STA 493: Independent Research II in Statistics

I. Basic Course Information

STA 493: "Independent Research II in Statistics" is an upper-level course in which students engage in a statistics research project. The student should develop the topic for the research with a faculty member. Although it is typical that this topic would be in the area of research for the faculty member, this is not required. STA 493 differs from STA 393: "Independent Research I in Statistics" in a higher expectation level for student independence and maturity, and the difficulty of subject matter.

Independent research experiences are expected to produce new knowledge by the student in collaboration with the faculty member and/or with fellow student researchers and the faculty mentor. The student will be expected to write a paper and present it to the department or at a national meeting. This must take place prior to graduation and no later than within the semester following the independent research course.

Prerequisites: MAT 316 and at least one 300-level statistics course. While the research activities need not draw directly on prerequisite course material, the work undertaken by the student will draw upon the student's mathematical maturity. Students must have a 3.0 GPA in their mathematics and statistics courses to register for this course.

Enrollment Process: To register for the course, a student must contact a faculty member of the department who will serve as mentor for the independent research. The faculty mentor and the student must write a proposal explaining the research project and the method of assessment. The independent research project enrollment form must be prepared by the student, approved by the faculty mentor and department chair, and submitted to the Office of Records and Registration at the time the student registers for the course. Registration for independent research will only be accepted through the first week of the semester.

Limitation on Number of Independent Work Courses: At most one course unit of Independent Study, Guided Study, or Independent Research may count as one of the Mathematics or Statistics options for a major.

II. Learning Goals

1. A deep understanding of the methods of statistical research
2. The development of novel results in applied or theoretical statistics
3. An ability to search and interpret the primary literature in statistics
4. The development of writing and presentation skills suitable to professional level research in statistics

III. Student Assessment

Students will meet at least weekly with their faculty mentor. There will be continuous assessment of the progress the student is making, and the faculty mentor will provide feedback

concerning this progress. At the end of the semester students must submit their results in a paper that they will present to the department or at a mathematics conference.

IV. Learning Activities

Learning activities will be specific to the topic of the research. They will include reading of the primary literature, maintaining detailed research notes, and high-level discussions of statistics with the faculty mentor.

Updated 1-29-25