

BIostatistics Degree Option (BDO): MS/PhD Programs

Overview

The Biostatistics Degree Option (BDO) is a collaborative program with both the Department of Statistics and Biostatistics and Medical Informatics. Students pursue course work in theory, methodology, and application of statistics.

Both the Master's and PhD students are required to satisfy the general requirements for their degree in Statistics with additional coursework noted below.

PhD Requirements

Courses:

Seven Required Statistic Courses (23 credits) – cover core topics in probability, mathematical statistics, and statistical methodology, including distribution theory, asymptotic analysis, theory of estimation and testing, general regression techniques, and also specialized statistical methods for clinical studies.

- STAT 709 (fall) and 710 (spring) – Mathematical Statistics
- STAT 733 (fall) - Theory of Probability I **OR** STAT 771 (fall, spring) – Statistical Computing
- STAT 849 (fall) and 850 (spring) – Theory and Application of Regression and Analysis of Variance I & II
- STAT 998 (fall, spring) – Statistical Consulting
- STAT/BMI 641 (fall) – Statistical Methods for Clinical Trials

Four elective courses (12 credits) must be taken from statistics courses numbered 641, 642, 700, or higher (with the exception of 609, 610, 699, 709, 710, 849, 850, 990, or 998).

The chosen elective must contain at least two of three specialized biostatistics courses:

- BMI 642 (spring) – Statistical Methods for Epidemiology
- BMI 741 (spring) – Survival Analysis Theory and Methods
- BMI 877 (spring biannually) – Statistical Methods for Molecular Biology

One course (3 credits) is required, from an approved list of biological sciences courses:

- Genetics 466 – General Genetics
- Zoology 570 – Cell Biology
- Biocore 303 – Cellular/Molecular Biology
- Population Health Sciences 795 – Principles of Population Health Sciences
- Medical Sciences 622-721 – Neoplastic Diseases
- Approval of other biological sciences courses is at the discretion of the BDO Committee.

Students may be required to take a course in the responsible conduct of research:

- Any student supported by an NIH grant is required to take this course.

Breadth: For the BDO student, the breadth requirement is satisfied by: (1) the biological sciences course (stated above) and (2) the collaborative research experience.

Collaborative Research Experience: This unique aspect of the BDO program provides the student with experience in interdisciplinary collaborative research under the supervision of a faculty trainer. Students can accomplish this requirement by rotating through directed study/research credits with various faculty trainers.

- Lab rotations should be completed during the first three years of the program
- Lab rotations need to be established at the beginning of the semester, plan accordingly!
- Students must give a presentation of their research at the end of the same semester

Qualifying Exam: Students take their qualifying exam in August after completing their 1st year in the Statistics program. Students are able to delay the exam until after six semesters.

Mentoring Committee Meeting: Within one year of passing the qualifying exam, students must hold a meeting with a minimum of three BDO faculty advisors. The student will present a short oral report of his/her research and review the anticipated future research.

Preliminary Exam: After the selection of a thesis advisor, the student will prepare a short paper and present their thesis plans to a faculty committee.

Seminars: Students are expected to attend seminars from the Statistics Department (Wednesday, 4:00pm), the BMI Department (Friday, 12:00pm)

Final Exam: A final oral thesis presentation on novel developments in biostatistics will be presented to the thesis committee.

Other: Rules governing courses and timing, operation, and requirements of the qualifying, preliminary, and final exams are as in the parent program, as are the criteria for satisfactory progress. Issues specific to the BDO are governed by the BDO trainers within the two sponsoring departments.

MS Requirements:

For BDO students, the requirements are as in the parent program, except that the two courses (6 credits) must include

- BMI/STAT 641(fall) - Statistical Methods for Clinical Trials

And one of the following:

- BMI/STAT 642 (spring) – Statistical Methods for Epidemiology
- BMI/STAT 741 (spring) – Survival Analysis Theory and Methods
- BMI/STAT 877 (spring, biannual) – Statistical Methods for Molecular Biology

MS and PhD students: If you have any questions about the BDO requirements you should always discuss with your Program Advisor.