

Information Sheet For Elementary Statistics & Probability
Math10.65 / CRN 01523

Fall 2014

Instructor: Teck Ky

Day and Time: Lecture T & Th 9:00 PM-11:15 PM. Room: G5

Office Hours: See me after class or before class.

Text: Statistics: Understanding Uncertainty, (Third Edition) Frank Soler

Labs: Will be given in the Mathlab

Calculator: I recommend that you buy TI-83 or TI-84 for this course.

Topic: This course will cover selected topic from chapters 1-12, including graphical and numerical descriptive methods, probability, random variables and their distributions, sampling distributions, the central limit theorem, confidence intervals, hypothesis testing, z and t procedures, simple linear regression, one-way analysis of variance, and applications of the Chi-squared statistic.

Relationship of the course to College Mission: One aspect of the College's mission is to enable our students to realize their highest potential and to achieve their educational goals. Statistical literacy is as necessary as reading and writing literacy for competence in today's world. This class will help you foster a critical attitude towards statistical arguments, and will help provide intuition about statistics which can sometimes be lost behind the mathematical formulas. We will use the latest technology to explore and simulate data analysis. I am here to teach you and to help you to learn how to learn the contents in this course, and you need to come to class to learn these contents. To be on time for every lecture is not only a goal but also a responsibility.

Learning Outcomes: When the students finish this course, the students should be able to:

- Organize, analyze, and utilize appropriate methods to draw conclusions based on sample data by constructing and /or evaluating tables, graphs, and numerical measures of characteristics of data.
- Identify, evaluate, interpret and describe data distributions through the study of sampling distributions and probability theory.
- Collect data, interpret, compose and defend conjectures, and communicate the results of random data using statistical analyzes such as interval and point estimations, hypothesis tests, and regression analysis.

Writing Across Curriculum Part: Students will use complete sentences to explain procedures and summarize the problems from the textbook, quizzes, and computer labs.

Laboratory projects: 4 computer lab assignments will be given this quarter.

You will learn how to use the programs from the Mathlab and EXCEL programs with your assignments. Extensive EXCEL programs and the Mathlab demonstrations will be done in lecture and lab. These programs are available in S42 or S44.

Accommodation: If you have a learning or physical need that will require special accommodation, please make an appointment with our Disabled Students Program and inform me of your needs.

Reading Regularly = Understanding Class Material.

Homework: Mathematics is learned by doing problems. You can not learn mathematics just by watching me during class or asking me to solve the problems for you. Mathematics is a lot like playing an instrument or sport. Becoming proficient require practice, practice, practice. The problems from our textbook and in-class-practice problems are your opportunity to practice. Please try to maintain a constant level of effort. The problems will be assigned daily. You are expected to do all problems assigned. You may discuss homework problems with your classmates (it is encouraged!), but you must turn in your original work. Turn in all your homework problems on the day you come to take the exam. Do not fall behind. Write on one side of the paper only. Staple multiple pages together. **No late homework will be accepted.**

Quizzes: Frequent quizzes on homework will be given at the end of the class period. There will be no make-up for missed quizzes.

Exams: There will be two one-hour exams. Make-up exam will be allowed only under exceptional and justifiable circumstances, and you should be prepared to substantiate your case with some documentation. The exams will be given on **October 16** and **November 13**. The final exam will cover the entire course and will be given on Tuesday, **December 9, From 6:15 PM to 8:15 PM.**

Attendance: Seminar/discussion type course requires regular attendance, and more than two absences may result in a drop. Students absent during the first week must contact the instructor to avoid being dropped. If you absent more than two sessions without contacting me, I will drop you from this course. **But ultimate responsibility of dropping this course lies with you. The last day to drop with a "W" is Friday, March 3.**

Evaluation: Grade will be determined on the basis of total points earned. The following scale will be used.

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|----------|-----|-----------|---------|
| Homework | 30 | A | 426-450 |
| Labs | 30 | A- | 400-425 |
| Quiz | 40 | B+ | 374-399 |
| Exams | 200 | B | 348-373 |
| Final | 150 | B- | 322-347 |
| | | C+ | 297-321 |
| | | C | 272-296 |
| | | D | 247-271 |
| | | F | 000-246 |

| | Text: Statistics: A Model for Uncertainty, 3rd edition | | The following schedule is tentative, subject to change any time. |
|---------------|--|----------------|--|
| Week # | Topic | section | Problems |
| 1 | Uncertainty, Randomness & Data | 1.1 | 2 & 4; more on handout |
| | Uncertainty, Randomness & Data | 1.3 | 2 to 11 |
| | Uncertainty, Randomness & Data | 1.4 | 1 to 10 |
| | Data production and random sampling | 1.5 | 3 & 4: more on handout |
| | How are data described? | 2.2 | 1 & 4: more on handout |
| | Describing the center of data | 2.3 | 1, 2, 4, 6, 7, and 10 |
| 2 | Describing the spread of the data | 2.4 | 1, 6, 7, and 8 |
| | Chapter 2 problems | | 6, 9, 12, 13 (a to d only), and 15 |
| | Sample spaces and probability models | 3.2 | 1, 5, and 6 |
| | Conditional probability | 3.5 | 4, 6, 10: more on handout |
| | Chapter 3 problems and Lab | | 1, 2, and 3 |
| 3 | Discrete probability distribution | 4.1 | 2, 3, and 5 |
| | Expected Value | 4.2 | 2, 3, 5, 6. |
| | The binomial distribution | 4.4 | 1, 2, 3, 4, 6, 17, 19, 25 |
| | The Poisson distribution and Review for exam1 | | Will be given in class. |
| 4 | Uniform Dist. | 5.3 | 4 and 5 |
| | Exam1 and Lab | | Thursday, February 2 |
| 5 | How to apply the Normal distribution | 5.5 | 1, 2, 11, 12, 18, 20 |
| | The Central Limit Theorem & its applications | Ch. 6 | 5a, 5b, 5d, 6, |
| | Test Yourself chapter 6 | | 3, 5, 7a, 7b, 7d, 7e, 7g |
| 6 | Confidence Interval and find sample size | CP-7 | 1, 2, 3, 4, 6, 8, 9 |
| | Confidence Interval with small sample size | 9.2 | 1, 2, 6: more on handout |
| | Confidence Interval for population standard deviation | 9.5 | 2, 3, and 5a only |
| 7 | Hypothesis testing about a population mean when sigma is known | 8.1 | 2, 3, 6, 7, 11 |
| | Hypothesis testing about a population proportion | 8.1 | 12 and more in class |
| | Hypothesis testing about a population mean when sigma is unknown | 9.2 | 7 and more in class |
| | Chapter 9 problems | | 7(a, b, and e) and 9; more in class |
| 8 | Type I and Type II Errors | 8.4 | 3 and 5 |
| | Exam 2 and Lab | | Thursday, March 2 |
| 9 | Comparing two population parameters | 10.3 | 2, 3, and 5 |
| | One-Way Analysis of Variance | 11.3 | 3 and more in class |
| | Test Yourself chapter 10 | | 1, 2, 7, 8 |
| 10 | Applications of the Chi-square distribution | 11.1 | 1, 4, 5 |
| | Applications of the Chi-square distribution | 11.2 | 3, 5, and more in class |
| 11 | Simple Linear Regreesion Analysis | 12.1 | 1, 2, 3, and more in class |
| | Review for final. | | |
| 12 | Final Examination | | Thursday, March 30 |