STAT22000 Spring 2015 Syllabus

Instructor

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Course Assistants

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Class times, office hours, problem sessions

Class:	Section 1: M/W/F 1:30–2:20pm, Eckhart 133 Section 2: M/W/F 2:30–3:20pm, Eckhart 133 HW due at the beginning of class on Wednesdays.
Problem sessions:	Mondays 6–7pm, Eckhart 117 (CAs) Tuesdays 7–8pm, Eckhart 117 (CAs)
Office hours:	Mondays 10–11am, Eckhart 113 (Rina Foygel Barber) Tuesdays 3:30–5pm, Eckhart 117 (CAs) Wednesday 9:30-11am, Eckhart 131 (CAs) Thursdays 1–3pm, Eckhart 113 (Rina Foygel Barber)
R tutorial:	Thursday April 2, 6–7pm Eckhart 133 (CAs)

Textbook

Moore, D. S., McCabe, G. P. and Craig, B.
Introduction to the Practice of Statistics, **8th edition**.

Course Webpage

- **Chalk**: http://chalk.uchicago.edu
  Handouts/HWs/solutions/announcements are posted here
- http://www.stat.uchicago.edu/~rina/teaching.html
  Some materials will be here if you don't have Chalk access

Schedule

	Date	Topics	Chapters	Due
1	Mar 30	Intro, graphical & numerical descriptions of data	1.1–1.2	
	Apr 1	Graphical & numerical descriptions of data	1.1–1.2	
	Apr 2	**Optional R tutorial, 6-7pm**		
	Apr 3	Densities, normal distribution	1.3	
2	Apr 6	Scatter plots, correlation	2.1–2.2	
	Apr 8	Least squares regression	2.3	HW1
	Apr 10	Least squares regression, residuals & outliers	2.3–2.4	
3	Apr 13	Experiments & observational studies	3.1–3.2	
	Apr 15	Sampling, bias, & variance	3.3–3.4	HW2
	Apr 17	Sampling, bias, & variance	3.3–3.4	
4	Apr 20	Probability	4.1–4.2,4.5	
	Apr 22	Probability	4.1–4.2,4.5	HW3
	Apr 24	Random variables	4.3–4.4	
5	Apr 27	Random variables	4.3–4.4	
	Apr 29	Sampling distributions, central limit theorem	5.1–5.2	HW4
	May 1	Sampling distributions, central limit theorem	5.1–5.2	
6	May 4	Midterm review		
		Section 02 midterm (6-8pm)		
	May 5	**Section 01 midterm (6-8pm)**		
	May 6	Confidence intervals	6.1	
	May 8	Hypothesis testing, Type I & Type II error	6.2–6.4	
7	May 11	Hypothesis testing, Type I & Type II error	6.2–6.4	
	May 13	Student's t-test	7.1	HW5
	May 15	Student's t-test	7.1	
8	May 18	Comparing two means	7.2	
	May 20	Inference for proportions & for two-way tables	8.1–8.2,2.5,9.1–9.2	HW6
	May 22	Inference for proportions & for two-way tables	8.1–8.2,2.5,9.1–9.2	
9	May 25	No class (Memorial Day)		
	May 27	Simple linear regression	10.1–10.2	HW7
	May 29	Simple linear regression	10.1–10.2	
10	Jun 1	Analysis of variance	11.1	
	Jun 3	Multiple linear regression	12.1	HW8
	Jun 5	Reading period (final exam review)		
	Jun 8	**Section 01 final exam (1:30-3:30pm)**		
	Jun 10	**Section 02 final exam (1:30-3:30pm)**		

Software

- We will mostly use R and calculators. R is available for free at:
  `www.r-project.org`
- Tutorials for R:
  `http://www.stat.uchicago.edu/~yibi/R/Rtutorial.html`
  `http://cran.r-project.org/doc/contrib/Torfs+Brauer-Short-R-Intro.pdf`

Grade Components

- Homework (30%), Midterm (30%), Final (40%)
- Exams are closed-book. You should bring **a calculator** and one letter-sized formula sheet for the midterm / two letter-sized formula sheets for the final.

Homework Policies

- Due Wednesdays at the **beginning** of class
- Solutions will be posted on chalk on Thursdays
- **No Late Homework!**
- In case of an emergency, you may be excused from one HW during the quarter.
- Collaboration: You may discuss the HW with other students but must write up solutions on your own and do your own calculations / computer work.
- For full credit on HW,
  - HW must be stapled, and labeled with your name (as it appears on Chalk).
  - HW must be coherent and legible. All graphs and code must be labeled with the problem number and part that they belong to.
  - Show all work and present solutions clearly.
- You are encouraged to check that your exams and assignments are graded accurately.

Final Grade Options

- A Quality Grade (A, A-, B+, B, B-, C+, C, C-, D+,D, or F) will be given unless the student has registered for the grade of R (auditing) or arranges a P/F, I or W grade as outlined below.
- A grade of P/F (Pass/Fail) or W (Withdrawal) requires a written request to the instructor **before the final exam starts**. Requests can be sent by email but only from your official UChicago email address. The grade of P will be awarded only for work of C- quality or better.
- The grade I (Incomplete) will be given only in clear cases of emergency and must be approved by the department chair.

Course Description

This course introduces statistical techniques and methods of data analysis, including the use of computers. Examples are drawn from biological, physical, and social sciences. Students are required to apply the techniques discussed to data drawn from actual research. Topics include data description, graphical techniques, exploratory data analysis, random variation and sampling, one- and two-sample problems, linear regression, analysis of variance, and analysis of discrete data.

Course Prerequisite

STAT22000 has a math prerequisite of 2 quarter of single-variable calculus (MATH 13100-13200, 15100-15200 or 16100-16200), or AP Calculus credit.

Other Undergraduate Statistics courses

See the overview of all undergraduate Statistics courses:

`http://collegecatalog.uchicago.edu/thecollege/statistics/`

or talk to the Director of Undergraduate Studies, Linda Collins (lcollins@uchicago.edu), in Eck107. Students considering a major or minor in Statistics should communicate directly with Linda as well.