Statistics 202: Introduction to Statistics

Spring 2014

September 26, 2014

Instructors

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Course information

- **Description:** Via the course catalog:

  > **202 Introduction to Statistics**
  > Data collection, summarization, correlation, regression, probability, sampling, estimation, tests of significance. Does not require calculus and makes minimal use of mathematics.

- **Objective:** Via the syllabi of past instructors:

  > To help you develop a critical attitude toward statistical arguments. This course is for people who want to be able to comprehend and use statistics better in their work. This course stands by itself and also serves as a background for further statistics courses, helping to provide the intuition which can sometimes be lost amid the formulas.

- **Prerequisites:** High school algebra

- **Website:** `https://courses.northwestern.edu`

- **Required Textbook:** *Probability and Statistics* by the Open Learning Initiative (OLI) of Carnegie Mellon University.

  - The OLI textbook is online only. It is accessed via our course BlackBoard site (`https://courses.northwestern.edu`) under the Assignments section.
  - The textbook is purchased directly from OLI upon first access ($25).

- **Course Format:** This course uses a hybrid of traditional lecture based and online instructional strategies.

  - **Lecture:** MWF from 10-10:50 AM in Annenberg Hall G15. Lecture serves to (i) introduce new material, and (ii) address common student questions. Attendance is mandatory. (3 hours / week)

- **Reading and "Did I get this?":** The OLI readings expand on the material presented in lecture and offer opportunities for checking your understanding with *ungraded* "Did I get this?" activities. (approx. 4 hours / week)
- **"Checkpoint" quizzes:** These OLI quizzes cover material from the previous lecture and are due at 9 AM before the next lecture. "Checkpoint" quizzes are graded pass/fail. **Quizzes are to be soley your own work.** (approx. 45 minutes / week)
- **Homework:** Homework assignments are due on Tuesdays at noon. (approx. 3 hours / week)
  - Homework must be handed in via BlackBoard in the specified format. Non-conforming homework will not be accepted.
  - Your name, and the name of *everyone* who contributed to your solutions, must appear on your homework.
  - Late homework will not be accepted.
  - The lowest scoring homework assignment will be dropped before calculating grades.
- **Exams:** According to Weinberg College of Arts and Sciences policy, every student must take the final exam at its scheduled time. All midterm conflicts must be resolved in advance.
  - Midterm: October 24, 2014 in class
  - Final: December 10, 2014 from 3-5 PM

- **Grading:**
  - 15% Checkpoints
  - 25% Homework
  - 30% Midterm
  - 30% Comprehensive final

- **Laptop policy:** A computer is required for the course, but do not bring your laptops to lecture unless requested. If you require or strongly prefer a laptop for note taking, please see me.

- **Calculator policy:** A calculator is required for exams. Graphing calculators are not necessary. The use of phones and similar devices is forbidden during exams. Calculators may not be shared during exams.

- **AccessibleNU:** Any student requesting accommodations related to a disability or other condition is required to register with AccessibleNU (accessiblenu@northwestern.edu or 847-467-5530) and provide professors with an accommodation notification from AccessibleNU, preferably within the first two weeks of class. All information will remain confidential.

- **Academic Integrity:** Suspected violations of academic integrity will be reported to the Dean's Office. For more information on Northwesterns academic integrity policies, see `http://www.weinberg.northwestern.edu/handbook/integrity/index.html`.

Stat 202 Schedule

Lecture A-B denotes that lecture will cover pages A-B in the textbook. Checkpoints are due at 9 AM on the indicated day. Homework is due at noon on the indicated day. Class sessions marked "Instructor Review" and "Student Review" are designated in-class review sessions that are led by the instructor and students respectively. Class sessions marked "Special Topics" will cover additional topics of interest to the students as time allows. In accordance with Weinberg College of Arts and Sciences policy, no assignments are due during reading week and attendance at class meetings during that week is strictly optional.

Week beginning	Monday	Tuesday	Wednesday	Thurs.	Friday
9/22	×	×	Lecture 1-21	×	Checkpoint 1 Lecture 22-33
9/29	Checkpoint 2 Lecture 34-47	Homework 1	Checkpoint 3 Lecture 48-61	×	Checkpoint 4 Lecture 62-78
10/6	Checkpoints 5 & 6 Lecture 84-99	Homework 2	Checkpoint 8 Lecture 100-111	×	Checkpoint 9 Lecture 112-115
10/13	Checkpoint 10 Lecture 116-123	Homework 3	Checkpoint 11 Lecture 124-140	×	Checkpoints 12 & 13 Lecture 145-155
10/20	Checkpoint 15 Instructor Review	Homework 4	Student Review	×	**Midterm 10/24 in class**
10/27	Lecture 160-165	×	Checkpoint 16 Lecture 166-169	×	Checkpoint 17 Lecture 171-187
11/3	Checkpoint 18A Lecture 188-191	Homework 5	Checkpoint 18B Lecture 192-198	×	Checkpoint 19 Lecture 199-211
11/10	Checkpoint 20 Lecture 212-220	Homework 6	Checkpoint 21 Lecture 222-234	×	Checkpoints 23 & 24 Lecture 235-242
11/17	Checkpoint 25 Lecture 243-249	Homework 7	Checkpoint 26 Lecture 251-256	×	Checkpoint 28A Lecture 257-259
11/24	Checkpoint 28B Special Topics	Homework 8	Special Topics	×	*No Class 11/28 Thanksgiving Break*
12/1	*Reading Week* Instructor Review	×	*Reading Week* Student Review	×	*Reading Week* Student Review
12/8	×	×	**Final 12/10 3-5 PM**	×	×

A detailed list of the checkpoints follows.

Checkpoints

Checkpoints are numbered sequentially. Checkpoints marked "skipped" assess material that is not covered in the class and are not graded. Checkpoints marked "On BlackBoard" are taken directly on BlackBoard instead of via the OLI software. Checkpoints marked "practice" assess material covered in the course, but they are ungraded.

Unit	No.	Checkpoint Name	Reading
Exploratory Data Analysis	1	Examining Distributions # 1	1-21
	2	Examining Distributions # 2	22-33
	3	Examining Relationships # 1	34-47
	4	Examining Relationships # 2	48-61
Producing Data	5	Sampling	62-68
	6	Designing Studies # 1	69-78
	7	Designing Studies # 2 **(skipped)**	79-83
Probability	8	Probability # 1	84-99
	9	Probability # 2	100-111
	10	Conditional Prob. and Indep. # 1	112-115
	11	Conditional Prob. and Indep. # 2	116-123
	12	Random Variables # 1	124-137
	13	Random Variables # 2	138-140
	14	Random Variables # 3 **(skipped)**	141-144
	15	Random Variables # 4	145-155,159,170
	16	Sampling Distributions # 1	160-165
	17	Sampling Distributions # 2	166-169
Inference	18A	Estimation # 1 **(on BlackBoard)**	171-187
	18A	Estimation # 2 **(on BlackBoard)**	188-190
	18C	Estimation **(practice)**	191
	19	Hypothesis Testing (HT) Overview	192-198
	20	HT for a Population Proportion	199-211
	21	HT for a Population Mean	212-220
	22	HT **(practice)**	221
	23	Type I and Type II	222-223
	24	Two Independent Samples	224-234
	25	Matched Pairs	235-242
	26	ANOVA	243-249
	27	Case C→Q **(practice)**	250
	28A	Case C→C **(on BlackBoard)**	251-256
	28B	Case Q→Q **(on BlackBoard)**	257-258
	28C	Case C→C and Q→Q **(practice)**	259
	29	Inference for Relationships **(practice)**	260