MASTER OF SCIENCE IN THE FIELD OF BIOSTATISTICS

Program co-Directors and Academic Advisors: A. F. Elmi, D. A. Verme

The Master of Science (MS) degree program in Biostatistics is a 33 credit degree program jointly administered by the Department of Statistics in the Columbian College of Arts and Sciences (CCAS) and the Department of Epidemiology and Biostatistics in the Milken Institute School of Public Health (SPH), and its associated research facility, The Biostatistics Center. This degree program is accredited by the Middle States Council on Higher Education through the CCAS and by the Council on Education for Public Health through the SPH Regulations, and requirements for this graduate degree have been designed to be compatible with policies and scholarship requirements of both CCAS and SPH. The degree is conferred by Columbian College.

Admissions Requirements

Applicants must hold an undergraduate degree from an accredited institution of higher learning. Applicants should have academic backgrounds of excellence, usually with majors, or equivalent, in the fields in which they intend to study for advanced degrees. Normally, a B average (or equivalent) from an accredited college is required. With evidence of special promise, such as high Graduate Record Examination scores, an applicant whose academic record falls short of a B average may be accepted on a conditional basis. Meeting the minimum requirements does not assure acceptance. The departments may, and often do, set higher admission standards. Moreover, the number of spaces available for new graduate students limits the number who can be accepted. Students who apply in their senior year must provide evidence of the completion of their baccalaureate work before registration in Columbian College is permitted. Applicants should be aware that graduate courses taken prior to admission while in non-degree status are not used in assessing admissibility to degree programs and may not be transferable into these programs.

If desired, a student may complete the M.S. program prior to admission to the Ph.D. degree program, in which case no more than 24 credits from the M.S. degree may be applied to the Ph.D. course work requirements. In this instance the student will be required to take a minimum of 27 additional credits of course work. The distribution of these courses between statistics and public health will depend on the nature of the Master’s degree and whether the transferred credits will be used to defray statistics or public health course work. Full information is available in the online Graduate Admissions Application. (http://graduate.admissions.gwu.edu)

COMPETENCIES

At the completion of the MS program in Biostatistics students will be able to:

- Understand and the theory and principles behind statistical methods most commonly used in biomedical research (contingency tables, survival analysis, mixed models, and missing data).
- Understand and apply the underlying principles and methods to design, plan, and conduct biomedical studies.
- Provide biostatistical advice as a member of a team engaged in a biomedical research project. Includes manipulation and analysis of data.

MINIMUM PREREQUISITE COURSES FOR ADMISSION CONSIDERATION (OR EQUIVALENTS TO THESE GW COURSES)

The courses listed below (or equivalents) are prerequisites for admission consideration, and MUST appear on your transcript. Submit your MS Biostatistics program admission application only after you have completed all of the following courses:

- MATH 1231 Single-Variable Calculus I
- MATH 1232 Single-Variable Calculus II
- STAT 2118 Regression Analysis

ADDITIONAL COURSE REQUIREMENTS

The courses listed below are "Additional Course Requirements." Applicants lacking these courses (or equivalents to these GW courses) will be considered for admission, but, if admissible, will be admitted conditionally with the expectation that these courses will be satisfactorily completed within two semesters following matriculation in the program. These credits do not count as credit toward the 33 credit graduation requirement, nor are grades earned in these additional courses reflected in the overall grade point average.

- MATH 2184 Linear Algebra I
- MATH 2233 Multivariable Calculus
- One of the following:
  - STAT 1129 Introduction to Computing
  - STAT 2183 Intermediate Stat Lab/Packages
  - PUBH 6249 StatPackages/DataMgt&DataAnlys

PROGRAM REQUIREMENTS

Required core courses:
Required statistics core courses:

- STAT 6201 Mathematical Statistics I
- STAT 6202 Mathematical Statistics II
- STAT 6210 Data Analysis
- STAT 6227 Survival Analysis
- PUBH 6265 Design of Medical Studies
- PUBH 6266 Biostatistical Methods (Basis for Master's Comprehensive Examination)

Required public health core courses:

- PUBH 6001 Biological Concepts/Public Health
- PUBH 6003 Principles and Practice/Epidemiology
- PUBH 6299 Topics in Epi/Bio

Approved elective courses:

6 credits from the following:

Approved statistics elective courses:

- STAT 3187 Introduction to Sampling
- STAT 4181 Applied Time Series Analysis
- STAT 4188 Nonparametric Stat Inference
- STAT 6215 Applied Multivariate Analysis I
- STAT 6216 Applied Multivariate Analysis II
- STAT 6217 Design of Experiments
- STAT 6223 Bayesian Statistics: Theory and Applications
- STAT 6231 Contingency Table Analysis
- STAT 6242 Regression Graphics/Nonparametric Regression
- STAT 6287 Modern Theory of Sample Surveys
- STAT 8226 Advanced Biostatistical Methods
- STAT 8265 Multivariate Analysis
- STAT 8273 Stochastic Processes I
- STAT 8281 Advanced Time Series Analysis
- STAT 8288 Modern Theory/Sample Surveys

Approved public health elective courses:

- PUBH 6004 Environmental and Occupational Health in a Sustainable World
- PUBH 6006 Mgt & Policy Approaches to PH
- PUBH 6121 Environmental and Occupational Epidemiology
- PUBH 6242 ClinicalEpid&Decision Analysis
- PUBH 6244 Cancer Epidemiology
- PUBH 6245 Infectious Disease Epidemiology
- PUBH 6246 Injury Epidemiology & Prevention
- PUBH 6248 EpidMethods/OlderPopulations
- PUBH 6250 Epidemiology of HIV/AIDS

Consulting

- PUBH 6258 Adv Topics/Biostat Consulting
- PUBH 6283 Biostatistics Consulting Practicum

The Master’s Comprehensive Examination

The Master’s Comprehensive Examination is a written comprehensive examination in the field of Biostatistics and is based on the course content PUBH 6266 Biostatistical Methods. It is administered by the faculty from the Department of Epidemiology and Biostatistics in the Milken Institute School of Public Health.