EPSY 630 - Statistics II

Jason Bryer, Ph.D.

Spring 2020

Instructor: Jason Bryer, Ph.D. (jbryer@albany.edu)
Class Time: Mondays 4:15 p.m. - 7:05 p.m.
Class Location: Catskill B060
Grading: 3 credits, Graded
Course Website: https://epsy630.bryer.org

Course Description

Emphasis is on statistical inference. Topics include one- and two-way analysis of variance, multiple comparison tests, correlation and regression techniques, chi square, and nonparametric statistics.

Learning Objectives

At the completion of this course, students will be able to...

- Indetify and used appropriate statistical methods for inference.
- Understand the differences between causal and correlational interpretations of statistical models.
- Perform null hypothesis tests for quantiative and qualitative dependent variables.
- Conduct data analysis using the R statistical software program.
- Be able to describe the differences between frequentist and bayesian approaches to statistics.
- Understand associated assuptions of statistical procedures and how to test them.
- Present the results of statistical analyses in written and verbal format.

Prerequisites

One graduate level statistics course (EPSY 530 or equivalent).

Grading

Assignments

- **Labs** (40%)
- **Homework** (20%)
- **Presentation** (20%)
- **Final Exam** (20%)

Grade Distribution

A = 93+; A- = 90-92; B+ = 87-89; B = 84-86; B- = 80-83; C+ = 75-79; C = 70-74; D = 65-69; E = <65

Textbooks

Required

Diez, D.M., Barr, C.D., & Çetinkaya-Rundel, M. (2019). OpenIntro Statistics (4th Ed).

> This is an open source textbook and can be downloaded in PDF format here, from the OpenIntro website, or a printed copy can be ordered from Amazon.

Navarro, D. (2018, version 0.6). *Learning Statistics with R*

> This is free textbook that supplements a lot of the material covered in Diez and Barr. We will use the chapter on Bayesian analysis. You can download a PDF version, Bookdown version, or visit the author's website at learningstatisticswithr.com.

Recommended

Wickham, H., & Grolemund, G. (2016) *R for Data Science*. O'Reilly.

> Most of this books is available freely online at r4ds.had.co.nz/ but can be purchased from Amazon.

Schedule

This schedule is tentative and is subject to change.

Date	Topic
Mon, Jan 27	Intro to the Course / Intro to R and Rstudio
Mon, Feb 03	Central Limit Theorem - Null hypothesis testing - Confidence Intervals
Mon, Feb 10	Correlation - Linear Regression
Mon, Feb 17	Multiple Regression
Mon, Feb 24	Multiple Regression (cont.)
Mon, Mar 02	Maximum Likelihood estimation - Logistic Regression
Mon, Mar 09	TBD
Mon, Mar 16	NO CLASS - Spring Break
Mon, Mar 23	ANOVA
Mon, Mar 30	ANCOVA
Mon, Apr 06	Chi-squared
Mon, Apr 13	Bayesian Analysis
Mon, Apr 20	Presentations
Mon, Apr 27	Presentations
Mon, May 04	Final Exam

Additional course policies

This course will be conducted in accordance with all policies described in the Graduate Bulletin: http://www.albany.edu/graduatebulletin/admission_graduate_requirements.htm. Consistent with this policy, excusal from an exam will only be permitted in cases of documented family, health, or work emergency. Any such compelling reason must be communicated to me as soon as you become aware of it, or as soon as you reasonably can thereafter. I anticipate that you are all well aware of issues pertaining to academic integrity, but you may also refer to the Graduate Bulletin for additional information with this regard.

Academic integrity

Academic dishonesty, such as cheating, plagiarism, or falsification, will not be tolerated in any form. Violations will be reported to the University Judicial System. Violations will also result in a failing grade on the exam or assignment.

Please familiarize yourself with the Academic Regulations for undergraduate students (http://www.albany.edu/undergraduate_bulletin/regulations.html) and the standards of academic integrity (http://library.albany.edu/infolit/integrity).

Students with disabilities

Reasonable accommodations will be provided for students with documented physical, sensory, systemic, medical, cognitive, learning and mental health (psychiatric) disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Disability Resource Center (518- 442-5490; drc@albany.edu). Upon verification and after the registration process is complete, the DRC will provide you with a letter that informs the course instructor that you are a student with a disability registered with the DRC and list the recommended reasonable accommodations.

Emergency preparedness

In the event of an emergency that leads to university closure, we will use an alternative method to disseminate course materials. I will communicate class-specific information via email. You are responsible for checking your email regularly for updates. In the event of a declared emergency, students should refer to the UAlbany website (www.albamy.edu/emergency) and the UAlbany emergency information line at (518) 442-7669.