Wharton
UNIVERSITY of PENNSYLVANIA

STAT-431

Statistical Inference

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Overview

The course provides the tools needed to analyze real-world data and to justify their use through theory. Together, we will study basic concepts related to statistical inference and examine commonly used methods, with an emphasis on understanding when and how to apply them. You will also learn how use these methods on the statistical software such as R.

Textbooks and Teaching Materials

- Required: Statistics and Data Analysis: from Elementary to Intermediate, A. C. Tamhane and D. D. Dunlop, Prentice Hall, 2000.
- Recommended: DeGroot and Schervish, Probability and Statistics, 4th Edition, Pearson

Requirements

The official prerequisite of the course is STAT 430. The effective prerequisite is fluency with basic probabilistic reasoning and analysis (e.g., probability distributions and densities; joint distributions; conditional probability, independence, correlation, and covariance; moment generating functions; law of large numbers; central limit theorem; etc.). For a refresher/overview of these topics, please refer to the first 2 Chapters of the required textbooks and the first 5 Chapters of the recommended one.

It would be helpful to have previous exposure to linear algebra, but it is not required. Previous exposure to the statistical computing software (R, Matlab, etc.) is not required but recommended.

Evaluation

Assignments (32%), In-class Exams/Quizzes (68%), Attendance and Participation (10%).

Ethics and Use of Previous Material

Standard University of Pennsylvania academic code of conduct applies. See http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.htm In particular, use of results from other people, Internet, past years classes and so on, without proper citation will lead to a failing grade in the corresponding Homework, Midterm or Final.

Classroom Expectations

- Class starts and ends on time. Late entry or reentry only under exceptional circumstances
- All phones, laptops and other electronic devices turned off.
- Homework is to be turned in at the beginning of the corresponding class.
- While clerical scoring errors will be addressed without hassle, re-grading must be motivated in written; the entire exam/homework will be subject to re-grading.
- Students with disabilities: see http://www.vpul.upenn.edu/lrc/sds/fs_provost_memorandum.php
- For general exams policies, see http://www.upenn.edu/provost/PennBook/rules_governing_final_examinations.