

MAT 122-UC2 Probability and Statistics for the Liberal Arts II, Spring 2017, p. 1

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Course Supervisor: Professor Steven P. Diaz, 317C Carnegie, x1583. Problems you cannot resolve with your instructor should be brought to the attention of the course supervisor.

Mathematical Prerequisites and Restrictions: MAT 121 is a prerequisite for MAT 122. A student cannot receive credit for MAT 122 after completing any MAT course numbered above 180 with a grade of C or better.

MAT 122 and the Liberal Arts Core: The sequence MAT 121 – MAT 122 can be used to satisfy the quantitative skills requirement of the liberal arts core in the College of Arts and Sciences.

Texts: Elementary Statistics with Finite Mathematics, Fourth Custom Edition for Syracuse University, Math 121 & 122, and the Minitab Manual that goes with the 12<sup>th</sup> edition of Elementary Statistics by Mario F. Triola.

Homework: Homework is for your practice. It will not be handed in; it will not be graded. Page 5 of the syllabus contains suggested problems for each section. It is also a good idea to try the statistical literacy and critical thinking, chapter quick quiz, and review exercises at the end of each chapter.

Exams: All exams (including the final exam) are open book. Students may use their textbooks as well as any other books or notes they wish. Students may use any type of calculator they wish except that they may not use calculators capable of wireless communication. Cell phones or any other device capable of wireless communication are not allowed. Student ID's will be checked during the exams.

**Make-up Exams:** Makeups for exams will only be given as required by the University Religious Holiday policy and perhaps a few other very special circumstances. Do not assume you know what constitutes a very special circumstance without first discussing the matter with me. With a good reason I may agree to replace a missed test with grade with the final exam grade. Again, do not assume you know what constitutes a good reason without first discussing the matter with me. It is much better to contact me before the exam. Once an exam is handed in, it is very very rare that I will allow that grade to be dropped.

**Calculation of Course Grade:** Each midterm exam and the final exam will be graded on a scale of 0–100. Your recitations will also be graded on a scale of 0–100. Your overall score for the term is then computed by the following formula. Overall score =  $(.15)(\text{test 1}) + (.15)(\text{test 2}) + (.15)(\text{test 3}) + (.15)(\text{test 4}) + (.20)(\text{final exam}) + (.20)(\text{average of recitation scores})$ . Your letter grade for the term then comes from the following table.

| Overall score x  | Letter Grade | Overall score x      | Letter Grade |
|------------------|--------------|----------------------|--------------|
| $0 \leq x < 60$  | F            | $80 \leq x < 83$     | B-           |
| $60 \leq x < 70$ | D            | $83 \leq x < 86$     | B            |
| $70 \leq x < 73$ | C-           | $86 \leq x < 90$     | B+           |
| $73 \leq x < 76$ | C            | $90 \leq x < 93$     | A-           |
| $76 \leq x < 80$ | C+           | $93 \leq x \leq 100$ | A            |

**Final Exam:** Thursday, May 4, 2017 during the regular class time plus some added time to make it 2 hours.

**Calculator:** Your calculator should be able to take square roots.

**Available student assistance:** Instructor office hours, TA office hours, Math Clinic, Review sessions.

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| Date | Sections            |                                                                                                                                               |
|------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Jan  | 17 8-1, 8-2         | Up to Mar 3 sections are from the first part of the book. Taken from Elementary Statistics, Twelfth Edition by Mario F. Triola.               |
|      | 19 8-3, 8-4         |                                                                                                                                               |
|      | 24 Computer         |                                                                                                                                               |
|      | 26 8-4, 8-5         |                                                                                                                                               |
|      | 31 Catch up/Review  |                                                                                                                                               |
| Feb  | 2 Test 1            | From Mar 5 onward sections are from the second part of the book. Taken from Finite Mathematics, Tenth Edition by Lial, Greenwell, and Ritchey |
|      | 7 Computer          |                                                                                                                                               |
|      | 9 10-1, 10-2        |                                                                                                                                               |
|      | 14 10-3, 11-1, 11-2 |                                                                                                                                               |
|      | 16 11-3             |                                                                                                                                               |
|      | 21 Computer         |                                                                                                                                               |
|      | 23 Catch up/Review  |                                                                                                                                               |
|      | 28 Test 2           |                                                                                                                                               |
| Mar  | 2 13-1, 13-2, 13-7  |                                                                                                                                               |
|      | 7 14-1, 14-2, 14-3  |                                                                                                                                               |
|      | 9 7.6               |                                                                                                                                               |
|      | 21 Computer         |                                                                                                                                               |
|      | 23 2.1              |                                                                                                                                               |
|      | 28 2.2              |                                                                                                                                               |
|      | 30 Catch up/Review  |                                                                                                                                               |
|      |                     |                                                                                                                                               |
| Apr  | 4 Test 3            |                                                                                                                                               |
|      | 6 2.3, 2.4          |                                                                                                                                               |
|      | 11 2.5              |                                                                                                                                               |
|      | 13 2.6              |                                                                                                                                               |
|      | 18 10.1             |                                                                                                                                               |
|      | 20 10.2             |                                                                                                                                               |
|      | 25 10.3             |                                                                                                                                               |
|      | 27 Catch up/Review  |                                                                                                                                               |
| May  | 2 Test 4            |                                                                                                                                               |
|      | 4 Final Exam        |                                                                                                                                               |

Computer Labs

1. Instructor cover: 8-2, Testing Hypotheses About  $p$ .  
Students do: Experiments 8-1, 8-2, 8-3.
2. Instructor cover: 8-3 Testing Hypotheses About  $\mu$ , 8-4 Testing Hypotheses About  $\sigma$  or  $\sigma^2$ .  
Students do: Experiments 8-6, 8-10, 8-14.
3. Instructor cover: 10-2 Scatter Plot, 10-3 Correlation, 10-4 Regression.  
Students do: Experiments 10-1, 10-2, 10-4.
4. Instructor cover: sections 11-1, 11-2, 13-1, 13-2, 13-7.

Suggested Homework Problems (During lecture the instructor might suggest more.) The number of suggested homework exercises is probably larger than most people have time to do. Therefore, I place in parentheses an abbreviated set that will in most cases be adequate.

8-2: 1-34 odd (5, 13, 17, 25, 31, 33).

8-3: 1-32 odd (9, 11, 25, 27).

8-4: 1-24 odd (11, 15, 17, 19).

8-5: 1-16 odd (5, 7, 9).

10-2: 1-28 odd (13, 15, 19).

10-3: 1-33 odd (13, 15, 19).

11-2: 1-24 odd (11, 15, 21, 23).

11-3: 1-20 odd (5, 7, 13).

13-2: 1-20 odd (9, 13, 17).

13-7: 1-12 odd (5, 7, 11).

14-2: 1-12 odd (5, 7, 9, 11).

14-3: 1-12 odd (5, 7, 9, 11).

In the finite mathematics section of the book some problems are designated as to be done with a graphing calculator. You may skip these problems even when they are on this list as the calculations get too messy.

7.6: 1-40 odd (11, 13, 29, 33).

2.1: 1-48 odd (1, 3, 13, 15, 29, 31, 39, 43).

2.2: 1-70 odd (17, 19, 21, 23, 25, 27, 31, 45, 57).

2.3: 1-48 odd (1, 17, 23, 25, 27, 31, 39).

2.4: 1-52 odd (5, 15, 19, 25, 31).

2.5: 1-66 odd (1, 3, 9, 11, 15, 19, 21, 37, 39).

2.6: 1-29 odd (1, 5, 11, 13, 15, 17).

10.1: 1-42 odd (1, 3, 15, 17, 19, 29, 39 a, b, c, d).

10.2: 1-41 odd (1, 3, 5, 7, 11, 25, 41).

10.3: 1-32 odd (1, 3, 5, 11, 13, 27, 29).

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

**Academic Integrity:** The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>. In this course could result in the grade penalty of receiving an F for the course.

**Religious observances policy.** SU 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 are religious observance provided they notify their instructors before 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.

Goals: The goal of MAT 122 is to provide the student the following.

- A basic understanding of several types of the statistical process hypothesis testing.

- Some knowledge about how to find the line closest to passing through a set of points and how that line can be used.

- Familiarity with matrices and solving systems of linear equations.

- An introduction to Markov chains.

- Practical experience with statistical computer software (Minitab).