

## **MAT 222 Elementary Probability and Statistics II**

Fall 2018, August 28<sup>th</sup> – December 6<sup>th</sup>

**Class Meetings:** Tuesday and Thursday 2:00 PM - 3:20 PM, Carnegie 100

**Instructor:** Prof. Jianxuan Liu

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Office Hours: Tuesday and Thursday 3:20 - 4:20 PM and by appointment.

**Course Supervisor:** Professor H. Hyune-Ju Kim

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Please inform your instructor of any problems you have with this course. Problems not satisfactorily resolved with your instructor should be brought to the attention of the course supervisor.

**Course Description:** This is the second course in the probability and statistics sequence, MAT 221-222, designed for various academic majors. The primary objectives of the course are to understand basic concepts of statistical inference and to learn commonly used statistical methods of inference. The course will cover concepts of estimation and hypothesis testing, inferences involving two populations, chi-square tests, regression analysis, and analysis of variance.

**Text:** Introduction to the Practice of Statistics, by David S. Moore, George P. McCabe, and Bruce A. Craig, 9<sup>th</sup> Edition. Chapters 6 through 13 will be covered. Book companion site: <http://www.macmillanlearning.com/catalog/studentresources/ips9e> .

**Prerequisites:** MAT 221

**Liberal Arts Core:** This course is the second course in the Quantitative Skills sequence MAT 221-222.

**Calculators:** You will need a calculator to do the computations that will arise throughout the course. No specific calculator is required, but TI 83 or TI 84 graphing calculator is highly recommended.

**Cell Phones:** All electronic devices other than the calculator should be turned off and put away during class. Calculators on cell phones are not to be used on tests and quizzes.

**Class Attendance and Participation:** You are expected to attend and participate in class. If you miss a class, it is your responsibility to obtain a copy of the lecture notes for that class from another student. You are also responsible for any announcements about changes to the course schedule, the exam schedule, or the course requirements that were made during that class.

**Homework:** Regular homework assignments will be announced throughout the semester. Students are encouraged to do the suggested homework problems. Homework should be written up neatly and submit on time. The homework assignments are an important component of this course. Each will count towards your final grade. Late homework will receive at most 50 percent credit. Homework will mostly be checked for completeness but occasionally checked for correctness.

**Quizzes:** Regular in-class quizzes will be given at the beginning of the lecture. One or two questions will be chosen from your homework assignments. Quizzes cannot be made up if missed due to lateness to the class.

**Exams:** There will be two in-class exams during the semester and a final exam. There will be no make-up exams. If you miss an exam with a valid excuse (documented by a note from a doctor or the Dean's office) and you have informed the instructor about it in advance, your missed exam score will be replaced by your score on the corresponding part of the final exam. The final exam will be comprehensive. All students must take the final exam at the scheduled time which will be a 2-hour block between 8 a.m. and 2:30 p.m. on **Wednesday, December 12, 2018**. There will be no exceptions, and so you should not make plans to leave campus before 2:30 p.m. on Wednesday, December 12, 2018.

**Final Project:** Data analysis project will be assigned in the middle of the semester and will be due on the last day of classes. The primary objective of the project is to investigate a problem of your interest using statistical methods learned in the course. You will be required to analyze data using MINITAB, and write a report on your analysis. Detailed information about the project will be provided later in the semester.

**Statistical Software:** MINITAB (a statistical package) will be introduced in lecture and computer problems to use MINITAB will be assigned. If additional help is needed, please see <https://www.minitab.com/en-us/support/videos/> or talk to your instructor.

Minitab software is available at all PC's on computer clusters and the library desktops. For additional information, see <http://its.syr.edu/computer-labs/index.html> and <https://answers.syr.edu/display/library/Software+Available> . If students are familiar with another statistical software (e.g., SAS, SPSS, STATA, R), they may use that software instead of Minitab for both the assignments and the project. In such a situation, the support which the instructor can offer might be limited. The software used must be a recognized statistical software and the student should get the instructor's permission if they choose to use a software other than Minitab.

**Grading:** The two exams will count 45% and the final exam will count 30% toward your grade. The remaining 25% will be based on the project, homework, quizzes, or class work at the instructor's discretion. Final grades will be given according to the following scale:

A (93-100)	A- (90-92)	B+ (87-89)	B (83-86)	B- (80-82)
C+ (77-79)	C (73-76)	C- (70-72)	D (60-69)	F (0-59)

**Students with Disabilities:** If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), visit the ODS website– <http://disabilityservices.syr.edu> , located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**Academic Integrity:** Syracuse University’s Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University’s academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

*Specifically for this course (MAT 222), the academic integrity aspects relate to homework/quizzes/exams, as well as independent work to be done for the semester project and report. A student is not allowed to use ANY electronic device except for their calculator during the quiz/exam until the quiz/exam is handed in. Accessing material beyond the formula card, the tables, and standard calculator functionalities during the quiz/exam will be a violation of academic integrity. Rules regarding the independent work to be done for the project will be specified in lecture.*

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see <http://class.syr.edu/academic-integrity/>

**Religious observances policy:** Syracuse University’s Religious Observances Policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any

examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors no later than the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class. Related link: [http://supolicies.syr.edu/studs/religious\\_observance.htm](http://supolicies.syr.edu/studs/religious_observance.htm)

### **Tentative Schedule**

<b>Week</b>	<b>Topic</b>	<b>Week</b>	<b>Topic</b>
Week of Aug. 27	Sec 6.1- 6.3 (Review)	Week of Oct.22	Chapter 10
Week of Sep. 3	Sec 6.4, Sec 7.1	Week of Oct.29	Chapter 11
Week of Sep. 10	Sec 7.1, Sec 7.2	Week of Nov.5	Review/Exam 2
Week of Sep. 17	Sec 7.3, Sec 8.1	Week of Nov.12	Chapter 12
Week of Sep. 24	Sec 8.1, Sec 8.2	Week of Nov.19	Thanksgiving Break
Week of Oct.1	Review/Exam 1	Week of Nov.26	Chapter 13
Week of Oct.8	Sec 9.1 & 9.2	Week of Dec.3	Catch-up/Review
Week of Oct.15	Sec 9.2, Chapter 10	Week of Dec.10	Final exam

**Suggested HW Problems from the 9th Edition of the textbook**  
(Problems marked with \* are recommended to be done with MINITAB)

**Chapter 6**

Section 6.1 6.12, 6.13, 6.14, 6.19, 6.20, 6.27, 6.30, 6.33, 6.36  
Section 6.2 6.52, 6.53, 6.54, 6.58, 6.59, 6.69, 6.72, 6.74, 6.83-89  
Section 6.4 6.118, 6.119, 6.121

**Chapter 7**

Section 7.1 7.15, 7.18, 7.20-22, 7.25\*, 7.27\*, 7.30, 7.32\*, 7.34, 7.38\*, 7.41\*  
Section 7.2 7.56, 7.57, 7.58, 7.60\*, 7.67\*, 7.68, 7.78, 7.79\*, 7.80\*, 7.83

**Chapter 8**

Section 8.1 8.17, 8.18, 8.19, 8.20, 8.31, 8.32, 8.33, 8.42, 8.44  
Section 8.2 8.58, 8.60, 8.62, 8.63, 8.64-8.66, 8.70

**Chapter 9**

9.15, 9.17, 9.19, 9.21, 9.27, 9.28, 9.33, 9.34, 9.44, 9.48, 9.49, 9.52, 9.55

**Chapter 10**

10.10\*, 10.12\*, 10.14\*, 10.16\*, 10.18\*, 10.19\*, 10.20\*, 10.29, 10.30, 10.31, 10.32, 10.33,  
10.37\*, 10.43\*, 10.45\*, 10.46\*, 10.48\*, 10.52\*, 10.61\*

**Chapter 11**

11.8, 11.10, 11.18\*, 11.24\*, 11.27\*, 11.28\*, 11.29\*, 11.30\*, 11.35\*, 11.36\*, 11.38\*, 11.40\*,  
11.41\*, 11.42\*, 11.43\*

**Chapter 12**

12.11, 12.14, 12.15, 12.16, 12.17, 12.19, 12.23, 12.24, 12.26, 12.35, 12.36\*, 12.37, 12.39,  
12.40, 12.45, 12.46, 12.51\*, 12.52\*, 12.58, 12.64\*, 12.72\*, 12.75\*

**Chapter 13**

13.6, 13.7, 13.8, 13.9, 13.10, 13.11\*, 13.13, 13.22\*, 13.23\*, 13.24, 13.40\*, 13.41\*, 13.42\*,  
13.43\*, 13.44\*, 13.47\*, 13.56\*, 13.58\*