**Math 380\_1: Elementary Probability and Statistics**

**Fall 2018**

**Instructor:**

Xiuqin Bai

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(Email is the best way to contact me)

**Office Hours**

* Monday to Friday from 11:00 am to 11:50 am in Kingston 304
* By appointment (please email first)

**Class Meeting**

* Class meets in Hargreaves Hall, room 219, 10:00 am to 10:50 am, from Monday to Friday.
* Students who don’t attend on **ANY one day** of first week may be dropped from the course.

**Course Information:**

**Outline: (Topics in text chapters 1, 4 – 9, 3)**

* + Introduction
  + Collecting and summarizing data
  + Probability distributions
  + Statistical inference
  + Two Way contingency table (tentative)

**Course Materials:**

**Textbook:** Introduction to the Practice of Statistics, 8th Edition, by David S. Moore,

George P. McCabe, Bruce A. Craig**.**

**Canvas:** Lecture notes, homework and other files will be posted under Canvas. Please

check our class page regularly.

**Statistical Software:** Excel 2016 is a statistical software package required for this course.

* **Calculator:** You need just a basic calculator for the exams. The cell phone calculators are not allowed in the exams.
* **Assignments and tests:** Four exams are given during the quarter (including a two-hour comprehensive final exam). Homework problems will be assigned regularly. There will be random in-class quizzes to be turned in. Homework is due at the beginning of the class. If your homework consists of more than one page, then make sure the pages are stapled together.

In-class quizzes problems may be worked on individually or in groups, and books, notes, calculators may be used freely. For homework assignment, you can discuss with your classmates but have to finish and submit independently. Students are allowed (and encouraged) to ask me questions regarding the methods used to solve a given problem in homework and quizzes problems.

**Final Exam Schedule**

Exam Place: Hargreaves Hall 219

|  |  |  |  |
| --- | --- | --- | --- |
| **Exam** | **Date** | **Time** | **Chapters** |
| Final Exam | Wednesday, Dec 5 | 10:30 am – 12:30 pm | Comprehensive  (Chapters 1 through 9) |

**Grading:**

* Mid-term exam-1, worth 15% of course grade
* Mid-term exam-2, worth 15% of course grade
* Mid-term exam-3, worth 15% of course grade
* One comprehensive final exam, worth 25% of course grade
* Homework assignments, worth 20% of course grade
* In class quizzes, worth 10% of course grade
* Questions regarding grading must be resolved with me within 3 days after the scores are posted.

**Course Objectives:**

Students who pass this course with a 2.0 are expected to demonstrate the ability to:

1. Calculate and interpret descriptive measures of location and dispersion. Discuss the difference in the information given by the mean and the median.
2. Translate sentences that combine two or more attributes by using the words *and* and *or* into the intersection and union of events.
3. Identify independent events and mutually exclusive events when they are indicated by problem parameters, and provide a practical, lay-person's definition of these terms.
4. Determine when an experiment calls for the use of the binomial distribution.
5. Calculate binomial probabilities by hand and by using cumulative binomial probability tables.
6. Calculate probabilities associated with a non-standard normal random variable by using a standard normal probability table.
7. Set up the appropriate null and alternate hypotheses from word problems where one- or two-sided one-sample tests of population means and proportions are indicated. (The student will be able to tell which hypothesis is which and whether or not the alternative is one- or two-sided.)
8. Identify potential problems with bias and confounding when given a simple statistical design.

**Attendance and Cell phones:**

Regular attendance is expected. Routinely missing class, arriving late or leaving early may adversely affect your course grade.

Disruption will not be tolerated. This includes texting, reading a newspaper, distracting others by socializing. I expect you to be respectful to other students trying to learn who have paid to attend this course.

**Make-up Policy:**

Assignments should be turned in by their respective due dates. A grade of 0 is recorded for late assignments or missed exams and quizzes, unless there is a dire and unavoidable emergency. You have to be in class to get credits for quizzes. These

cannot be made-up. But you can drop the lowest 2 quizzes scores. It's your responsibility to notify me immediately of a missed exam.

**Tutoring Resources:**

The Math Lab in KG 337 (open 8:00am-5:00pm Monday-Thursday, 8:00am-3:00pm Friday) is a good place to work on assignments. There are textbooks, computers, and private rooms available (and of course, tutors). Also there is a list of private tutors.

**Equal Opportunity/ Affirmative Action:**

No person shall, on the basis of age, race, religion, color, gender, sexual orientation, gender identity, national origin or disability, be excluded from participation in or be denied the benefits of, or be subjected to discrimination under any program or activity of Eastern Washington University. Eastern Washington University adheres to affirmative action policies to promote diversity and equal opportunity for all faculty and students.

**Academic Integrity:**

Any question of Academic Integrity will be handled as stated in the EWU Academic

Integrity Policy. This policy can be reached via the following link:

[http://access.ewu.edu/undergraduate-studies/academic-integrity](%20%20http:/access.ewu.edu/undergraduate-studies/academic-integrity)

Violations will result in a course grade of XF.

**ADA Statement:**

Eastern Washington University is committed to providing for students with disabilities. If you are a student with physical, learning, emotional, or psychological disabilities needing an accommodation, you are encouraged to stop by Disability Support Services (DSS), TAW 124 and speak with Kevin Hills, the Manager DSS or call 509-359-6871.

If you will take the exams proctored with DSS, please bring your professor a copy of the DSS yellow proctor form for each test to be taken in DSS office.

**Critical Issues:**

EWU is dedicated to a principled campus community free from discrimination and sexual misconduct. Those related policies can be reached via the following link:

https://sites.ewu.edu/hr/complaint-reporting/critical-issues

**Grading Scale**

NET-SCORE GRADE NET-SCORE GRADE

95-100 A 4.0 C 71 2.1

94 A- 3.9 C 70 2.0

93 A- 3.8

92 A- 3.7 C- 69 1.9

91 B+ 3.6 C- 68 1.9

90 B+ 3.5 C- 67 1.8

89 B+ 3.4 C- 66 1.7

88 B+ 3.3 C- 65 1.7

87 B 3.2 D+ 64 1.6

86 B 3.1 D+ 63 1.5

85 B 3.0 D+ 62 1.5

84 B- 2.9 D+ 61 1.4

83 B- 2.9 D+ 60 1.4

82 B- 2.8 D+ 59 1.3

81 B- 2.7 D 58 1.2

80 B- 2.7 D 57 1.2

79 C+ 2.6 D 56 1.1

78 C+ 2.5 D 55 1.0

77 C+ 2.5 D 54 1.0

76 C+ 2.4 D- 53 0.9

75 C+ 2.3 D- 52 0.8

74 C+ 2.3 D- 51 0.8

73 C 2.2 D- 50 0.7

72 C 2.1 F 0-49 0.0

**Lecture Plan (subject to change)**

Week1 (Sep 19 - 21) Data Base

Display data by graphics and numbers.

Use Excel to get the graphs and numbers mentioned above.

Week 2 (Sep 24 – 28) Randomness and sample space

Probability rules

Week 3 (Oct 1 – 5) Probability rules and the applications

Probability distribution of random variables:

--Discrete r.v. -- Binomial distribution

--Continuous r.v. – Normal distribution

Week 4 (Oct 8 – 12) Random sampling and sampling distribution

-- Distribution of sample proportion

-- Distribution of sample mean

Week 5 (Oct 15 – 19) Confidence Interval of proportion and application

Week 6 (Oct 22 – 26) Confidence Interval of mean and application

Week 7 (Oct 29 – Nov 2) Hypothesis test

Week 8 (Nov 5 – Nov 9) Hypothesis test and application

Week 9 (Nov 12 – Nov 16) Hypothesis test and application (no class on Nov12 )

Week 10 (Nov 19 – Nov 20) Hypothesis test and application

Week 11 (Nov 26 – 30) Chi-square test and review