

BIOSTATISTICS

www.harding.edu/plummer/biostats/home.pdf

Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write. -H.G. Wells

Introduction to Statistics	Descriptive Statistics	Inferential Statistics	Tests of Differences 1	Tests of Differences 2	Tests of Relationships
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Graph Construction	Biological Literature	Reserve Paper	Projects #1 #2 #3
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Testing Sheet	Protocol Sheet	Data Files	Practice Problems	Grades
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Will I Ever Use This Stuff?	Biostats and the MFAT	Health Science Students 1, 2, 3
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Updated 8 May 2012

M W F B G H H G A T T

Course Description

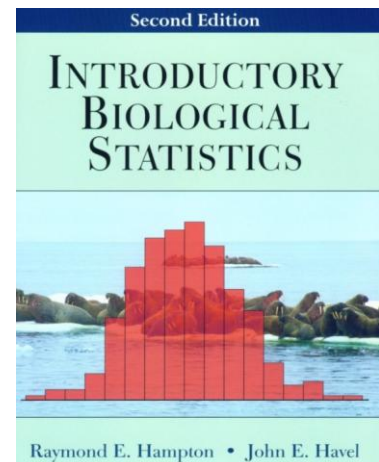
An introductory computer-based statistics course that includes instruction in SYSTAT. Topics covered include populations and samples, variables, probability distributions, descriptive statistics, statistical inference, and hypothesis testing. Included are selected parametric and non-parametric tests for examining differences in means, variances, and frequencies as well as correlation, regression, and tests of independence. Emphasis is given to practical matters such as how to choose appropriate analyses and how to interpret results, both statistically and biologically. Philosophical and practical considerations of the scientific process are interwoven throughout the course.

Course Objectives

- To understand how science and statistics interact
- To develop proficiency in using basic statistical procedures
- To develop proficiency in using basic statistical software
- To improve ability to read and understand primary literature

Textbook and Software

- Hampton, R.E. and J.E. Havel. 2006. *Introductory Biological Statistics*. Waveland Press. [ISBN 1-57766-380-2](https://doi.org/10.1080/15776663802)
- SYSTAT software is provided on computers in S147 and S161.
- MYSTAT (student version of SYSTAT) is available gratis at www.harding.edu/plummer/biostats/software/mystat/mystat12enu32sfx.exe
- You will need a calculator with statistical functions and are responsible for knowing how to use it in statistical mode.



Evaluation (1000 total points)

Exam 1 Ch 1-6	200 pts.	Exam 1 consists of part 1, Content (scantron/fill in blank/short answer ~50%) and part 2, Practical (problem-solving with SYSTAT/calculator ~50%). Questions may be taken from applicable chapters (1-6) in the textbook. Study Guide
Exam 2 Ch 7-9, 15 (part)	200 pts.	Exam 2 consists of part 1 (Content ~50%) and part 2 (Practical ~50%). Questions may be taken from applicable chapters (7-9, 15 part) in the textbook. Study Guide
Exam 3 Ch 9-14	200 pts.	Exam 3 consists of 10 practical problems solvable by any of the difference and relationship statistical tests covered during the semester. Problems will be taken directly or modified from the practice and example problems. Study Guide
Final Exam Ch 1-15	200 pts.	The final exam is a comprehensive scantron exam taken during the regularly scheduled final exam period. Questions may be taken from applicable chapters (1-15) in the textbook. Study Guide
Quizzes & Assignments	200 pts.	Q&A consists of four homework assignments and ~10 quizzes given during class. Late assignments will not be accepted (click here for further explanation of this policy). The assignment turn-in bin is located in S161.
Grade Assignments		Final grade assignments will be determined by subjecting the total points earned for each student in all Biol. 254 sections to a statistical cluster analysis, a procedure that identifies natural groupings (e.g., A, B, C, etc.). For a better understanding of this procedure, go here

Classroom Policies

- Computer resources that may be viewed during class include the course website, SYSTAT, and your M-drive. All other uses (e.g., social networking sites such as facebook and twitter, email, blogs, sports news, pictures of your girl/boyfriend, etc.) are off limits during lecture time; violations will affect your grade.
- Regular class attendance is necessary to do well in this course. Excessive unexcused absences will be handled on an individual basis. An official HU class excuse or previous arrangements with me is necessary to be excused from an exam.
- Academic dishonesty will not be tolerated; violations will result in sanctions up to and including dismissal from the class with a failing grade.
- There will be no cell phones seen or heard in the classroom; violations will affect your grade. The visual appearance or use of an unapproved electronic device during an exam will be interpreted as cheating and will result in a zero for that exam.
- You are on your honor to do your own assignments. Obtaining assistance on assignments from anyone other than your instructor or teaching assistant is a form of academic dishonesty. This does not mean that you cannot help each other understand the principles involved in the assignment.
- You should plan to spend 1-2 hours outside of class each week working with SYSTAT.
- The online class notes are not complete sources of information for students. Students should read the textbook and listen closely to the lectures for additional information. All exams may contain questions taken directly from the textbook.
- ***Biostats is a practical application course. To learn it, you have to do it. You must take seriously the necessity of applying statistical concepts and procedures on a regular basis. If you do not, you are guaranteed to do poorly in the course!***

My Responsibilities ([Contact me](#))

Because, as your teacher, I have a substantial responsibility to you and to the Lord (James 3:1), I promise my best effort to you in Biol. 254. I pray that my lectures will be clear, my expectations reasonable, and my exams vigorous, thorough, challenging, and fair. I also pray that your grade will reflect both your ability and your preparation. Finally, I hope that you will learn something substantive in my class regardless of what you think about the subject matter. For further insight into my teaching philosophy, [click here](#) - Good luck!

Important Dates - *Spring 2012* exams and assignments. Assignments are due by class time in the appropriate tray of the Biostats assignment bin in S161.

<i>wk-d Assignment</i>	<i>Date</i>	<i>wk-d Assignment</i>	<i>Date</i>	<i>wk-d Assignment</i>	<i>Date</i>
03-M Graph Exercise	Jan 23	08-W Exam 2	Feb 29	15-MW Exam 3	Apr 23, 25
04-MW Exam 1	Jan 30, Feb 1	09-F Project 2	Mar 16	16-Final Exam	May 1, 2
06-F Project 1	Feb 17	13-F Project 3	Apr 13		

[HU Disability Statement](#); [HU Assessment Statement](#); [HU Academic Integrity Statement](#)