

TICR: Summer 2017
BIOSTAT 212 Syllabus
Course Director: Kristen Aiemjoy

Course Website

<https://courses.ucsf.edu/course/view.php?id=3998>

Recorded Lectures

- Audio + video of lecturer + video of screen
- Available same day for viewing
- Links posted on website syllabus

Office hours

- Online: Wednesdays 10:00-11:00
 - <https://global.gotomeeting.com/join/466528125>
- In person: Thursdays 11:00 – 12:00 [MH 2800]

TAs

Phil Perera, Alyssa Mooney, Rae Wannier, Sankari Ayyaluru, David Hoskins

Course Requirements

- **5 Assignments**
 - Assignments are due 1 week after assigned
 - Please upload before lecture starts. By 1:00 PM
 - Assignments turned in late will receive only half credit
 - ALL assignments must be turned in to pass the class
- **Final project**
 - Instructions on CLE website
 - Due **Tuesday Sept 12th at 9PM**

Grading (*not relevant for all students*)

- Letter grades: Standard cutoffs
 - 90-100% A
 - 80-89% B
 - 70-79% C
 - 60-69% D
 - <60% or Course Requirements not met: F
- Satisfactory/Unsatisfactory
 - >80% Satisfactory
- TICR Grading policy
 - http://www.epibiostat.ucsf.edu/courses/masters/grading_policy.html

Books and resources

An Introduction to Stata for Health Researchers. 4th edition. Juul. Available at UCSF library 2-hour reserves

Biostatistics in Public Health Using STATA. Suarez. 2016. E-book available here:

<http://www.crcnetbase.com/doi/book/10.1201/b19547>

Stata User's guide. Release 15

<http://www.stata.com/bookstore/users-guide/>

UCLA Statistical Consulting Group

<https://stats.idre.ucla.edu/stata/>

7/25/2017

Lecture 1: Introduction to Stata

What is Stata? Stata compared to other statistical software packages. Tour of Stata windows and features. Command syntax. Working Directories. Opening data sets. Stata built-in data sets. Exploring data (basics). using .do files. log files. Commenting in .do files

Recommended readings

An Introduction to Stata for Health researchers

- Ch. 1. Getting started
- Ch. 4. Command Syntax
- Ch. 6. Getting data in and out of Stata

Stata User's guide 15

- Ch. 15. Saving and printing output – log files
 - <http://www.stata.com/manuals/u15.pdf>
- Ch. 16.1 .do file description
 - <http://www.stata.com/manuals/u16.pdf>

Computer Lab

Lab 1 (you do not need to turn this in)

8/1/2017

Lecture 2: Exploring and describing data

Variable types. Finding help. Importing/Exporting data. Exploring data. Summarizing data. Add-on packages. Immediate commands. File types.

Recommended readings

An Introduction to Stata for Health researchers

- Ch. 5. Variables

Biostatistics in Public Health Using STATA

- Ch. 2. Data description
 - <http://www.crcnetbase.com/doi/pdfplus/10.1201/b19547-3>

Computer Lab

Lab 2: live coding

Assignment 1 *due 8/8*

8/8/2017

Lecture 3: Data management and cleaning

Duplicate values. Missing data. Transforming variables. Sorting data. Variable names and labels. Tips for data management. Merging datasets. Reshaping data. Workflow. Markdown

Recommended readings

An Introduction to Stata for Health researchers

- Ch. 8. Calculations
- Ch. 9. Commands affecting data structure
- Ch. 10 Taking good care of your data

Stata data management manual

`help data management`

[+ pdf]

Computer Lab

Demo: dealing with dates – postponed to 8/15

Lab 3: merging – postponed to 8/15

Assignment 2 *due 8/15*

Data cleaning extra credit *due 8/15*

8/15/2017

Lecture 4: Graphs and Figures

Anatomy of a graph. Graph commands. Schemes. Graph options. Saving and exporting. Plotting competition.

Recommended readings

An Introduction to Stata for Health researchers

- Ch. 16. Graphs

Stata graphics manual

<http://www.stata.com/manuals/g.pdf>

Computer Lab

Assignment 3 *due 8/22*

8/22/2017

Lecture 5: Commands for Statistical analyses

Introduction to commands for statistical analysis and approach in Stata. Descriptive statistics (mean, SD, SE, confidence intervals). `cidemo`. Introduction to statistical hypothesis tests in Stata: t-test, ANOVA, chi squared tests. Regressions

Recommended readings

Choosing the correct statistical test

<https://stats.idre.ucla.edu/other/mult-pkg/whatstat/>

Computer Lab

Demo: Power and sample size calculations

Assignment 4 *due 8/29*

8/29/2017

Lecture 6: Epi commands and tables

Using the epitab commands in Stata. interpretation of Stata output. looking for confounding and interaction using Stata. Sensitivity, Specificity.

Recommended readings

An Introduction to Stata for Health researchers

- Ch. 11.4 Epidemiologic tables
- Ch. 12. Regression analysis
- Ch 14.3 Using tests for diagnosis

Computer Lab

Lab demo: Overleaf

Assignment 5 *due 9/5*

9/5/2017

Lecture 7: Automating, Programming and generating synthetic data

Generating synthetic data. Simulations. Random samples. Simple programming. For loops. .ado files

Recommended readings

An Introduction to Stata for Health researchers

- Ch. 15.1. Random samples, simulations
- Ch. 17. Advanced topics

Biostatistics in Public Health Using STATA

- Ch. 12. Introduction to Advanced Programming in STATA

Computer lab

Lab 5 (*you do not need to turn this in*)