

The Ph.D. in Biostatistics-Decision Science

Minimum Requirements

69 Total Credit Hours:

- 36 credit hours required for MS
- 24 credit hours of required coursework
- 9 credit hours of dissertation research

Required Coursework for Concentration in Biostatistics

Year Three Fall Semester

PHST 710	Advanced Statistical Computing I	3
PHST 762	Advanced Statistical Inference	3
PHST 781	Advanced Linear Models	3

Year Three Spring Semester

PHST 724	Advanced Clinical Trials	3
PHST 782	Generalized Linear Models	3
PHST 783	Advanced Survival Analysis	3

Elective Courses

In addition to the above required courses, at least 6 credit hours of electives must be taken from the following list.

The student's Program of Study will specify the courses to be taken.

PHBI 750	Statistical Methods for Bioinformatics	3
PHBI 751	High-throughput Data Analysis	3
PHST 682	Multivariate Analysis	3
PHST 691	Bayesian Statistics	3
PHST 711	Advanced Statistical Computing II	3
PHST 725	Design of Experiments	3
PHST 785	Nonlinear Regression	3

Required Coursework for Concentration in Decision Science

Year Three Fall Semester

PHDA 673	Biostatistics-Decision Science Research	3
PHDA 690	Utility Theory and Assessment	3

Year Three Spring Semester

PHDA 691	Bayesian Statistics	3
PHDA 701	Advanced Medical Decision Making	3

Elective Courses

In addition to the above required courses, at least 12 credit hours of electives must be taken. The student's Program of Study will specify the courses to be taken. (Electives remain the same as previously approved except that all required and elective courses listed above for the Ph.D. concentration in Biostatistics also are included.)

Research Seminar

All doctoral students will be required to present in the Biostatistics–Decision Science Seminar (PHST 602) or other approved seminar at least once during at least two semesters. Evaluation will be conducted by an assigned faculty member who will assess whether satisfactory performance was achieved.

Consulting Rotation

Students enrolled in the Ph.D. concentration in Biostatistics also will be required to complete a service rotation through the Statistical Consulting Center of the Department of Bioinformatics and Biostatistics. Evaluation will be conducted by an assigned faculty member who will assess whether satisfactory performance was achieved.

Program of Study

Upon admission to the Ph.D. program, a Program of Study will be developed for each student by a faculty advisor and approved by the Department Chair. Ph.D. students who did not complete the M.S. in the Department of Bioinformatics and Biostatistics may be required to include additional coursework normally offered in the M.S. program. Decisions regarding additional coursework will be made by the student's assigned faculty advisor and such courses will be part of the Program of Study. This approach gives maximum flexibility for addressing differing student qualifications and interests.

Comprehensive Exams and Dissertation

Upon completion of the required coursework for the Ph.D., the student will be eligible to sit for the Doctoral Comprehensive Exams.

The core coursework consists of the following six courses:

- Advanced Statistical Inference (PHST 762)
- Advanced Linear Models (PHST 781)
- Generalized Linear Models (PHST 782)
- Advanced Statistical Computing I (PHST 710)
- Advanced Survival Analysis (PHST 783)
- Advanced Clinical Trials (PHST 724)

Completion of the core coursework is the prelude to sitting for Comprehensive Doctoral Exams. Successful passage of these comprehensive exams makes a student a Doctoral Candidate. A doctoral candidate then must successfully develop and defend a Dissertation Proposal that describes an original, independent research project. Upon successfully completing the Comprehensive Doctoral Exams and Dissertation Proposal, the student may then proceed with the dissertation research. Upon successful defense of the Dissertation, the student receives the Ph.D. degree.

All students must take two comprehensive exams:

Exam One: Based on Advanced Statistical Inference and Advanced Linear Models.

Exam Two: Students must opt for any two of the following topics:

- Generalized Linear Models
- Advanced Statistical Computing
- Advanced Survival Analysis
- Advanced Clinical Trials.

The student must submit his or her choices for Exam Two topics by June 15 in writing to the Graduate Coordinator. Each exam will be offered once per year during the second or third week of August on a Saturday/Sunday. Exam One will be administered during a Saturday session from 8:30am until 1:30p.m. Exam two will be offered on the following Sunday with the morning session lasting from 8:30a.m. - 12:30p.m., lunch from 12:30p.m. until 1:00p.m., and the afternoon session lasting from 1:00p.m. until 5:00p.m. Lunch will be provided on the day of Exam Two. The exam will be open note. Cell phones, PDAs, Laptops or other personal electronic equipments will not be allowed.

Grades on comprehensive exams will be “High Pass”, “Pass”, or “Fail”. The grades will be based on both exams. Note that a ‘partial pass’ is not an option. Students may make no more than two attempts to obtain a passing score on the comprehensive exams.

Successful completion of the exam will admit the student to doctoral candidacy status. A doctoral candidate then must successfully develop and defend a Dissertation Proposal that describes an original, independent research project. Upon successfully completing the Doctoral Comprehensive Exams and Dissertation Proposal, the student may proceed with dissertation research under the mentorship of a member of the Senior Faculty. Upon successful defense of the Dissertation, the student will be awarded the Ph.D. degree.