

Course title: Introduction to Statistics

Course code: STA101

Teacher responsible: Luc Hens

Course description:

Statistics is the art of using data to make numerical conjectures about problems. *Descriptive statistics* is the art of summarizing data. Topics include: histograms, the average, the standard deviation, the normal curve, correlation. Much statistical reasoning depends on the theory of *probability*. Topics include: chance models, expected value, standard error, probability histograms, convergence to the normal curve. *Statistical inference* is the art of making valid generalizations from samples. Topics include: estimation, measurement error, tests of statistical significance.

Course objectives:

This course aims at providing students with a basic understanding of descriptive statistics (summarizing data) and inferential statistics (making valid generalizations from sample data). The material is broad enough to provide a basic statistics background for students for whom this course is their only exposure to the material, while building the foundation for students enrolling in subsequent intermediate and more advanced statistics courses (students majoring in business are required to take STA201 Intermediate Statistics, which builds on STA101). At the end of the course, students should be able to:

- critically analyze data sets and apply the tools of statistics to data in order to improve decision making;
- use a scientific calculator to do statistical computations (enter data, generate descriptive statistics and graphs, estimate population parameters, perform hypothesis tests)
- communicate the results of statistical work, and more specifically write up the results of statistical analysis in a report consisting of a non-technical abstract aimed at decision makers, so that they can improve their decisions, and a main section aimed at peers explaining the technical details and exact interpretation of the results.

Grade weighting scheme:

The final grade for the course will be calculated on the following weighting:

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| Attendance | 10% |
| Homework assignments (7.5% each) | 30% |
| Midterm examination | 30% |
| Final examination | 30% |

Used course material (handbooks, readers, readings, newspapers, magazines) and references:

Freedman, D., Pisani, R., and Purves, R. (2007). *Statistics* (4th edition). New York and London : Norton. (International Student Edition, ISBN 978-0-393-92972-0)