



## COURSE OUTLINE

### Winter 2011

#### 1. STAT 211 - Concepts of Statistics

Lecture	Days	Time	Location	Instructor	Office	Phone	Email
L01	MWF	11:00 - 11:50	ST 145	M. Fenyvesi	MS 468	220-3965	<a href="mailto:fenyvesi@math.ucalgary.ca">fenyvesi@math.ucalgary.ca</a>
T01	W	13:00 - 13:50	MS 371	B. Wu	MS 354	220-3843	<a href="mailto:bewu@ucalgary.ca">bewu@ucalgary.ca</a>
T02	F	12:00 - 12:50	MS 371	L. Cole	MS 340	220-3815	<a href="mailto:ljcole@ucalgary.ca">ljcole@ucalgary.ca</a>
T03	F	12:00 - 12:50	MS 431	S. CAI	MS 332	220-8978	<a href="mailto:shcai@ucalgary.ca">shcai@ucalgary.ca</a>

**2. Prerequisites:** As stated in online University Calendar  
(see Section 3.5C of Faculty of Science [www.ucalgary.ca/pubs/calendar/current/sc-3-5.html](http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)  
and Course Descriptions: [www.ucalgary.ca/pubs/calendar/current/course-desc-main.html](http://www.ucalgary.ca/pubs/calendar/current/course-desc-main.html))

**3. Grading:** The University policy on grading and related matters is described in sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course, the following weights will be used:

<i>Quizzes</i>	[ best 4 of 5 ]	25 %
<i>Midterm Exam</i>	[ 1 ]	25 % (March 4)
<i>Final Exam</i>		50 % (To be scheduled by the Registrar)

The various components above will be assigned a percentage score and will be combined with the indicated weights to produce an overall percentage in the course. The conversion table between course percentage and letter grade will be provided at least one week before the withdrawal deadline.

A passing grade on the 75% of the course assigned to the exams is essential to passing the course as a whole. There will be a final examination scheduled by the Registrar's Office. The use of aids such as open book, formula sheet etc is not permitted. Calculators are permitted for arithmetic calculations only. Tables will be provided.

Students should also read the Calendar, Section G, on Examinations:  
[www.ucalgary.ca/pubs/calendar/current/g.html](http://www.ucalgary.ca/pubs/calendar/current/g.html)

**4. Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6:  
[www.ucalgary.ca/pubs/calendar/current/sc-3-6.htm](http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.htm). It is the student's responsibility to be familiar with these regulations. See also [www.ucalgary.ca/pubs/calendar/current/e-3.html](http://www.ucalgary.ca/pubs/calendar/current/e-3.html).

**5. Textbook:** Statistics by Freedman et al, published by Norton, 4<sup>th</sup> edition.

**6. OTHER IMPORTANT INFORMATION FOR STUDENTS:**

- (a) **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 University Calendar under K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) to inform yourself of definitions, processes and penalties
- (b) **ASSEMBLY POINTS in case of emergency during class time. Be sure to FAMILIARIZE YOURSELF with the information at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.**
- (c) **ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links:  
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>  
Disability Resource Centre: <http://www.ucalgary.ca/drc/>
- (d) **SAFEWALK:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **FREEDOM OF INFORMATION AND PRIVACY:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). As one consequence, **students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.** For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **STUDENT UNION INFORMATION:** VP Academic **Phone:** 220-3911 **Email:** [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).  
SU Faculty Rep. **Phone:** 220-3913 **Email:** [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca) **Website**  
[www.su.ucalgary.ca/home/contact.html](http://www.su.ucalgary.ca/home/contact.html).  
Student Ombudsman: <http://www.su.ucalgary.ca/services/student-services/student-rights.html>
- (g) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

### 7. Academic Schedule

Jan. 10	Monday	Lectures begin.
Jan. 21	Friday	Last day to drop full courses and Fall term half courses.
Jan. 24	Monday	Last day to add or swap full courses and Fall term half courses.
Feb. 20 - 27	Sunday - Sunday	Reading Week – No lectures
Feb. 21	Monday	Alberta Family Day, University closed.
Mar. 4	Friday	<b>Midterm examination.</b>
April 15	Friday	Last day of lectures.
April 18-29	Monday - Friday	Final Examinations Period (except April 22, Good Friday)
April 22	Friday	Good Friday – University closed. No final exams.

### 8. Quiz Schedule

Jan. 26/28	Wednesday/Friday	Quiz 1
Feb. 9/11	Wednesday/Friday	Quiz 2
Mar. 9/11	Wednesday/Friday	Quiz 3
Mar. 23/25	Wednesday/Friday	Quiz 4
April 6/8	Wednesday/Friday	Quiz 5

### 9. Course Content

Part I.	Design of Experiments Chapter 1.                      Controlled Experiments Chapter 2.                      Observational Studies	
Part II.	Descriptive Statistics Chapters 3-6.	Histogram, Averages, Standard Deviation, Normal, Measurement Error.
Part IV.	Probability Chapters 13-15.	Chance, Binomial
Part V.	Chance Variability Chapters 16-18.	The Law of Averages, Expected Value, Normal Approximation to Probability Histograms.
Part VI.	Sampling Chapters 19-21, 23.	Sample Surveys, Chance Error in Sampling, The Accuracy of Percentages and Averages.
Part VII.	Chance Models Chapter 24.	Model for Measurement Error
Part VIII.	Test of Significance Chapters 26, 27 (sections 1 & 2), 28, 29.	Tests of Significance, including the t-Test, Chi-square Test
Part III.	Correlation and Regression Chapters 8, 9, 10 (sections 1-4).	

### 10. Attendance

It is important to attend all lectures and tutorials, as this course, like other mathematics and statistics courses, makes use of earlier material in following chapters. Do not fall behind in this class.

## 11. Support Materials

On non-quiz tutorials, worksheets will be handed out with problems to work on during the tutorial period. The text has solutions to exercises, except for the Review Exercises and the Special Review Exercises. Solutions to most of these are available for purchase from the Bound and Copied in McEwen Centre.

## 12. Other Help

I will be available during office hours (M 13:00 - 14:00 & W 13:00 - 14:00) or you may make an appointment, if you prefer, or just drop by my office.

## 13. Nature of the Course

There are some mathematical aspects to this course, but the emphasis will not be on proofs and memorization of formulas. Rather, the emphasis will be on understanding concepts and real life applications, the models that underlie statistical inference and thinking about statistical issues. Examples show how statistics has been used to help solve problems in many fields.

## 14. Exercises for “Statistics”, Fourth Edition, by Freedman, Pisani and Purves

<b>Read Chapters 1 &amp; 2</b>	Exercise Set A, page 20	#1 - 7, 9, 10, 13, 14
	<b>Review Exercise</b> , page 24	#1, 3 - 5, 9, 10
<b>Read Chapter 3</b>	Exercise Set A, page 33	#1 – 4, 7, 8
	Exercise Set B, page 38	#1, 2
	Exercise Set C, page 41	#1, 2, 4
	Exercise Set D, page 44	#1
	Exercise Set E, page 46	#1
	<b>Review Exercise</b> , page 50	#2, 4, 5, 7, 9
<b>Read Chapter 4</b>	Exercise Set A, page 60	#2, 4 - 6, 8
	Exercise Set B, page 65	#1 – 5
	Exercise Set C, page 67	#2, 3, 5
	Exercise Set D, page 70	#3 - 6, 8
	Exercise Set E, page 72	#1, 3 - 5, 8, 11, 12
	<b>Review Exercise</b> , page 74	#4, 6 9
<b>Read Chapter 5</b>	Exercise Set A, page 82	#2
	Exercise Set B, page 84	#1, 4
	Exercise Set C, page 88	#2
	Exercise Set D, page 89	#5
	Exercise Set E, page 92	#1, 2
	<b>Review Exercise</b> , page 93	#1, 2, 4, 5, 8, 9, 11
<b>Read Chapter 6</b>	<b>Review Exercise</b> , page 104	#3, 4
	<b>Special Review Exercises</b> , page 105	#2, 3, 6, 9, 10
<b>Read Chapter 13</b>	Exercise Set A, page 225	#1 - 3, 5
	Exercise Set B, page 227	#1 – 4
	Exercise Set C, page 229	#1 - 4, 7
	Exercise Set D, page 232	#1, 3, 5
	<b>Review Exercise</b> , page 234	#2, 3, 5 - 7, 12
<b>Read Chapter 14</b>	Exercise Set A, page 240	#3, 4
	Exercise Set B, page 242	#2 – 6
	Exercise Set C, page 246	#1 – 5
	Exercise Set D, page 250	#3 – 5
	<b>Review Exercise</b> , page 252	#3 - 8, 12

<b>Read Chapter 15</b>	Exercise Set A, page 258	#3 – 5
	<b>Review Exercise</b> , page 261	#2, 4, 9, 10
<b>Read Chapter 16</b>	Exercise Set A, page 277	#1 – 7
	Exercise Set B, page 280	#2, 4, 6
	Exercise Set C, page 284	#1, 2
	<b>Review Exercise</b> , page 285	#1 - 7
<b>Read Chapter 17</b>	Exercise Set A, page 290	#1, 3, 4
	Exercise Set B, page 293	#1, 3, 4, 6
	Exercise Set C, page 296	#3 – 6
	Exercise Set D, page 299	#3
	Exercise Set E, page 303	#2, 5, 7
<b>Review Exercise</b> , page 304	#2, 4, 5, 11, 13	
<b>Read Chapter 18</b>	Exercise Set A, page 312	#2, 3, 5
	Exercise Set B, page 318	#2, 3, 6
	Exercise Set C, page 324	#2, 5, 6
	<b>Review Exercise</b> , page 327	#2, 4, 9, 11
<b>Read Chapter 19</b>	Exercise Set A, page 349	#4, 5, 8, 12
	<b>Review Exercise</b> , page 351	#2, 5, 9
<b>Read Chapter 20</b>	Exercise Set A, page 361	#2, 4
	Exercise Set B, page 366	#1, 2, 4
	Exercise Set C, page 370	#1, 2, 3
	<b>Review Exercise</b> , page 371	#3, 6, 7, 12
<b>Read Chapter 21</b>	Exercise Set A, page 379	#4, 7, 8
	Exercise Set B, page 383	#2, 3
	Exercise Set C, page 386	#4 – 7
	Exercise Set D, page 388	#2
	Exercise Set E, page 390	#2
<b>Review Exercise</b> , page 391	#2, 5, 7, 10	
<b>Read Chapter 23</b>	Exercise Set A, page 413	#4, 5, 9
	Exercise Set B, page 420	#2, 4, 5, 7
	Exercise Set C, page 423	#2, 3, 6
	Exercise Set D, page 424	#1, 2, 6
	<b>Review Exercise</b> , page 425	#1 - 5
<b>Special Review Exercises</b> , page 428	#1, 5, 6, 13, 18, 20, 26, 30	
<b>Read Chapter 24</b>	Exercise Set A, page 444	#3, 4
	Exercise Set B, page 449	#2, 5
	Exercise Set C, page 452	#1, 4, 7
	<b>Review Exercise</b> , page 455	#1, 2, 9
<b>Read Chapter 26</b>	Exercise Set A, page 476	#2 - 5
	Exercise Set B, page 478	#5
	Exercise Set C, page 481	#1, 2, 4
	Exercise Set D, page 482	#1, 2, 3
	Exercise Set E, page 486	#7 – 9
	Exercise Set F, page 494	#4 – 7
<b>Review Exercise</b> , page 495	#2, 5, 6, 8, 9	
<b>Read Chapter 27 - Sections 1 &amp; 2</b>	Exercise Set A, page 503	#6
	Exercise Set B, page 506	#2

<b>Read Chapter 28</b>	Exercise Set A, page 531	#3 - 6	
	Exercise Set C, page 539	#2, 3	
	<b>Review Exercise</b> , page 540	#2, 3, 7	
<b>Read Chapter 8</b>	Exercise Set A, page 122	#5, 6	
	Exercise Set B, page 128	#1, 7, 8	
	Exercise Set C, page 131	#3	
	Exercise Set D, page 134	#1 (a)	
	<b>Review Exercise</b> , page 134	#1, 4, 5, 7	
<b>Read Chapter 9</b>	Exercise Set A, page 143	#2 - 5, 7	
	Exercise Set B, page 145	#3	
	Exercise Set C, page 148	#1	
	Exercise Set D, page 149	#2	
	Exercise Set E, page 152	#3	
	<b>Review Exercise</b> , page 153	#2, 4, 7, 8	
<b>Read Chapter 10 Sections 1 – 4</b>	Exercise Set A, page 161	#2, 3, 4	
	Exercise Set B, page 163	#1	
	Exercise Set C, page 167	#1, 2	
	Exercise Set D, page 174	#1, 2, 3	
	<b>Review Exercise</b> , page 176	#2, 4(a), 5, 7	