M.S. in Statistics

Program Guidelines

The Master of Science degree in statistics at Montana State University gives students a solid background in the applications as well as the theory of statistics. Students in this program prepare either for further graduate work or for academic, industrial, business, or government employment. Upon entrance, each student meets with the department’s Graduate Program Committee to discuss career objectives and first year course work. During the second semester in the program each student forms a Graduate Committee and together, they outline the student’s degree program. The prerequisites for the master’s degree program in statistics consist of the following semester courses or their equivalent: Multivariable Calculus (M 273Q), Linear or Matrix Algebra (M 221), Methods of Data Analysis (STAT 411 and STAT 412), Probability (STAT 421), and Mathematical Statistics (STAT 422). Students who have not completed these courses may be accepted into the master’s program with the understanding they should make up these courses by adding one or two additional semesters to their program of study.

Either Plan A (thesis and 20 credits of course work) or Plan B (30 credits of course work) can be chosen. In either case, all courses on a graduate program must be numbered 400 or higher and STAT courses must be numbered 408 or higher. The specific program of study depends on the student’s previous training and experience. Regardless of the plan chosen, (i) at least half of the required non-thesis credits must be STAT courses, (ii) at least two-thirds of the required non-thesis credits must be numbered 500 or higher, and (iii) the following core course credits are required.

M.S. in Statistics Required Courses (15 semester credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>STAT 505 &amp; STAT 506</td>
<td>Linear Models and Advanced Regression Analysis</td>
<td>6</td>
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<tr>
<td>Statistical Consulting Seminar (STAT 510); take two semesters (1 credit a semester)</td>
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<td>2</td>
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<tr>
<td>STAT 575</td>
<td>Professional Paper and Project</td>
<td>2</td>
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Total Credits 16

Additional requirements

1. The M.S. in Statistics degree requires completion of either a thesis or a writing project.
   a. Thesis (Plan A): The Plan A thesis typically requires 450-500 hours or work. The student must register for at least 10 Master’s Thesis (STAT 590) in addition to the required 20 credits of course work. The student must give an oral defense or his/her thesis.
   b. Writing Project (Plan B): The Plan B writing project typically requires at least 90 hours of work, for which the student earns 2 credits of Professional Paper and Project (STAT 575). With permission from the student’s committee, additional credits of STAT 575 (no more than 4 total) may be earned. Students should enroll in STAT 575 in their final Spring semester, and must give a seminar on the writing project before graduating.

2. Experience in data collection – either through a course such as Sampling (STAT 446) or Experimental Design (STAT 441)/Experimental Design (STAT 541)), or a course taken in a former degree program, or real-life experience.

3. For either Plan A or Plan B, the student must pass a comprehensive examination.

M.S. in Statistics Comprehensive Exam

The M.S. comprehensive exam consists of a written exam over material from Intermediate Probability and Statistics (STAT 501), Intermediate Mathematical Statistics (STAT 502), Linear Models (STAT 505), and Advanced Regression Analysis (STAT 506).

The exam is given in August with the specific date determined by the department. Examinees will be informed of the results within five working days of taking the exam. The M.S. comprehensive exam may be repeated once.