



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF MATHEMATICS & STATISTICS  
COURSE OUTLINE

1. **Course:** STAT 213, Introduction To Statistics I -- Winter 2018

*Lecture 01:* (MWF, 09:00-09:50 in ICT102)

Instructor Name	Email	Phone	Office	Hours
Kris Vasudevan	vasudeva@ucalgary.ca	403-220-3937	TBA	TBA
<i>Lecture 02:</i> (MWF, 15:00-15:50 in ST143)				
Bingrui (Cindy) Sun	cindy.bsun@ucalgary.ca	403-210-8473	MS 544	MWF 10-11am
<i>Lecture 03:</i> (TR, 11:00-12:15 in ST145)				
Gyanendra Pokharel	gyanendra.pokharel@ucalgary.ca	403-220-3936	TBA	TBA
<i>Lecture 04:</i> (MWF, 14:00-14:50 in ST145)				
Scott Robison	Sarobiso@UCalgary.ca	403-220-7346	MS590	TBA

*Course Site:*

D2L: STAT 213 L01-(Winter 2018)-Introduction To Statistics I

Department of Mathematics & Statistics: MS 476, 403 220-5210,

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

2. **Prerequisites:**

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

Mathematics 30-1 or Pure Mathematics 30 or Mathematics II (offered by Continuing Education). Credit for Statistics 213 and any one of Statistics 205, Statistics 327, Political Science 399, Psychology 312, or Sociology 311 will not be allowed. Not available to students who have previous credit for one of Mathematics 321, 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 %
Assignments (8)	10% (WeBWork)
Midterm Exams (2)	35%
Lab Quizzes (6-10)	10%
Final Examination	45% - to be scheduled by the Registrar

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.

**\*\*Bear in mind that a grade of D or below will result**

The conversion between a percentage grade and letter grade is as follows; **if the student gets less than 50% on the Final Exam.**

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

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](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.3](#) of the University Calendar

#### 5. **Scheduled out-of-class activities:**

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

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

#### 6. **Course Materials:**

#### 7. **Examination Policy:**

No aids are allowed on tests or examinations

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 those reports. See also Section [E.2](#) of the University Calendar.

#### 10. **Human studies statement:**

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

#### 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.

1. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 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 immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. See sections [I.1](#) and [I.2](#) of the University Calendar

2. **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. **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.**

b. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).

c. **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-accomodations-for-students-with-disabilities\\_0.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, Jim Stallard by email [jbstall@ucalgary.ca](mailto:jbstall@ucalgary.ca) or phone 403-220-3953. 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: <http://www.ucalgary.ca/pubs/calendar/current/e-4.html>

- d. **Safewalk:** Campus Security will escort individuals day or night ([www.ucalgary.ca/security/safewalk/](http://www.ucalgary.ca/security/safewalk/)). Call [403-220-5333](tel:403-220-5333) 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). 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 [www.ucalgary.ca/legalservices/foip](http://www.ucalgary.ca/legalservices/foip).
- f. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: [suvcaca@ucalgary.ca](mailto:suvcaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). Student Ombudsman, Email: [suvcaca@ucalgary.ca](mailto:suvcaca@ucalgary.ca).
- g. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- 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. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).

**Department Approval:**

Electronically Approved

**Date:** 2017-12-22 11:15

# Course Outcomes

1. Identify the population of interest, or the target population. Differentiate between the population and the sample; differentiate between a parameter and a statistic.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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