UNIVERSITY OF CALGARY

FACULTY OF SCIENCE

Mathematics and Statistics - MS 476
Ph: (403) 220-5203

COURSE INFORMATION SHEET

FALL 2007

1. **Course:** **STATISTICS 213 – Introduction To Statistics I**
   Lecture Time: L02 MWF 10:00 – 10:50
   Instructor: Jingjing Wu
   Contact Information: (Office) MS 548
   (Phone) 220-6303
   (Email) jinwu@math.ucalgary.ca

2. **Prerequisites:** Mathematics 30 or Pure Mathematics 30 or Mathematics II (Continuing Education).
   NOTE: The Faculty of Science policy on pre- and co-requisite checking is outlined in the current University Calendar (see www.ucalgary.ca/pubs/calendar) *Faculty of Science, section 5C*. **It is the students' responsibility to ensure that they have the pre- and co-requisites for the course, and if they do not they will be withdrawn from the course without notice.**

3. **Fee policy:** After the last day to drop/add courses, there will be no refund of tuition fees if a student withdraws from a course, courses or the session.

4. **Academic Accommodations:** It is the student's responsibility to request academic accommodations. A student with a documented disability who may require academic accommodation must register with the Disability Resource Centre to be eligible for formal academic accommodation. DRC registered students are required to discuss their needs with the instructor no later than fourteen (14) days after the start of this course.

5. **The University policy on grading and related matters** is described in the current University Calendar, *Academic Standings*. In determining the overall grade in the course, the following weights will be used:

Quizzes-best 4 of 5	40%
Midterm Exam	15%
Final Exam	45%

   A passing grade on any particular component of the course is essential to passing the course as a whole. There will be a final examination scheduled by the Registrar's Office. Exams and quizzes will be closed book. There are to be no formula/aid sheets/programmable/graphing calculators used on quizzes. Basic scientific calculators are permitted on exams and quizzes.

6. **Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are outlined in the current University Calendar, *Faculty of Science, section 6A*. It is the student's responsibility to familiarize herself/himself with these regulations.

7. **Academic misconduct** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the current University Calendar. See: http://www.ucalgary.ca/honesty/

8. **There will be no out-of-class activities.**

   Textbook: "Stats: Modeling the World", by Bock, Velleman, and De Veaux.

9. **Office Hours:** Monday and Wednesday 11:00-12:00, or by prior appointment.

10. **Attendance:** It is important to attend all lectures and labs, as this course makes use of earlier material in following chapters. Your own on-class notes will be an easy and effective way to review the course.

11. **Assignments:** There will be assignments given periodically which all students will be expected to work on either individually, or with the assistance of your lab instructor. The assignments are not for credit but aimed at assisting you in your study of the course material. All the quizzes and exams will be based on the assignments and it is crucial to finish all the assigned questions.

12. **Labs:** Continuous labs will be held every week. Please check the time and location for the section you are registered. Lab sessions will be used to write quizzes, discuss the assigned problems, and demonstrate the use of statistical software MINITAB.

13. **Quizzes:** You will write each quiz in your assigned lab section. It is important that you check your registration and insure you write each quiz in your registered lab section. Students who fail to do so without prior consent from me, will not receive credit. Quizzes will be based on the assignments and will be constructed with the expectation that all problems have been attempted and are understood. Quizzes will be closed-book tests.

QUIZZES SCHEDULE

Lab Section (room)	Thursday 12:00-12:50 B05 (MS 515) and B06 (MS 521)	Wednesday 15:00-15:50 B07 (MS 515) and B08 (MS 521)
Quiz 1	Sept 20	Sept 19
Quiz 2	Oct 4	Oct 3
Quiz 3	Oct 18	Oct 17
Quiz 4	Nov 15	Nov 14
Quiz 5	Nov 29	Nov 28

14. **Midterm Exam:** The midterm exam will be written on Monday, Oct. 29th during lecture time. It will be a 50 minutes and closed book test. It is strongly recommended that you show up early.

15. **Missed Quizzes and Midterm exam:** Any student missing a quiz or midterm exam for reasons beyond the student's control will have a final grade assessed by reweighing the quizzes in which the student has completed. There will be no makeup quizzes or midterm exam. If you are absent from a quiz or midterm exam, you must submit valid medical certificates.

16. **Final Exam:** It will be a two-hour and closed-book exam. The final exam will be scheduled by the registrar later the semester.

17. **Deferred final exam:** Should extraneous circumstances warrant your application and subsequent completion of a deferred final exam in this course, you will be writing a final exam that will be made up by the Statistics 213 course coordinator. This may or may not be your 213 instructor.

18. **Formula/Aid Sheets:** Formula sheets will not be permitted on quizzes. A double-sided 8.5" x 11" formula sheet is allowed on midterm and final exam. This should be just a formula sheet and exclude definitions, generic interpretations, steps on how to do problems, etc.

19. **Final Grades:** A passing mark on the final exam (a final exam mark of more than 50%) is necessary in order to earn a letter grade of a C-. Here is a rough guideline for the breakdown of grades in Stat 213: A's:10%; B's:20%; C's:40%; D's:15%; F's:15%.

TENTATIVE COURSE SYLLABUS

Week	Chapters	Description (Number of hours/minutes)
1. Sept 10 – 14	2, 3, 4, 5, 12, 13	**Exploratory Data Analysis** (3 hours) Populations and sampling, simple random sample. Measures of location and spread: mean, median, mode, variance and standard deviation, quartiles. Grouped data, frequency histograms, shape, symmetry and skewness. The empirical rule. Graphical methods: Stem-and-leaf plots, Box-and-whisker plots.
2. Sept 17 – 21	7, 8, 9	**Exploratory Data Analysis** (Continued, 2 hours) **Regression and Correlation** (1 hour) Scatter diagrams, linear regression and correlation. Regression predictions - descriptive methods. ***QUIZ 1 ON WEDNESDAY/THURSDAY LAB SESSION*** *(50 min)*
3. Sept 24 – 28	14, 15,	**Regression and Correlation** (Continued, 1 hour) **Introduction to Probability** (2 hours) Sample spaces and random events, Venn diagrams. Permutations and combinations. Definitions of probability. Basic probability laws.
4. Oct 1– 5	15	**Introduction to Probability** (Continued, 2 hours) **Conditional Probability** (1 hour) Conditional probability, probability trees, formula for total probability and Bayes' Theorem. Independence of random events. ***QUIZ 2 ON WEDNESDAY/THURSDAY LAB SESSION*** *(50 min)*
5. Oct 8 – 12 *Oct 8 – Thanksgiving Day (No Lecture)*	15	**Conditional Probability** (Continued, 2 hours)
6. Oct 15 – 19	16	**Random Variables** (3 hours) Random variables and their distributions. Joint probability distributions and independence. ***QUIZ 3 ON WEDNESDAY/THURSDAY LAB SESSION*** *(50 min)*
7. Oct 22 – 26	17	**Discrete Distributions** (3 hours) Uniform, binomial, hypergeometric, and Poisson distributions.
8. Oct 29 – Nov 2	16, 17	***MIDTERM EXAM ON OCT 29 LECTURE TIME*** *(50 min)* **Expectations and Variances** (2 hours) Expectations, variances and covariances of random variables and their linear combinations. Application to discrete random variables.
9. Nov 5 – Nov 9	16, 17	**Expectations and Variances** (Continued, 3 hours)
10. Nov 12 – 16 *Nov 12 – Remembrance Day (No Lecture)*	4, 6, 17, 18	**Continuous Random Variables** (2 hours) Concept of continuous random variable and its distribution. Uniform and Normal distributions and their properties. Central Limit Theorem. Approximation of the binomial by the Normal distribution. ***QUIZ 4 ON WEDNESDAY/THURSDAY LAB SESSION*** *(50 min)*
11. Nov 19 – 23	4, 6, 17, 18	**Continuous Random Variables** (Continued, 3 hours)
12. Nov 26 – 30	18 19, 20, 23	**Sampling Distributions** (2 hours) Distribution of the sample mean from a Normal population. Central Limit Theorem and large sample mean distribution. Distribution of the sample proportion. **Estimation and Hypothesis Testing** (1 hour) Introduction to confidence intervals and hypothesis testing using simple examples involving means and proportions. ***QUIZ 5 ON WEDNESDAY/THURSDAY LAB SESSION*** *(50 min)*
13. Dec 3 – Dec 7	19, 20, 23	**Estimation and Hypothesis Testing** (Continued, 2 hours) **COURSE REVIEW** (1 hour)
Dec 10 – 19		***FINAL EXAM*** *(2 hours)* *(Will be scheduled by the registrar)*

LAB COMPONENT

Lab Software: MINITAB 14.

Time and Location:

Section	Time	Location
B05	Thursday 12:00-12:50	MS 515
B06	Thursday 12:00-12:50	MS 521
B07	Wednesday 15:00-15:50	MS 515
B08	Wednesday 15:00-15:50	MS 521

MINITAB Tasks: Any students completing Stat 213 should know how to use MINITAB to.

- Construct histograms with both equal and unequal class widths (density-scale).
- Draw box-plot and dot-plot.
- From either manually entered data, or data appearing in a data file, being able to find the mean, median, standard deviation, and quartiles.
- Find both point and cumulative probability of a random variable that is Binomial or Poisson distributed.
- Be able to find areas under both the Standard Normal Curve and Student's T curve.
- For a given cumulative (left-tailed) probability, find the corresponding Z or T value.

Lab work: Lab sessions will be used to write quizzes, discuss the assigned problems, and demonstrate the use of MINITAB. Detailed lab work for each session will be distributed as the course progresses.