

**STAT 461, 462 - Senior Project**

**Winter 2016**

**1. Catalog Description**

**STAT 461, 462 Senior Project (1) (2)**

Selection and completion of a project under faculty supervision. Projects typical of problems which graduates must solve in their fields of employment. Project results are presented in a formal report. Minimum 90 hours total time.

**2. Required Background and/or Experience**

The student must be within four quarters of graduation.

**3. Expected Outcomes**

- a. Ability to reduce a general problem to specific points of analysis.
- b. Ability to organize points of analysis into a logical sequence.
- c. Ability to apply competence acquired in other courses to the successful completion of a specific project.
- d. Ability to obtain information necessary to the solution of a problem by library study, experimentation, and/or correspondence and personal contact with men or women who have had experience in the field.
- e. Ability to follow a work outline without overlooking any major points or significant details.
- f. Recognition of the fact that completion of a project on schedule is an essential element of successful work.
- g. Ability to organize, illustrate, and write a clear, concise, and correct report of the investigation.
- h. Ability to work for a supervisor who desires quality performance with a minimum of supervision.

**4. Text and References**

Dependent upon the project.

**5. Minimum Student Materials**

Dependent upon the project.

**6. Minimum University Facilities**

Computer services; library; experimental, demonstration and production facilities.

**7. Expanded Description of Content and Method****Statistics Department Senior Project Guidelines**

- You must attend the Senior Project Orientation meeting in the fall.
- You should read the catalog description of a senior project. You will be responsible for being aware of the described components of a senior project.
- You should read the library requirements for the senior project formal report. See Kennedy Library's webpage, "Guidelines for Submitting a Senior Project," for information to assist you with your submission to the library. Failure to submit a copy of the senior project formal report to the library will result in a grade of F in Stat 462.
- In cooperation with your senior project advisor, you will decide on a topic.
- Before beginning any aspect of the senior project, you will prepare a senior project plan that includes an outline of the tasks involved and a proposed timeline for their completion.
- The tasks proposed in the senior project plan should apply or extend the skills and knowledge gained in one or more upper division classes.
- You will meet with your advisor to modify your senior project plan and to have the final version approved. A variety of senior project types (data analysis, expository treatment of some topic, writing software, internships, surveys, and the like) are acceptable if mutually agreed upon between you and your advisor. Your senior project advisor is the ultimate judge of whether or not the tasks proposed in the senior project plan are appropriate for the intent of a senior project.
- The requirements for a senior project may be fulfilled in part by an experience such as a summer undergraduate research program or an industry internship. You will still require a senior project advisor who will determine how, and to what extent, you can incorporate your experience into a senior project.
- The grade you receive on the senior project will depend largely on (1) completing all parts of the senior project plan and (2) the quality of the work; other factors that may be considered are (3) your project management, and (4) the quality of your oral presentation. The evaluation of the work will include multiple components such as any research component, the correctness and thoroughness of analysis (or of exposition, software design, etc.), and the quality of the writing in the senior project formal report.
- Your senior project advisor may choose to assign an RP (Report in Progress) grade for Stat 461 during the quarter in which you are enrolled in Stat 461. Once your senior project has been completed, grades for both Stat 461 and 462 will be assigned.
- The senior project advisor must approve any deviations from the senior project plan (including tasks and timeline). Unauthorized deviations might cause a decrease in your course grade.
- You will establish a regular (weekly or every two weeks) meeting time with your advisor.
- You will keep a journal of the time you spend on the senior project. This will comprise the dates and times you worked on the project, and the tasks you worked on during those times (regardless of whether your effort produced any substantial results). You will bring this journal

to each meeting with your senior project advisor and the journal will be submitted to the department upon the completion of the senior project. An example:

Date	Time	Task
4/2/09	12:30p-1:30p, 3:00p-3:45p	Library--Finding references
4/3/09	4:00p-5:30	Library-- Finding references
4/7/09	9:00p-11:30p	Reading library journals
4/10/09	8:30a-11:45a	Writing on journal information

- When taking Stat 461, you will provide a written progress report at the end of the fourth, seventh, and tenth week of the quarter; when taking Stat 462, you will provide progress reports at the end of every second week. Each progress report after the initial report will describe the work performed since the preceding progress report. This will involve a summary of the time you had spent working on your senior project, a description of any significant work product, and your plans for the following weeks. These progress reports will be submitted to the department upon the completion of the senior project. An example follows:

Since the last progress report, I have spent nine hours working on my senior project. Some of this time was spent at the library. There I found the following five articles that are relevant to my senior project: ... (give list of references).

The first two articles give a brief description of the problems encountered when using ridge discriminant analysis with near-singular covariance matrices, while the remaining three use other techniques to do a discriminant analysis with a variety of types of near-singular matrices. I have attached a seven-page summary of the information from these papers, which I intend to include in the senior project.

Over the next few weeks, I plan to find a copy of the paper by Doiy, McGooley, and De Voor that you mentioned to see if it has relevant information. I also hope to start the computer simulation with the two styles of near-singularity problems we discussed: patterned and simple singularities.

- You should expect to spend at least 30 hours of time working on the senior project for each unit of credit. So there is a minimum of 30 hours of work involved in taking Stat 461 and 60 hours for Stat 462. Usually more time than these minimums are required.
- Plan on writing at least three drafts of your senior project. Your advisor will supply written comments or suggestions on each draft. Each subsequent draft will address each comment or suggestion, either by including the recommended changes or by stating why the alterations to the draft should not be made.
- For departmental archiving of your senior project, you will provide the Statistics Department with a CD containing the following files:
- A PDF file containing an abstract of your senior project formal report.
  - A PDF file containing your senior project formal report as submitted to the library.
  - PDF files containing your journal and progress reports.
  - If your senior project involved any computer programming, your computer code (e.g., SAS/R/S code) should be in an appendix in your senior project formal report.
  - If your senior project involved any computer programming, you should also save the program file (e.g., a SAS program file or an R/S script file) on the CD that you give to the Department. You should also save onto the CD any data files that are necessary to run these program files successfully.

The Statistics Department does not require a hardcopy of your senior project, but the library does. Please provide Carol Morris with 1 hardcopy of the senior project, which she will forward to the library for you, as per the library's guidelines (see bullet item 3).

Check with your senior project advisor whether he or she would like a hardcopy as well.

- You will make a brief (15-20 minutes) presentation of your senior project to faculty and students. Usually this presentation will happen towards the end of the quarter in which you take Stat 462. Changes to this time can be made by agreement of your senior project advisor. Contact Dr. Rossman to schedule a room and time for your presentation.
- You are required to attend at least 2 sets of senior project presentations, aside from the set of presentations during which you make your presentation.
- Any of the following might result in a grade of F for Stat 461 or Stat 462:
  - Failing to turn in the CD containing the files as outlined above,
  - Not responding to written comments or suggestions made by your senior project advisor on drafts of the senior project formal report,
  - Failing to make an oral presentation of your senior project.

**8. Method of Evaluating Outcome**

The degree to which the final report and general activity during the course of the project demonstrate well-rounded ability on the part of the student will be the basis for the grade.