

DB 1-8-09 jg

NEW COURSE APPLICATION

University of Washington
Curriculum Review Committee

APPROVED



Prefix (6 characters max.)

STAT

Number

302

Offered jointly with:

College or School Arts and Sciences	Department Statistics	Date 01/05/09
Course Title Statistical Software and Its Applications		Credits 2 credits
Abbreviated title for transcripts (not to exceed 19 characters, including spaces, Type in CAPS): Stat Software Appl		

1. PURPOSE OF REQUEST

X Permanent new course, to be effective Autumn Quarter 20 09.

☐ Temporary new course, to be offered beginning Quarter 20 through Quarter 20.

☐ Extension of a temporary new course, to be offered beginning Quarter 20 through Quarter 20.

☐ Conversion of a temporary new course, to be offered beginning Quarter 20.

☐ Approval to offer this course as a Distance Learning (DL) status course. (Please attach Distance Learning Supplement form.)

☐ Permanent CR/NC grading only.

☐ Enforce automatic cancellation of registration if prerequisites not met (undergraduate classes only)

☐ Application is accompanied by an application to drop or change an existing course that has the same course number as the course requested here.

Attach a course syllabus/outline and reading list if this course will be offered for more than one quarter.

2. JUSTIFICATION and CONTACT INFORMATION

Explain why this course is being proposed, including its relationship to your overall curriculum and what comes before and after this course. Please list contact information for individual(s) submitting this application. (Attach additional sheet if necessary.)

Facility with statistical software is required for applied coursework as well as preparation for graduate school and for employment. Currently the exposure and guidance students receive in this area varies greatly in degree and quality. This course is intended to precede other applied statistics courses so that students enter these courses with a reliable common background in statistical software use. This will allow more efficient use of instructional time in these subsequent courses.

Contact Name: June Morita	Phone: 616-6282	Email: june@stat.washington.edu	Box #: 354322
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3. CATALOG DATA/COURSE DESCRIPTION

If course is below the 500 level, the department can recommend that it be accepted toward the following undergraduate general education requirements. Check all applicable categories Areas of Knowledge ☐ VLPA ☐ I&S ☐ NW ☒ XSR ☐ C

Catalog description (Must be double spaced.)
(50-word limit)

Introduction to data structures and basics of implementing procedures in statistical computing packages, selected from but not limited to R, SAS, STATA, MATLAB, SPSS and Minitab. Provides students with a foundation in computational components of data analysis and for subsequent applied statistics courses.

Prerequisite: Stat 311 / Econ 311 or Stat 390 / Math 390.

Optional Catalog information (include only if you want this information listed in the General Catalog description):

Names and ranks of probable instructors (Include curriculum vitae for any instructor not now on the University faculty)

June Morita, Principal Lecturer

Quarter(s) offered (A, W, Sp, S) A, Sp

4. CREDITS AND HOURS

a. Contact and outside hours: 1 credit represents a total time commitment of 3 hours per week of student effort.

Contact hours per week		
Lecture	<u>1</u>	Laboratory <u>2</u>
Quiz section		Studio
Seminar		Other*
*Attach explanation and justification for "other" contact hours.		
How many additional hours will a student be expected to spend each week in preparation for this course?		
TOTAL WEEKLY CONTACT HOURS:		3
TOTAL WEEKLY OUTSIDE HOURS:		3
TOTAL WEEKLY CONTACT AND OUTSIDE HOURS:		6

b. If variable credit, how will the number of credits awarded be related to the amount of student effort required?

c. How will students be evaluated for credit or grades? Provide specific information on assignments, projects, exams, etc. and relative % for each area.

9 Weekly assignments (10% each) involving (i) implementation & interpretation of the current week's computing package and statistical procedures and (ii) critique of the current week's computing package and statistical procedures.
10% in-class participation and in-class discussions

5. STUDENTS

a. Anticipated enrollment per quarter 12-15

b. Types of students expected (nonmatriculated students, undergraduate majors, undergraduate non-majors, graduate or professional students):

6. LEARNING OBJECTIVES

What are the primary learning objectives for the course?
See appended document.

7. JOINT COURSE

List all departments, schools, or colleges participating. Joint course applications require a signature from each unit.
(If units from more than one school or college participate, a separate application must be filed by each.)

Name of unit (List the unit responsible for administering the course first)	Course prefix and number	New Course	Existing Course	Signature of chair

8. OTHER COLLEGES, SCHOOLS, OR DEPARTMENTS AFFECTED

If this course includes subject matter currently dealt with by any other University units, the originating department must circulate this application or review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this application.

Name of unit	Signature of dean or chair	Recommend approval	Recommend disapproval (attach explanation)	Date

9. APPROVAL

Chair of submitting department/unit M. [Signature] Date 1/5/09
College Curriculum Committee [Signature] 1/22/09
College Dean/Vice Chancellor [Signature] 1/22/09

Statistics 302: Statistical Software and Its Applications (2 credits)

Course Overview

Introduction to data structures and basics of implementing procedures in statistical computing packages, selected from, but not limited to R, SAS, STATA, Minitab. Students will gain a foundation in computational components of data analysis using major statistical computing packages, useful for subsequent data analyses in research and in applied statistics courses.

This course is intended to precede other applied statistics courses so that students enter these courses with a reliable common background in statistical software use, thereby allowing more efficient use of instructional time in these subsequent courses. This course is a pre-requisite or co-requisite to Stat 423.

Learning Objectives

- Be able to use data structures commonly used in major statistical computing packages
- Select & implement basic descriptive, modeling & inferential procedures in a selection of major statistical computing packages
- read & interpret output from these procedures

Texts, Readings

Dependent upon selection of computing packages for the given term.

Course Schedule

Week 1: Overview of the current state of statistical computing and the major statistical computing packages.

Week 2: Data structures – matrices, arrays, data frames, lists; mathematical operations, data manipulations

Weeks 3, 4, 5: Package #1 (e.g. SAS) Data structures, data entry, editing, operations; procedures for data description & summary; graphical displays, including interactive displays; categorical data display and inference; correlation & regression models & extensions.

Weeks 6, 7: Package #2 (e.g. R) Data structures, data entry, editing, operations; procedures for data description & summary; graphical displays, including interactive displays; categorical data display and inference; correlation & regression models & extensions.

Weeks 8, 9: Package #3 (e.g. Minitab) Data structures, data entry, editing, operations; procedures for data description & summary; graphical displays, including interactive displays; categorical data display and inference; correlation & regression models & extensions.

Week 10: Other packages; Compare & contrast strengths & weaknesses of Packages #1,2,3.

Evaluation and Grading

Each of Weeks 1 through 9 there is a weekly assignment (10% each) involving

- (i) implementation & interpretation of the current week's computing package and statistical procedures and
- (ii) critique of the current week's computing package and statistical procedures.

An additional 10% is earned via in-class participation and in-class discussions.