

University of Florida
College of Public Health and Health Professions and College of Medicine
GMS 6861: Introduction to Biostatistics I
Fall 2016

Instructor:

Baiming Zou, Ph.D.
Research Assistant Professor
Department of Biostatistics
College of Public Health and Health Professional
College of Medicine
University of Florida
Gainesville, FL 32610
Email: bzou@phhp.ufl.edu
Office: CTRB 5211

Departmental Course Contact:

Kristen Cason
Phone: 352-294-5926
kcason@ufl.edu

Class Schedule: Tuesday 8:30-9:30am and Thursday 8:30-10:30am @ HPNP G210

Office Hours: Thr (10:30AM ~ 11:30AM) at CTRB5211

Course Webpage: <https://lss.at.ufl.edu/>

Lecture notes, homework assignments, data sets and other material will be posted on the course web site in Canvas (e-learning: <https://lss.at.ufl.edu/>).

COURSE DESCRIPTION AND GOALS

This course covers basic probability and distribution concepts and statistical analysis methods, including descriptive measures, point estimation, hypothesis testing (e.g., t test, analysis of variance, chi-square test etc.), confidence intervals, simple linear regression and some nonparametric methods. SAS will be introduced for basic statistical analyses.

This is an introductory course for researchers in the Health Science Center who require a familiarity with statistics to plan experiments and analyze data in their research. At the end of the class, students are expected to master basic statistical concepts and methods, be able to use appropriate methods for various real problems, and interpret statistical results.

DESCRIPTION OF COURSE CONTENT

Topical Outline and Course Schedule

Week	Date	Topics	Readings
1	8/23 & 8/25	Basic concepts and vocabulary of statistics, introduction to SAS	Chap. 1, Append. A
2	8/30 & 9/1	Classification of variables, basic summary statistics and graphs	Chap. 2
3	9/6 & 9/8	Basic probability theory, binomial distributions	Chap. 3
4	9/13 & 9/15	Normal distribution, sampling distribution, CLT	Chap. 4
5	9/20 & 9/22	CLT, confidence intervals for mean and sample size (SS) calculation	Chap. 5
6	9/27 & 9/29	Hypothesis testing for a single mean and SS calculation	Chap. 5
7	10/4 & 10/6	Hypothesis testing for two independent/dependent means and SS calculation	Chap. 6
8	10/11 & 10/13	Review/Midterm exam	
9	10/18 & 10/20	Analysis of categorical variable: binary variable and contingency table, Project proposal due by 5:00 pm on Tuesday Oct. 20.	Chap. 7, 8
10	10/25 & 10/27	Analysis of categorical variable: contingency table(s)	Chap. 8
11	11/1 & 11/3	ANOVA, Correlation/regression analysis	Chap. 9, 10
12	11/8 & 11/10	Correlation/regression analysis, non-parametric methods	Chap. 10, 12
13	11/15 & 11/17	Logistic regression and basic survival analysis	Chap. 11, 13
14	11/22 & 11/24	Basic survival analysis (continue)/ <i>Thanksgiving</i>	
15	11/29 & 12/1	Presentation	
16	12/6	Final written report due by 5:00 pm	

COURSE MATERIALS

Required: Introductory Applied Biostatistics (with CD-ROM) by Ralph D'Agostino Sr., Lisa Sullivan, and Alexa Beiser (Hardcover - Mar 16, 2005).

Recommended: Fundamentals of Biostatistics, 6th Edition by Bernard Rosner, Duxbury Publications, 2006. Belmont, California. This book is similar to the required text but treats the topics in more detail.

Software: You will need access to a basic statistical software package to do the homework for this class and to complete your final project. You can use any package you like, but I will demonstrate how to use SAS in class.

COURSE REQUIREMENTS

Homework: Homework will be assigned approximately once a week. Homeworks will include both analytical problems and data analysis problems. Students are encouraged to consult one another on homework problems, but everyone should turn in their own homework, and no “blind copying” is allowed.

Homework must be submitted online via Canvas or email **before 5:00 pm on the due date**. It should be **neat, all work should be shown, and no late homework accepted. There will be no exceptions to this policy.**

Midterm Exam: We will have a midterm exam during this semester. It is tentatively scheduled on October 13, 2016 and will be an **in-class** and closed book test.

Final Project: For your final project, you will conceive of some form of statistical study, gather data, analyze it, present your findings to the class and turn in a written report. You can work in teams of up to 2 people, or you can work alone.

Topics are wide open. The point is to use statistical methods you have learned in class to draw conclusions from a set of real data. If you are currently doing research, or have data from a past experiment that has not been analyzed, you can use this material for your final project. If you do not have such data, you can devise a small project in your field (or outside your field), collect some data and analyze it. Alternatively, you can find a publicly available data source, come up with a set of hypotheses and use that data to test them. For example, the National Health and Nutrition Examination Survey (NHANES, <http://www.cdc.gov/nchs/nhanes.htm>) have a wealth of free clinical data. The National Inpatient Sample (NIS, <http://www.hcup-us.ahrq.gov/nisoverview.jsp>), is also fertile ground if your department has purchased access to it. If you need help coming up with a topic, I will be happy to talk with you about it.

Project proposal due by 5:00pm on October 20, 2016: In a one-page summary of your project, include the names of the members in your group, your research questions, a description of your data, and your proposed statistical analysis methods.

Final presentation: All groups will present their projects in class on November 29 and December 1, 2016.

Written report due by 5:00 pm on Dec. 6, 2016: Turn in the final report by email.

COURSE REQUIREMENTS/EVALUATION/GRADING

Students are responsible for all course material, including reading required materials prior to each class. Failure to complete assignments will result in a failing grade.

The assessment will include class participation, assignments, and two exams. Class participation will include weekly attendance, and leading and participation in discussions. Students can discuss in groups on homework assignments, but each assignment should be completed on one’s own, without copying work from other students and sources.

Attendance	10%
Homework	40%
Midterm Exam	25%
Final Exam	25%

The grading scale for this course consists of the standard scale, including minus grades, below. The conversion factors for grade point values that are assigned to each grade are also included (in parentheses):

93% - 100% = A
90% - 92% = A-
87% - 89% = B+
83% - 86% = B
80% - 82% = B-
77% - 79% = C+
73% - 76% = C
70% - 72% = C-
67% - 69% = D+
63% - 66% = D
60% - 62% = D-
Below 60% = E

ATTENDANCE POLICY

Students are required to attend the classes.

MAKE-UP POLICY

Make-up Policy: No late assignments or tests will be allowed, except for urgent need.

ACADEMIC INTEGRITY

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student

Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

ONLINE FACULTY COURSE EVALUATION PROCESS OPTIONAL IN UF TEMPLATE

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu> so make sure you include a statement regarding the value and expectation for student participation in course evaluations. We suggest you include a comment regarding how you will use the evaluations (e.g. to make specific improvements to the course and teaching style, assignments, etc.). It is also important to make some statement regarding the direct influence they have on faculty tenure and promotion, so your input is valuable. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

SUPPORT SERVICES

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

If you require classroom accommodation because of a disability, you must register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class. The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

COUNSELING AND STUDENT HEALTH OPTIONAL IN UF TEMPLATE

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a

variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>

- Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789

<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.