BIOSTATISTICS, PHD

PhD in Biostatistics

The PhD program in Biostatistics educates advanced students in the theory and application of biostatistics and data science methods and prepares them to be on the forefront of leadership in these areas. Education in the advanced theory of probability and statistical inference is combined with applied methods in complex study design and analysis.

Graduates from the PhD program typically pursue careers as academic researchers and teachers; in industry, such as the pharmaceutical and biomedical fields; and in other research pursuits, both public and private. Typical roles include teaching, collaborative research and independent research in statistics, biostatistics, bioinformatics methods, design, and data analysis.

Program Competencies

- Develop new biostatistical and data science methods for application to biomedical and public health research problems.
- Assess the performance of advanced statistical methods applied to biomedical and public health research.
- Design a statistical analysis plan to analyze complex data.
- Design teaching and learning experiences grounded in pedagogical best practices in a chosen area of expertise.
- Develop a grant proposal for a public health research study with a compelling scientific narrative, description of investigator capacity, timeline, and budget.

Requirements

Students must complete 48 credit hours of coursework and doctoral studies beyond the baccalaureate, with a minimum of 30 didactic hours at Tulane in the doctoral program. Up to 18 Credits can be transferred from Master's degree.

The PhD must be completed within seven years of matriculation into the doctoral program.

Course ID	Title	Credits
PhD Foundational Requirements		
SPHL 6020	Foundations in Public Health	3
SPHL 6060	Epidemiology for Public Health	3
BIOS 7040	Statistical Inference I	3
BIOS 7050	Statistical Inference II	3
Select two of the following three courses:		6
BIOS 7060	Regression Analysis	
BIOS 7080	Design of Experiments	
BIOS 7150	Categorical Data Analysis	
PhD Core Courses		
SPHL 7500	Public Health Grant Writing	3
SPHL 8080	Public Health Pedagogy	3
EPID 7120	Epidemiologic Methods II	3
BIOS 7300	Survival Data Analysis	3
BIOS 7380	Bayesian Inference	3
BIOS 8350	Clustered and Longitudinal Data Analysis	3
BIOS 8820	Multivariate Methods	3
Elective Courses		
Select a minimum of 9 credits from relevant advanced level courses in consultation with an academic advisor.		9
Total Credit Hours		**48**

Research Ethics

Students are required to take online research ethics training via CITI or another equivalent training program in research ethics. This certification must remain current throughout the program duration.

Teaching Assistant Experience

All PhD students at SPHTM are required to serve as a teaching assistant (TA) for two SPHTM courses while enrolled in the PhD program. Students should register for Teaching Assistantship Educational Experience (0 credits) during the terms they complete each TA requirement.

Comprehensive Exam

Students are required to pass a written comprehensive examination that demonstrates general knowledge of biostatistical methods and research applications. The department administers a written comprehensive examination upon completion of the required coursework. The exam is administered twice a year (October and March) and must be taken within a year after the completion of the coursework. The exam has two parts: an applied biostatistics component; and a probability and mathematical statistics component. Candidates must pass both parts to successfully complete the comprehensive exam requirement. Students have two attempts to pass each component of the examination; the second attempt must take place within a year of the first.

Doctoral Committee

After successful completion of the comprehensive examination, the student forms a dissertation committee and develops a prospectus. The committee must include a minimum of three members with at least two faculty from the Department of Biostatistics and Data Sciences and one external to the school.

Prospectus

Students work with their advisor and doctoral committee to determine a research hypothesis and prepare a prospectus of proposed dissertation research. The research prospectus is presented and defended at least one semester before the dissertation defense. Following the successful defense of the prospectus, students are admitted to PhD candidacy and proceed with dissertation research.

Dissertation

Students must conduct original research and defend a dissertation based on that research. The dissertation research demonstrates scholarly work and is the basis for the dissertation. The student defends the dissertation to their committee; the dissertation committee and SPHTM Executive Faculty approve the dissertation.