

Statistical Tools for Applied Economics Research (ECON 4660)

Prerequisites: Economics 4650

Course description:

The fields of statistics and econometrics are rapidly changing. Increasing data availability along with powerful computing and advanced software allow researchers to address issues of statistical inference and analysis in innovative ways. This course provides students with practical knowledge and skills to take advantage of these new developments. The course is a prerequisite for Economics 4670, Economic Research in the Community.

Course learning outcomes:

- Develop skills related to modern multivariate statistical analysis
- Provide practical experience related to data analysis
- Develop skills in using advanced statistical software
- Develop skills in summarizing information directed to practical decision making

Course overview:

This course extends traditional econometrics by introducing modern multivariate statistical tools via real-world applications. Over the course of the semester, students will learn how to use computing software to address issues of large data, non-experimental methods, exploratory data analysis, and visualization. Special topics in the class include cluster analysis, cross validation, nonlinear system modeling, multivariate time series, and Bayesian statistics. All topics are presented in a hands-on manner and students will work through sets of examples using topic templates. Readings will largely be published PDFs in the files section of the course and the course calendar will highlight appropriate readings. There are many good books and online videos that you might find useful, a suggested introductory one is: *Data Science for Business* (Provost and Fawcett, ISBN: 978-1-449-36132-7 <http://www.data-science-for-biz.com/> (Links to an external site.)).

During the semester the class will be involved in:

- Lectures and discussions
- Practical data analysis using real-world data
- Learning advanced statistical software and programming
- Learning how to generate publication quality output from statistical software including R & Tableau

Grading (1st term)

Semester assignments: 70% of grade

End of term assignment: 30% of grade

Grading (2nd term):

Project conceptualization: 15% of grade

Progress reports and presentations: 20% of grade

Final report: 25% of grade

Final presentation: 25% of grade

Team evaluations: 15% of grade

Americans with Disabilities Act (ADA) Statement

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services. (www.hr.utah.edu/oeo/ada/guide/faculty/)

Wellness Statement

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness - www.wellness.utah.edu; 801-581-7776.

Also...please be aware of [Emergency Action Plan.pdf](#)

Actions

Course Summary:

Date	Details	Due
Sun Sep 3, 2023	Assignment Hello World -- Here are my statistics.	due by 11:59pm

Date	Details	Due
Sun Sep 24, 2023	Assignment How many regressions are there?	due by 11:59pm
Wed Nov 8, 2023	Assignment Tableau 1	due by 11:59pm
Thu Nov 30, 2023	Assignment Tableau 2	due by 11:59pm
Sun Dec 17, 2023	Assignment OLS & Trees & BMA	due by 11:59pm

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Calendar						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27 August 202327Previous month	28 August 202328Previous month	29 August 202329Previous month	30 August 202330Previous month	31 August 202331Previous month	1 September 20231	2 September 20232
3 September 20233Click to view event details	4 September 20234	5 September 20235	6 September 20236	7 September 20237	8 September 20238	9 September 20239
10 September 202310	11 September 202311	12 September 202312	13 September 202313	14 September 202314	15 September 202315	16 September 202316
17 September 202317	18 September 202318	19 September 202319	20 September 202320Today	21 September 202321	22 September 202322	23 September 202323
24 September 202324Click to view event details	25 September 202325	26 September 202326	27 September 202327	28 September 202328	29 September 202329	30 September 202330
1 October 20231Next month	2 October 20232Next month	3 October 20233Next month	4 October 20234Next month	5 October 20235Next month	6 October 20236Next month	7 October 20237Next month

Assignments are weighted by group: