# Biostatistics (BIOM 7110/8110) 2017 Spring

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Materials uploaded to eCourseware

Lectures: Monday and Wednesday, 8:40 –10:05, Room: ES 218

Textbooks: Stanton Glantz: Primer of Biostatistics 7th Edition, McGraw-Hill ISBN 0-07-144781-4 (This is a book and a CD ROM)

Office hours: By appointment

Description:

The course covers the basic statistical techniques used in biomedical engineering and related disciplines. The lecture material will be supplemented with examples from BME research

Requirements:

* Attendance on lectures and practice classes (on time)
* In-class quizzes and home work assignments
* A short term paper describing the statistical analysis of a set of data (preferably one collected by the student as a part of his graduate research)
* An in class presentation of the term paper with lecture notes for the class mates
* Final exam

Grading: Two quizzes (40%)

Final (20%)

Term paper / Presentation (20 %)

Homework (20 % - in class short quizzes)

Comments:

* Bring your calculator (laptop) to **every** class
* Bring your book and the statistical tables that will be distributed during the lectures with you to every class and be prepared for short quizzes
* The lecture materials presented as power point slides, homeworks, additional information (examples of the calculations) related to the class will be uploaded to eCourseware.
* Home works/quizzes should be uploaded in a single word or pdf file (Word is preferred). It is expected that the students provide the original questions with their answers and indicate how did they received the answer, including your assumptions (if any). Students are allowed to use statistical software packages but they are required to provide certain details about e.g., the selection of the test statistics, degrees of freedom, etc. In the class we will use EXCEL to perform the calculations. Uploading the calculations related to the home works and quizzes in an additional EXCEL file is allowed, however to get feedback on the calculations these files must be clearly annotated. The word/pdf fill must contain all figures/tables representing the results of the statistical analysis with appropriate figure legend and/or table heading. The results must be presented with appropriate significant figures. All uploaded file names must start with the name of the student.

Course time table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 18-Jan |  | Introduction | Lindner |
| 1 | 23-Jan |  | Definitions, experimental design, distributions | Lindner |
| 2 | 25-Jan |  | Tables and graphs | Lindner |
| 3 | 30-Jan |  | How to characterize distributions mean, median, range, variance quartiles/percentiles | Lindner |
| 4 | 1-Feb |  | Normal curve/Z curve | Lindner |
| 5 | 6-Feb |  | Sampling distribution | Lindner |
| 6 | 8-Feb |  | Chapter 3 ANOVA | Lindner |
| 7 | 13-Feb |  | Chapter 3 ANOVA | Lindner |
| 8 | 15-Feb |  | One and two sample t test | Lindner |
| 9 | 20-Feb |  | One and two sample t test | Lindner |
| 10 | 22-Feb |  | Special cases of two group t test (Chapter 4) | Lindner |
| 11 | 27-Feb |  | Practice | Lindner |
| 12 | 1-Mar |  | Quiz -1 | Lindner |
| 13 | 6-Mar |  | Spring break |  |
|  | 8-Mar |  | Spring break |  |
|  | 13-Mar |  | Chapter - 5 Rates and proportions | Lindner |
| 14 | 15-Mar |  | Chapter - 5 Rates and proportions | Lindner |
| 15 | 20-Mar |  | Chapter - 6 Power and Errors | Jennings |
| 16 | 22-Mar |  | Chapter - 6 Power and Errors | Jennings |
| 17 | 27-Mar |  | Statistical computing | Jennings |
| 18 | 29-Mar |  | Chapter 7 Confidence Intervals | Lindner |
| 19 | 3-Apr |  | Chapter 7 Confidence Intervals | Lindner |
| 20 | 5-Apr |  | Ouiz -2 | Lindner |
| 21 | 10-Apr |  | Chapter 8 trends | Lindner |
| 22 | 12-Apr |  | Chapter 8 trends | Lindner |
| 23 | 17-Apr |  | Chapter 8 trends | Lindner |
| 24 | 19-Apr |  | Student project | Lindner |
| 25 | 24-Apr |  | Student project | Lindner |
| 26 | 26-Apr |  | Practice | Lindner |
|  | 28-Apr | Final 8:00-10:00 | |  |