

**AMS 315 Data Analysis**

**INSTRUCTOR:** Kyle Bradford  
Assistant Professor, Department of Applied Math & Statistics, SUNY Korea  
**CLASS:** Tuesday and Thursday 3:30PM-4:50PM, Room: TBD  
**OFFICE:** Academic Building B525  
**OFFICE HOUR:** Tuesday and Thursday 1:00PM - 3:00PM or by appointment  
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**Text:** Ott and Longnecker, *An introduction to statistical methods & data analysis*, (7th ed.), Cengage Learning

**Statistical Package:** We will be using Minitab and R to analyze data in this class.

**Chapters to be Covered:** The chapters covered will come from part 4 of the book. We will start with hypothesis testing and continue through to categorical data analysis, regression and analysis of variance.

**Blackboard:** We will be using blackboard to post assignments, notes and grades. You can also use blackboard to communicate with the professor. The website is: [blackboard.stonybrook.edu](http://blackboard.stonybrook.edu)

**Homework:** Assignments will be given regularly. No late homework will be accepted.

**Tests**

Exam I: Thursday, April 5, in class  
Exam II: Thursday, May 10, in class  
Final: Tuesday, June 19 3:15PM-5:45PM Room: TBD

<http://www.sunykorea.ac.kr/sites/default/files/16FL%20Final%20exam%20schedule%20-%202016.04.25.pdf>

**Grading of Tests and Homework**

Grading will be based on a 10 point standard and the following:

Homework (10%), Midterms ( $30\% \times 2 = 60\%$ ), and Final exam (30%)

## Learning Outcomes

1. This is a continuation of a previous class so we will begin by picking up where you left off
  - hypothesis testing on the sample mean
  - two sample hypothesis testing
  - inferences for higher dimensional comparisons
2. We will study contingency tables
  - odds ratios
  - chi-squared goodness-of-fit test
  - hypothesis test on two proportions
3. We will study a variety of linear models
  - simple linear regression
  - multiple linear regression
  - ANOVA/ANCOVA etc.
4. We will introduce you to statistical programming
5. We will introduce you to technical writing
6. We will take initiative on exploring data sets and learning how to become research scientists

### **Academic Integrity**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

### **Americans With Disabilities Act**

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Academic Affairs. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

### **Critical Incident Management**

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

### **Course Evaluations**

Stony Brook University values student feedback in maintaining the high quality education it provides and is committed to the course evaluation process, which includes a mid-semester assessment as well as an end-of-the-semester assessment, giving students a chance to provide information and feedback to an instructor which allows for development and improvement of courses. Please click the the following link to access the course evaluation system: <http://stonybrook.campuslabs.com/courseeval/>

### **Attendance**

1. All students of SUNY Korea are required to attend every class.
2. Unexcused absences will affect seriously the student's final grade in the course.
3. If a student has over 20% unexcused absence, the student's final course grade will be an F. In our case the 7th unexcused absence of a student will lead to an F grade of the course.
4. Students should report the reason of absence to the instructor in advance, or immediately after the absence.
5. When a student excuses his/her absence, the student must provide documentation of the reason for the absence to the instructor.
6. The instructor of the course reserves the right to excuse absences.
7. The course instructor may excuse the absence if the submitted documentation fulfills the conditions below.
  - Extreme emergencies (e.g. death in the family)
  - Severe medical reasons with doctor's note (Not a slight illness)
  - Very important events (e.g. national conference, official school event)
8. At the end of semester, the course instructor should submit a copy of the attendance sheet to the Academic Affairs Office.

### Tentative course schedule

Week	Date	Chapter	Material Covered
1	2/27 3/01		Introduction No Class (Independence Movement Day)
2	3/06 3/08	5 6	Inferences about $\mu$ for a Normal Population Inferences about $\mu_1 - \mu_2$
3	3/13 3/15	6 7	Nonparametric tests Inferences about population variances
4	3/20 3/22	8 9	Inferences about More than two population central values Linear contrasts and Tukey's procedure
5	3/27 3/29	10 10	Contingency Tables Odds Ratios and Goodness of Fit
6	4/03 4/05		Review Exam 1
7	4/10 4/12	11 11	Simple Linear Regression Simple Linear Regression
8	4/17 4/19	11 11	Lack of Fit Correlation
9	4/24 4/26	12 12	Multiple Linear Regression Generalized Linear Regression Models
10	5/01 5/03	12 13	Logistic Regression Further Regression topics
11	5/08 5/10		Review Exam 2
12	5/15 5/17	14 14	Experimental Design ANOVA
13	5/22 5/24		No Class (Buddha's Birthday) ANOVA
14	5/29 5/31	15 16	ANOVA for Blocked Design ANCOVA
15	6/05 6/07	17 19	Mixed-Effects models ANOVA for Unbalanced Design
15	6/12		Review