The University of Oklahoma  
College of Public Health  
Department of Biostatistics and Epidemiology

Bachelor of Science / Master of Science (BS/MS) in Biostatistics

BS Mathematics/MS Biostatistics Accelerated Dual-Degree Program
The program is a modification of an existing Bachelors of Science in Mathematics degree program. It permits students entering the University as freshman to earn both a Bachelor’s of Science degree in Mathematics and a Master of Science degree in Biostatistics within four to five years. This time period is one or more years shorter than the time normally required completing both degrees. The program is structured so that 24 credit hours of work can be applied to both degree programs.

During the first three years, the students will take a variety of courses in the humanities, in the sciences that relate to biomedical science, and in mathematics. The 12 required courses in mathematics include calculus, linear algebra, probability theory, and other subjects that provide a foundation for the understanding and use of statistics.

Approximately one and a half years of the program will be spent at the Health Sciences Center where the student will take specialized courses involving methods and applications of statistical analysis, data analysis, principles of epidemiology, and public health issues. A research project will culminate in a thesis.

This program will prepare the student for careers in health agencies and medical institutions, for consultation in the biomedical fields, and for biostatistics research. Students may seek to continue their studies at the Health Sciences Center by applying for admission to the Doctor of Philosophy program in Biostatistics.

Admission

The requirements for admission to the program are the same as those for admission to the College of Arts and Sciences. These requirements are listed in the Bulletin and class schedule of the University of Oklahoma.

Students may apply for admission to the Graduate Program provided they have completed (1) at least 45 credit hours of coursework; (2) at least nine of these credit hours are in upper division courses; and (3) the overall GPA and the GPA in all upper division coursework are both 3.00 or better. International students must also submit a TOEFL score of at least 570 paper-based or 88 IBT. Students who have been granted admission to the Graduate Program may begin taking the graduate coursework.

All students, regardless of admission status, are required to maintain a GPA of 3.00 or greater in all coursework completed. The 136 credit hours submitted to satisfy the requirements of the program may not include more than eight credit hours with a grade of C. Moreover, the 136 credit hours submitted to satisfy the requirements of this program
may not include any credit hours in courses numbered 4000 or above for which a grade lower than a C was given.

**Undergraduate Courses Counted Toward the BS Degree**

**General Education Requirement**

**Core Area I  Symbolic and Oral Communication**

9 – 19 credit hours

**Core Area II  Natural Science**

8 credit hours

The physical science must be one of the following:

Chemistry 1315  General Chemistry (Lower)
Chemistry 1425  General Chemistry for Majors (Lower)
Physics 1205  Physics I for Sciences Majors (Lower)
Physics 1214  Physics for Life Science Majors
Physics 2514  Physics for science and Engineering Majors

The biological science must be one of the following:

Zoology 1114  Introductory Zoology
Zoology 2404  Ecology and Environmental Quality

**Core Area III  Social Sciences**

6 credit hours

**Core Area IV  Humanities**

12 credit hours

**Major Support Requirement (One of the following)**

3 – 5 credit hours

Zoology 2124  Human Physiology (requires ZOO 1121)
Zoology 2343  Human Heredity (offered irregularly)
Microbiology 2815  Introduction to Microbiology (Lower)

**Major Requirements in Mathematics**

30 credit hours

(A grade of C or better is required in each course numbered below 4000. A grade of B or better is required in each course numbered 4000 or higher)

MATH 1823  Calculus/Analytic Geometry I
MATH 2423  Calculus/Analytic Geometry II
MATH 2433  Calculus/Analytic Geometry III
MATH 3443  Calculus/Analytic Geometry IV
MATH 3333  Linear Algebra I
MATH 3513  Foundations of Analysis
MATH 4323  Higher Algebra  or  MATH 4433 Introduction to Analysis
MATH 4033  Applied Matrix Models  or  MATH 4073 Numerical Analysis
  or  MATH 4083 Numerical Analysis II
MATH 5803  Theory of Probability  or  BSE 5703 Theory of Probability
MATH 5723  Introduction to Math Statistics  or  BSE 5733 Principles of Math Statistics I

**Elective Courses in Mathematics (Two of the following)**

6 credit hours

(Students may elect to take 5000 level versions if the course is listed as a 4000/5000 level course.)

MATH 4033  Applied Matrix Models
MATH 4073  Numerical Analysis I
MATH 4083  Numerical Analysis II  
MATH 4113  Boundary Value Problems  
MATH 4193  Introduction to Mathematics Modeling  
MATH 4323  Higher Algebra I  
MATH 4333  Higher Algebra II  
MATH 4373  Abstract Linear Algebra  
MATH 4433  Introduction to Analysis I  
MATH 4443  Introduction to Analysis II  
MATH 4853  Introduction to Topology  
MATH 4733  Multivariate Statistical Methods  or  BSE 6663 Analysis of Multivariate Data  
MATH 5783  Regression Analysis  or  BSE 6643 Regression Analysis  
MATH 5773  Nonparametric Methods  or  BSE 5653 Nonparametric Methods

Unrestricted Elective Courses approved by Advisory Committee  20 – 30 credit hours

Total Undergraduate Courses Counted toward the BS Degree  100 credit hours

Graduate Courses Counted toward MS

One elective, non-methods course in epidemiology  3 credit hours

Elective courses in Biostatistics (Two of the following)  6 credit hours
These may be selected here if they have not been used to satisfy one of the requirements above)

MATH 5733  Nonparametric Methods  or  BSE 5653 Nonparametric Methods  
BSE 5663  Analysis of Frequency Data  
BSE 6643  Survival Data Analysis  
MATH 4733  Multivariate Statistical Methods  or  BSE 6663 Analysis of Multivariate Data

Remaining Elective Courses  3 – 9 credit hours
Any course in BSE which has not been used to satisfy any of the above requirements may be selected except the following which may not be used: BSE 5103 or 6950.

Total Graduate Courses Counted Toward the MS Degree  12 credit hours

Undergraduate and Graduate Courses Toward BS & MS

Required Courses in Biostatistics and Epidemiology  16 credit hours
BSE 5113  Principles of Epidemiology  
BSE 5163  Biostatistics Methods I  
BSE 5001  Problems in Biostatistics and Epidemiology  
BSE 5173  Biostatistics Methods II  
BSE 5193  Intermediate Epidemiologic Methods  
BSE 5980  Research for Master’s Thesis (3 credit hours)  

Note: The thesis also satisfies the Senior Capstone Requirement. It may be necessary to enroll in more than 3 credit hours of BSE 5980; however, only 3 credit hours may apply to the minimum 136 credit hours required for the program.
A student who has not previously completed MPH core courses or earned MPH degree will be required to complete the overview course in public health in the first academic year of enrollment

- BSE 5960 Overview of Public Health 3 credit hours

**Elective Courses, Two of the following:** 6 credit hours

Note: only courses that were not selected to meet the undergraduate major requirements in mathematics or the undergraduate elective courses in mathematics may be selected to meet the requirement.

- MATH 4033 Applied Matrix Models
- MATH 4073 Numerical Analysis I
- MATH 4083 Numerical Analysis II
- MATH 4113 Boundary Value Problems
- MATH 4193 Introduction to Mathematics Modeling
- MATH 4323 Higher Algebra I
- MATH 4333 Higher Algebra II
- MATH 4373 Abstract Linear Algebra
- MATH 4433 Introduction to Analysis I
- MATH 4443 Introduction to Analysis II
- MATH 4853 Introduction to Topology
- MATH 4733 Multivariate Statistical Methods or BSE 6663 Analysis of Multivariate Data
- MATH 5783 Regression Analysis or BSE 5643 Regression Analysis
- MATH 5773 Nonparametric Methods or BSE 5653 Nonparametric Methods

**Total undergrad and graduate courses toward the BS and MS degrees** 25 credit hours

Note: The credit hours listed in this section total 25 but only 24 of these may be applied to the minimum 136 credit hours required for this program.

**Credit hour summary**

- Total undergraduate credit hours counted toward the BS degree 10 credit hours
- Total credit hours counted toward the MS degree 12 credit hours
- Total credit hours counted toward BS and MS degrees 24 credit hours
- Minimum credit hours required for the program 136 credit hours

From time to time, curriculum reviews may indicate that some courses need to be modified, deleted, or replaced. The specific courses listed above as requirements or electives for the program may be changed at any time by joint action of the Department of Mathematics and the Department of Biostatistics and Epidemiology.

The BS and MS degrees will be awarded simultaneously after the completion of all requirements.

*This degree program is subject to the policies and procedures printed in the University of Oklahoma College of Public Health Bulletin.*

9/13/16