



COURSE OUTLINE

1. **Course:** STAT 213, Introduction to Statistics I - Fall 2020

Lecture 01: MWF 09:00 - 09:50 - Online

Instructor	Email	Phone	Office	Hours
Scott Robison	sarobiso@ucalgary.ca	N/A	MY BASEMENT...	Will be conducted through Course Discussion Boards

Lecture 02: MWF 08:00 - 08:50 - Online

Instructor	Email	Phone	Office	Hours
Dr. Thuntida Ngamkham	thuntida.ngamkham@ucalgary.ca	TBA	VIA ZOOM	Tue/Thu 1:30 pm - 2:30 pm, Wed 2 pm-3 pm

Lecture 03: TR 09:30 - 10:45 - Online

Instructor	Email	Phone	Office	Hours
Dr. Sang Kang	sangjin.kang@ucalgary.ca	N/A	VIA ZOOM	ACSC 325, ACSC 425: After Zoom meeting on respective days / STAT 213: 9:30 am-11:00 am on Tuesday and Thursday

Lecture 04: TR 12:30 - 13:45 - Online

Instructor	Email	Phone	Office	Hours
Dr Xiaoming Lu	TBA	TBA	TBA	TBA

Lecture 05: MWF 14:00 - 14:50 - Online

Instructor	Email	Phone	Office	Hours
Dr. Thuntida Ngamkham	thuntida.ngamkham@ucalgary.ca	TBA	VIA ZOOM	Tue/Thu 1:30 pm - 2:30 pm, Wed 2 pm-3 pm

Coordinator(s)

Name	Email	Phone	Office	Hours
Scott Robison	sarobiso@ucalgary.ca	N/A	MY BASEMENT...	Will be conducted through Course Discussion Boards

Online Delivery Details:

Some aspects of this course are being offered in real-time via scheduled meeting times. For those aspects you are required to be online at the same time.

Course Materials including: readings, notebooks, videos, and R-Studio software code etc. will be posted via the D2L course website. Although, students are not required to be online simultaneously (synchronously) it will be required that students view/complete all scheduled course components on the same day that they are assigned (reference the D2L calendar for details).

Asking Questions: many students will have additional questions, especially regarding assignment problems or course content. These questions should be asked on the relevant **Discussion Boards** on D2L, where Instructors, TA's, and peers can contribute and curate answer(s) to these questions centralizing, reducing duplication, and improving answer consistency.

Conversations of a personal or private nature may be conducted through email, and we will make every effort to respond in a timely manner within one working day. We ask for your patience, professionalism, and respect during communication.

Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional code of conduct and promote academic integrity in upholding the University of Calgary's reputation of excellence.

Course Site:

Note: Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Mathematics 30-1 or Mathematics 2 (offered by Continuing Education).

Antirequisite(s):

Credit for Statistics 213 and either Statistics 205 or 327 will not be allowed. Not available to students who have previous credit for one of Statistics 321 or Engineering 319 or are concurrently enrolled in Statistics 321 or Engineering 319.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
Assignments (7) (Assignment scores will be taken out of 95%; meaning that scores $\geq 95\%$ will be recorded as 100%; eg. 57% will be recorded as $57/95=60\%$, this is to account for any assignment rounding errors. No further rounding adjustments will be made.)	25%	Assignment 1: Week 4, Oct. 4 Assignment 2: Week 5, Oct. 11 Assignment 3: Week 8, Nov. 1 Assignment 4: Week 10, Nov. 22 Assignment 5: Week 12, Dec. 6 Assignment 6: Week 11, Nov. 29 Assignment 7: Week 12, Dec. 6
Lab exercises (*best 6 of 8 will count)	10%	**written weekly (starting Sep. 22) via webwork (24 hour given to complete an expected 25 min. assessment)
Lab Quizzes (*best 6 of 8 will count)	15%	**written weekly (starting Sep. 22) via webwork (24 hour given to complete an expected 25 min. assessment)
Term Exams (3)	40% (divided in 3)	***written via webwork (24 hour given to complete an expected ~50-100 min assessment) Test 1: Week 5, Oct. 14 Test 2: Week 8, Nov. 4 Test 3: Week 12, Dec. 9

*If a Quiz(zes) or Lab Exercise(s) is/are missing they will count as the assessment(s) that do not count. If more than 2 (respectively) are unaccounted for, scores of 0% will be inputted in as the assessment(s) that do count.

**The Quizzes and Lab Exercises will be available the whole registered lab calendar 24hr. day (eg. the start of a Tuesday 12:00am till the end of a Tuesday 11:59pm, if you have labs scheduled on Tuesdays). Your Quiz/Lab day will be determined as the day of your registered lab (not lecture, BXX not LXX).

***If these dates cannot work for you please arrange (sarobiso@ucalgary.ca) an alternate time to write these exams prior (at least one week) to the date(s) in question. Of course, valid reasons will be accommodated, however, simple matters of preference will not be accommodated.

Flex	10%	2/3 of the 10%; (6.66%) from the best of the 3 Term tests 1/3 of the 10%; (3.33%) from the second best Term test
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Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	54.99 %	50 %

Any course components that are **late or missing will be given a score of 0%**.

The grade will be calculated as stipulated above, any/all requests to have **alternate grade weighting or assignments will be denied**.

4. **Missed Components Of Term Work:**

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, then the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course.

It is **your** job to communicate clearly with your instructor **before** (if possible) or **directly after (<48 hours) crisis or extenuating circumstance has occurred**. Simply missing or not being aware of time (time zones) is not a valid justification. This includes: any **course conflicts** or **work schedules** etc.

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

This term we will not adopt any textbook. Please review the posted and provided uploaded D2L content. **Readings, notebooks, videos, and R-Studio software code etc. will be posted via the D2L course website.**

Any material that is posted on the D2L website is under copyright protection, students are not permitted to redistribute any of the material they find there to anyone not in this semester's class.

Any material that is posted on D2L is subject to be taken down within two weeks of the posted date, so do not use D2L as your digital storage space. Do not expect that you will have access to the D2L page beyond the End of Classes date (Dec. 9, 2020). Download any material you would like to your personal devices before they are removed from the website.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

7. **Examination Policy:**

Exams are to be written via Webwork, only one submission per assessment will be permitted.

Students should also read the Calendar, [Section G](#), on Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (syva@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208). The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>)
- d. **Misconduct:** 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 [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Mathematics & Statistics, Mark Bauer by email bauerm@ucalgary.ca or phone [403-220-4189](tel:403-220-4189). Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP). 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 [Legal Services](#) website.
- g. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](#) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](#) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: ombuds@ucalgary.ca.
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

Course Outcomes:

- Identify the population of interest, or the target population. Differentiate between the population and the sample; differentiate between a parameter and a statistic.
- Make the distinction between a quantitative and qualitative variable. Explain the three different properties of any population variable: the distribution shape, the center of the distribution, and the spread of the distribution. Construct various graphical techniques to make conclusions of the shape of the underlying distribution, the different measures of center and dispersion. Compare the concepts of percentiles and quartiles, and what they mean with regards to the population of interest.
- Compute the probabilities of simple and compound events. Give examples of the concepts of mutually exclusive events, independent events, and conditional events. Illustrate how an event can be transformed into a real number through the use of random variables; show that a random variable has a distribution, with a measure of center and a measure of dispersion.
- Compute the expected value, the variance and the standard deviation of a generic discrete and continuous random variable. Compute the expected total and its standard deviation of a linear function of certain random variables.
- Illustrate that certain random events can be described by probability models. Differentiate between the probability models (the Binomial, Poisson, Uniform /Exponential, Hypergeometric and Normal distributions) and apply each to find probabilities. Find a percentile under the Normal distribution. A knowledge of each distribution -shape, measure of center, and measure of dispersion -is also expected.
- Describe the Central Limit and apply to both the sample mean and sample proportion to determine how likely they are to fall within a given range of values
- Take a bivariate data set and (i) determine the strength of a linear relationship between the two variables of interest based on a scatter plot and the correlation coefficient, (ii) build a simple linear regression line and interpret the meaning of the slope and intercept parameter estimates, (iii) outline and check assumptions behind the simple linear model, and (iv) find the coefficient of determination and explain its meaning.
- Construct and interpret the confidence interval for a population mean and a population proportion. Confidence interval estimation of the population mean will emphasize the use of the Student's T -distribution.
- Compute the required sample size for a given confidence level and tolerable amount of sampling error when the statistical investigation involves estimation of either a population mean or a population proportion.
- Execute statistical hypothesis testing for a population mean and a population proportion. This includes (i) set up the statistical null and alternative hypotheses (ii) identify the appropriate version of the test statistic and compute the value of this test statistic, (iii) state the rejection region, calculate the P -value, (iv) tell whether the data supports the null hypothesis or not, and (v) interpret the meaning of the P -value in the context of the data. That is, describe the event that the P -value finds the probability of

Electronically Approved - Sep 04 2020 10:37

Department Approval

Electronically Approved - Sep 05 2020 12:44

Associate Dean's Approval