Ph.D. in Statistics

Ph.D. in Statistics Program Requirements
The Ph.D. program in statistics at Montana State University prepares students for academic, industrial, business, or government employment. To earn a Ph.D. in statistics, a student must pass a qualifying exam, a Ph.D. comprehensive exam, and write and defend a Ph.D. dissertation. The exams are described below. The dissertation must be an original contribution to statistical science and must include new material worthy of publication. There is no departmental foreign language requirement for the Ph.D.

A Ph.D. student typically takes at least 30 credits of statistics in courses numbered 500 and higher. Credits from graduate courses taken from another department can be included in the Program of Study with the approval of the student’s Ph.D. Graduate Committee. Additional course work in statistics and/or mathematics may be necessary, depending on the candidate’s chosen area of specialization and background. For example, a Ph.D. student is expected to have completed all courses required for the M.S. degree in statistics and may need to make-up one or more of these courses if deficient.

Once admitted to the Ph.D. program, the Ph.D. student will participate in the Statistical Consulting Seminar (STAT 510). Through this participation, the student will gain important experience in practical problem solving, computational statistics and statistical report writing. A minimum of two credits of Statistical Consulting Seminar (STAT 510) are required.

Also, it is expected that a Ph.D. student will take directed study courses in Doc Reading & Research (STAT 689) in his/her area of specialty. Doctoral Thesis (STAT 690) are listed in the Graduate Catalog.

Qualifying Exam
The Ph.D. qualifying exam is identical to the statistics M.S. comprehensive exam except that the exam must be passed at what is deemed to be at a Ph.D. level (i.e., Ph.D. pass). A student who earned an M.S. in Statistics from MSU need not take the PhD qualifying exam if the M.S. comprehensive exam was passed at the Ph.D. level. Other students are expected to take the Ph.D. qualifying exam as soon as course work in the M.S. core has been completed. Two post-master’s attempts to pass the qualifying exam are allowed.

Comprehensive Exam
The comprehensive exam has two components: written and oral. The topics and format of the written comprehensive exam for the Ph.D. in Statistics will be determined by the student’s committee. They are given each August, with a specific date determined by the student’s Ph.D. Committee. Once the written comprehensive examination has been passed, the student must pass the oral comprehensive examination. The student has 2 chances to pass each exam. The written part of the Ph.D. comprehensive will consist of several components. These will typically include:

- A general review/summary related to the proposed research area.
- Reading and critiquing at least one journal article related to the proposed research area.
- Performing a data analysis with a written summary. The data analysis will be related to coursework taken by the student.
- A component related to Bayesian statistics and/or other relevant coursework determined by the student’s Ph.D. Graduate Committee.

Each student must devise areas of concentrated study. The requirements associated with each component are flexible, however the concentration areas must be approved by the student’s committee and must include an amount of material equivalent to at least 6 graduate level courses. An area could involve course material from a discipline outside the department. That is, the Ph.D. Graduate Committee will determine the exact details of each component with the goal of assessing the student’s potential for performing independent research in the proposed research area. The student will be given several days to submit her/his written summaries.