

# STAT 100 Section B1

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## 1 Syllabus

### 1.1 Syllabus

- *Experimental Design - controlled, randomized, blinded and double blinded experiments, possible confounders in observational studies.*
- *Descriptive Statistics - central tendency-mean, median, deviation-SD, charts and plots-histograms, normal curve, etc.*
- *Linear Regression - correlation coefficient, regression equation, etc.*
- *Probability-Sample space, events, independence, multiplicative rule, conditional probability, tables, classical and set theoretical probability, Venn diagrams*
- *Statistics for Chance Numbers - expected value and Standard error of chance processes, probability histograms and convergence to normal curve. Focus is on developing simple chance models (box models-drawing numbers at random from a box) that more complicated sampling processes can be translated into.*
- *Sampling and Statistical Inference - Using sample means and percents to estimate population means and proportions, and attaching margins of errors to our estimates by computing confidence intervals.*
- *Hypothesis Tests-one sample and two sample Z-tests, t-tests and chi-square tests for goodness of fit and independence. Focus is on understanding how these tests depend on chance models*
- *Limits of Significance Tests- understanding what the P-value means and under what circumstances it is valid (for example, hypotheses must be stated before looking at the data, the total number of experiments before significant results were found must be reported, etc.)*

### 1.2 Required material

- Required Text: (available at TIS and IUB) STAT 100 Incomplete Lecture Notes TEAL FALL 2013 edition , by Ellen Fireman. STIPES. This is a workbook we fill in together in class worth extra credit.( Must buy TEAL FALL 2013 edition, no extra credit will be given for previous versions. You can however use an older version to study).
- Required Materials: Calculator (required for all exams, any type of calculator is allowed). We will NOT use I clickers.
- Another reference textbook is listed in stat 100 website. However there is no need to buy that. I will provide printed handouts/notes and upload materials online periodically for further reading
- Pre requisite: None. We will develop pretty much everything from scratch. If at any point of time, you feel you lack in some background assumed or need some review, talk to me and we can schedule a one to one meeting to fill in the gaps.

Table 1: Grading Table

For required work (100 pts)		For Bonus work (20 pts)	
Homework	15%	Quizzes	50%
3 mid term Exams	60%	Surveys	15%
Final exam	25%	Notebook	20%
		HW/Problem set	15%

Table 2: Points to letter grades conversion

Points range	Letter	Points range	Letter	Points range	Letter	Points range	Letter
97-100	A+	87-90	B+	77-80	C+	67-70	D+
94-97	A	84-87	B	74-77	C	64-67	D
90-93	A-	80-83	B-	70-73	C-	60-63	D-

## 2 Grading

- For the required work part, 3 Exams count for 60% of the total grade ( 20% each), the final counts for 25% and the lon capa online homework for 15%. One homework will be dropped. However completing all homeworks may help to earn bonus points.
- Apart from the required work, there are 20 bonus points on offer. In class, short quizzes ( 4-5 of them, 15 minutes each, all pre-announced, no surprise quizzes ) count for 50%, lon-capa surveys count for 15% , filled in notebook for 20% and a bonus homework( the one dropped from required) counts for another 15%.

## 3 Office hours

- All office hours will be held at 24 Illini hall ( Mac Lab), in the basement of Illini hall ( Stat department).
- My office hours are Monday and Wednesday 4-6 pm at 24 Illini hall. If you need to talk to me in some other time, drop me an email or a text and we can schedule a meeting at a time that suits both of us.
- We will have common TA office hours for all sections of stat 100. TA/Instructor Lab Schedule: MWF 4-8 PM and TR 5-8 pm starting Wed, Aug 28. You can walk in and discuss your problem with anyone who is available there.
- The TA's are Jacqueline Capron (Head TA), David Collier (Lon Capa and Technical Specialist), Wen-Li Chen, Amanda Hwu, Steve Flanagan, Jill Moore, Karle Laska, Celeste Guzman

## 4 Homework and quizzes

- Homeworks are online in Loncapa (You can find the link in compass/website). There will be around 13-14 homework assignments to be due mostly on Fridays every week.
- No late homeworks are accepted in lon capa. The problem stops accepting answers once the deadline is over. However you still get points for the problems you have already attempted. If you need extension of deadline for emergency reasons send me an email.
- You can work on the problems from any internet enabled device ( computers, laptops, smartphones, tablets etc.). There are some open to all computers at the basement of the Illini union as well. You can use one of the computers at the Mac lab during the office hours if available.

- I encourage you to discuss on the problems in Lon capa discussions just below the problem. You can post your questions there and your fellow classmates can answer them. I will also monitor the discussions and answer questions occasionally. However, note that all problems will be randomized, so each one of you will have different numbers and hence your final answers will vary.

## 5 Exams

- Exam 1 , Wednesday Sept 18, 7:00-8:30 PM (tentitive)
- Exam 2, Wednesday, Oct 16, 7:00-8:30 PM (tentitive)
- Exam 3, Wednesday, Nov 13, 7:00-8:30 PM (tentitive)
- Final Exam, Friday, Dec 20, 7:00-10:00 PM (scheduled by university)

## 6 Surveys

Surveys are an important part of the practice of statistics. I am sure all of you are familiar with surveys. As applied statisticians, you will probably at some point of time ask people to take a survey. In this class the data we analyze comes mostly from student surveys. We ask ourselves certain questions and analyze the results to learn about ourselves. So, its important to take the surveys given in Lon capa ( 4 or 5 in the entire course) and answer them truthfully. If we expect others to answer surveys correctly and present us with a quality data set to analyze, we should learn to do so ourselves first. All data collected will be ANONYMOUS. We will remove all identification and aggregate the results and will look only into aggregate data. I, however have enormous respect for privacy and I assure you that you will NEVER have to take a survey that you are uncomfortable with. If any one feels uncomfortable answering a question or finds it an intrusion into privacy, you don't have to take that survey just for some extra credit. Please let me know, that you are uncomfortable taking a particular survey and I will give you the extra credit through some other means.