with their academic advisor to identify a Biostatistics Track faculty member to be their master's thesis advisor for the applied independent study project. This can be their assigned advisor or a different member of the Biostatistics Track Faculty. Advising is by mutual agreement between student and faculty member. The Faculty member then supervises and approves the candidate's master thesis. Every student must finalize the thesis advisor and prepare a brief thesis research plan no later than the start of the semester in which the student plans to graduate. It is highly recommended that each student speak to the potential thesis advisor and find the project of their interest as early as possible. The thesis research plan should include basic background, outline of specific aims and hypotheses, proposed analysis methods, draft timelines, and expected outcomes. Once the approved thesis research and write-up has been completed, the candidate will submit the work to the thesis advisor for review and approval. The candidate will present their thesis in a session that is open to the academic community.

Time Limit

The student must complete all degree requirements within 5 years of initial enrollment.