

# STAT 0200: Basic Applied Statistics (1180)

Spring 2019

**Instructor:** Dr. Junshu Bao  
Department of Statistics, University of Pittsburgh  
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Office Hours: M/W 2:00 PM - 4:00 PM  
\*Also available by Appointment

**Lecture:** M/W/F 10:00 – 10:50 AM LAWRN 107  
\*LAWRN: David Lawrence Hall

**Recitation:** One of the following:

| CRN   | Title | Day     | Time             | Room      |
|-------|-------|---------|------------------|-----------|
| 10696 | 1060  | Tuesday | 9:00 – 9:50 AM   | LAWRN 233 |
| 10697 | 1065  | Tuesday | 10:00 – 10:50 AM | LAWRN 233 |
| 10698 | 1070  | Tuesday | 11:00 – 11:50 AM | LAWRN 233 |
| 10695 | 1075  | Tuesday | 2:00 – 2:50 PM   | LAWRN 233 |

**TA:** Joseph (Nico) Gabriel  
E-mail: [JDG84@pitt.edu](mailto:JDG84@pitt.edu)  
Office Hours: Monday 4:30-6:30 PM

**Textbook:** Elementary Statistics: Looking at the Big Picture (c)2011 Brooks/Cole;  
ISBN 9780495016526

**Course Description:** This course teaches method of descriptive and inferential statistics. Topics include data collection and description, correlation and regression, hypothesis testing, the analysis of variance, and contingency tables. Students will learn how to use a statistical computer package.

**Note:** The material in this course is cumulative in nature. Thus, it is important to not fall behind in your reading or assignments or you will find yourself lost. If you are confused, see me or your recitation instructor for help.

**Recitation:** Recitations will focus on question and answer sessions, problem solving, the use of MINTAB (our computer package) as well as review of lecture material. Quizzes will be administered during recitation.

**Software:** Throughout the semester we will use the statistical software package MINITAB. This package is available for download from [my.pitt.edu](http://my.pitt.edu) for free. Please note that MINITAB is not available on Macs but MINITAB Express is. MINITAB is also available in all computing labs on campus, including the STAT Lab (WWPH 1201)

**CourseWeb:** You should visit CourseWeb frequently (<http://courseweb.pitt.edu>). You will be able to access lecture notes, homework assignments, practice exams and other materials that will aid in the learning of class topics.

**Grading:**

|                   |                     |
|-------------------|---------------------|
| Homework          | 20% (Best 10 of 11) |
| Midterm I         | 15%                 |
| Midterm II        | 15%                 |
| Final Exam        | 20%                 |
| Labs              | 12% (4 labs)        |
| Quizzes           | 15% (Best 5 of 6)   |
| <u>Attendance</u> | <u>3%</u>           |
|                   | 100%                |

**Course Grades:**

|    |               |
|----|---------------|
| A+ | $\geq 99\%$   |
| A  | $93 - < 99\%$ |
| A- | $90 - < 93\%$ |
| B+ | $87 - < 90\%$ |
|    | etc...        |

**Examinations:** The three exams (midterm I, midterm II, and final exam) will be closed book. For the midterm exams you will be permitted to use a single two-sided 8.5x11 sheet of paper with handwritten notes. For the final exam you will be permitted to bring two two-sided 8.5x11 sheets of paper with handwritten notes. Be sure to bring a calculator. No make-up exams will be given. If you'll miss an exam (an extremely rare event for an unavoidable emergency), please let me know as soon as possible.

**Quizzes:** All quizzes will be open book and open notes however computers will NOT be permitted. A prepared sheet is recommended as you won't have a lot of time to search for needed information. In general, memorization of lengthy, complicated formulas is not necessary for this course but you should know where to find the formulas for quizzes. No make-up quizzes will be given.

**Labs:** During select weeks (see calendar below), recitations will meet in the Statistical Computing Lab (Stat Lab – WWPB 1201). During these sessions you will complete a lab with your recitation instructor followed by an individual activity that will be submitted during lab. If you leave lab without submitting your activity it will not be counted for credit. No make-up labs will be given.

**Homework Assignments:** Homework assignments are found on CourseWeb. All assignments will be handed in during LECTURE on Wednesdays beginning the second week of class. Rules:

- You may, and are encouraged to work together on the assignments, but everyone must submit their own assignment.
- Late homework will not be accepted. In a valid emergency, your recitation instructor may make an exception.
- Your homework should be neat and well-organized. Show your work, circle your answer and staple your pages together.
- Be sure to print your name and your recitation day and time at the top of the first page of your homework. Put your name or initials at the top of each additional sheet of paper.

**Free Tutoring:** In addition to my office hours, your TA's office hours and the statistics TAs in the Stat Lab (CL G-26), free tutoring is available through the Academic Resource Center. You can contact them at (412) 648 -7920 or visit [www.asundergrad.pitt.edu/success/tutoring.html](http://www.asundergrad.pitt.edu/success/tutoring.html).

**Material References:**

Pfенning, N. (2011). *Elementary statistics: looking at the big picture*. Boston, MA: Brooks/Cole Cengage Learning.

Moore, D. S. (2004). *The basic practice of statistics* (Vol. 3rd). New York: W.H. Freeman and Co.

Rice, J. A. (1995). *Mathematical Statistics and Data Analysis*, 2<sup>nd</sup> Ed. Wadsworth, Inc.

**Attendance/ Class Participation:** 3% of the course grade is attributed directly to attendance because regular attendance and active participation will positively impact your performance in the course. Attendance will be recorded through TopHat.

**Disability Statement:** If you have a disability for which you are or will be requesting an accommodation, you are encouraged to contact both me, and the Office of Disability Resources and Services, 216 William Pitt Union, (412) 648-7890 / (412) 383 - 7355 (TTY) as early as possible in the term. DRS will verify your disability and determine appropriate accommodations for this course.

**Academic Integrity Statement:** Cheating/Plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, as stated in the February 1974 Senate Committee on Tenure and Academic Freedom, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz, homework, or exam will be imposed.

**Statement on Classroom Recording:** To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

Tentative Class Calendar:

| Date        | Day      | Lec. # | Topic                               | Chapter/Section   | Due |
|-------------|----------|--------|-------------------------------------|-------------------|-----|
| 1/7         | M        | 1      | Introduction; Sampling              | Chapters 1 & 2    |     |
| 1/9         | W        | 2      | Sample Surveys                      | Sections 3.1; 3.2 |     |
| 1/11        | F        | 3      | Observational Studies               | Section 3.3       |     |
| 1/14        | M        | 4      | Experiments                         | Section 3.4       |     |
| 1/16        | W        | 5      | Categorical Variables               | Section 4.1       | HW1 |
| 1/18        | F        | 6      | Quantitative Variables (Display)    | Section 4.2       |     |
| <b>1/21</b> | <b>M</b> |        | <b>MLK Observation; NO CLASS</b>    |                   |     |
| 1/23        | W        | 7      | Quantitative Variables (Summary)    | Section 4.3       | HW2 |
| 1/25        | F        | 8      | Normal Data                         | Section 4.4       |     |
| 1/28        | M        | 9      | Relationship: C and Q               | Section 5.1       |     |
| 1/30        | W        | 10     | Relationship: C and C               | Section 5.2       | HW3 |
| 2/1         | F        | 11     | Relationship: Q and Q (Correlation) | Section 5.3       |     |
| 2/4         | M        | 12     | Relationship: Q and Q (Regression)  | Section 5.3       |     |
| 2/6         | W        |        | Review                              |                   | HW4 |
| 2/8         | F        |        | <b>Exam I</b>                       |                   |     |
| 2/11        | M        | 13     | Probability Rules 1                 | Section 6.1       |     |
| 2/13        | W        | 14     | Probability Rules 2                 | Section 6.2       |     |
| 2/15        | F        | 15     | Random Variables                    | Section 7.1       |     |
| 2/18        | M        | 16     | Binomial Random Variables           | Section 7.2       |     |
| 2/20        | W        | 17     | Normal Random Variables 1           | Section 7.3       | HW5 |
| 2/22        | F        | 18     | Normal Random Variables 2           | Section 7.3       |     |
| 2/25        | M        | 19     | Sampling Distribution: Proportions  | Section 8.1       |     |
| 2/27        | W        | 20     | Sampling Distribution: Means        | Section 8.2       | HW6 |
| 3/1         | F        | 21     | Confidence Interval: Proportions    | Section 9.1       |     |
| 3/4         | M        | 22     | Hypothesis Test: Proportions 1      | Section 9.2       |     |
| 3/6         | W        | 23     | Hypothesis Test: Proportions 2      | Section 9.2       | HW7 |
| 3/8         | F        | 24     | Confidence Interval: Means (z)      | Section 10.1      |     |

| Recitation | Date | Day     | Activity  |
|------------|------|---------|-----------|
| 1          | 1/8  | Tuesday | Cancelled |
| 2          | 1/15 | Tuesday |           |
| 3          | 1/22 | Tuesday | Quiz 1    |
| 4          | 1/29 | Tuesday | Lab 1     |
| 5          | 2/5  | Tuesday | Quiz 2    |
| 6          | 2/12 | Tuesday | Lab 2     |
| 7          | 2/19 | Tuesday |           |
| 8          | 2/26 | Tuesday | Quiz 3    |
| 9          | 3/5  | Tuesday |           |
| 10         | 3/19 | Tuesday | Quiz 4    |
| 11         | 3/26 | Tuesday | Lab 3     |
| 12         | 4/2  | Tuesday | Quiz 5    |
| 13         | 4/9  | Tuesday | Lab 4     |
| 14         | 4/16 | Tuesday | Quiz 6    |

|                        |          |    |                                       |                    |      |
|------------------------|----------|----|---------------------------------------|--------------------|------|
| <b>3/11 -<br/>3/15</b> |          |    | <b>Spring Break, No Class</b>         |                    |      |
| 3/18                   | M        | 25 | Hypothesis Test: Means (z)            | Section 10.1       |      |
| 3/20                   | W        |    | Review                                |                    | HW8  |
| 3/22                   | F        |    | <b>Exam II</b>                        |                    |      |
| 3/25                   | M        | 26 | Confidence Interval: Means (t)        | Section 10.2       |      |
| 3/27                   | W        | 27 | Hypothesis Test: Means (t)            | Sections 10.2,10.3 |      |
| 3/29                   | F        | 28 | Inference in Paired Design            | Section 11.1       |      |
| 4/1                    | M        | 29 | Inference in Two-Sample Design        | Section 11.2       |      |
| 4/3                    | W        | 30 | ANOVA 1                               | Section 11.3       | HW9  |
| 4/5                    | F        | 31 | ANOVA 2                               | Section 11.3       |      |
| 4/8                    | M        | 32 | Chi-Square 1                          | Section 12.1       |      |
| 4/10                   | W        | 33 | Chi-Square 2                          | Section 12.2       | HW10 |
| 4/12                   | F        | 34 | Inference for Regression 1            | Section 13.1       |      |
| 4/15                   | M        | 35 | Inference for Regression 2            | Section 13.2       |      |
| 4/17                   | W        |    | Review                                |                    | HW11 |
| 4/19                   | F        |    | Review                                |                    |      |
| <b>4/26</b>            | <b>F</b> |    | <b>Final Exam (10:00 -- 11:50 AM)</b> |                    |      |