Information Sheet for Elementary Statistics & Probability   Fall 2016
Math010.66 / CRN 01525
Instructor: Teck Ky
Day and Time: Lecture T & Th 9:00 PM-11:15 PM. Room: G5
Office Hours: T & Th 5:15 PM-6:15 PM in S43

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. The symbiotic relationship of statistics and mathematics is what we wish to exploit and enjoy with this course. This course 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 Megastat and EXCEL programs with your assignments. Extensive EXCEL programs and the Megastat 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. A lot of practice will not make you perfect, but it will earn you an A for this course. The problems from our textbook and in-class-practice problems are your opportunity to practice. It's likely to take more than one hour to solve assigned problems. Be patient and don't give up easily. When you can stance no longer, come by office hours or ask me in class. You need to discipline yourself how to deal with this kind of situation.

Read your lecture notes and textbook, if for nothing less than it being an expensive resource, it's silly to think that there exist math majors who do not read notes and books. Since you are a student, you should be reading many books and lecture notes.

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 20** and **November 17**. The final exam will cover the entire course and will be given on Thursday, **December 15**, **From 8:30 PM to 10:30 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, November 18.**

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

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

			The following schedule is tentative, subject to change any time.
	Text: <u>Statistics: A Model for Uncertainty,</u> 3rd edition		
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, October 20**
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 handour
	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, November 17**
9	Comparing two population paremeters	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, December 15**