UNIVERSITY OF CALGARY
FACULTY OF SCIENCE

Department of Mathematics & Statistics
MS 476
403 220-5210
math@ucalgary.ca

COURSE OUTLINE

1. **Course:** STAT 217, Introduction to Statistics II - Winter 2022

Lecture 01 : MWF 09:00 - 09:50 in ST 140

Instructor	Email	Phone	Office	Hours
Dr. Sang Kang	sangjin.kang@ucalgary.ca	403 210-8697	MS 364/VIA ZOOM	STAT 205: 3:00 pm~4:30 pm (Mon, Fri) / STAT 217: 3:00 pm~4:30 pm (Tue, Thu)

Lecture 02 : TR 09:30 - 10:45 in KNB 132

Instructor	Email	Phone	Office	Hours
Dr Alexander De Leon	adeleon@ucalgary.ca	403 220-6782	MS 588	TBA

Lecture 03 : TR 12:30 - 13:45 in KNB 132

Instructor	Email	Phone	Office	Hours
Associate Professor Ayse Sezer	adsezer@ucalgary.ca	403 284-2918	MS 532	Wednesday 10:00 am -11:00 am

To account for any necessary transition to remote learning in the winter 2022 semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

In Person Delivery Details:

The following features are applied for students in LEC 01:

- In-person lectures are held on Monday, Wednesday, and Friday.
- Students are free to join either in the classroom or in Zoom.
- The recording through Zoom is at work simultaneously.
- In most cases, TopHat questions are assigned asynchronously.
- But some TopHat questions are assessed lively during the in-person class meeting.

The following features are applied for students in LECT 02 and LEC 03:

- The course follows a flipped course design.
- Video lessons are posted, and students can watch these at their own time. There are Top-Hat questions associated to the video lessons. Students are given a week to complete the Top-Hat assignments.
- In the classroom, students will collaborate on the Webwork assignments, Top-Hat questions and/or any other practice work provided, and participate in discussions in the guidance of the instructor.
- Prior to labs. a written tutorial and a video demo on lab problems are posted. In the labs, students will work on lab problems in the guidance of the TAs. There are Top-Hat questions associated with the labs for which students are given a week to complete.

Re-Entry Protocol for Labs and Classrooms:

To limit the spread of COVID-19 on campus, the University of Calgary has implemented safety measures to ensure the campus is a safe and welcoming space for students, faculty and staff. The most current safety information for campus can be found here. **Online Delivery Details:**

This course does not follow a scheduled meeting pattern.

This course has a registrar scheduled, asynchronous final exam. The writing time is 2 hours + 50% buffer time, but the exam can be written any time in a 24-hour window.

- Some features of online learning components are included in LEC 02 and LEC 03. Refer to 'the features applied for students in LEC 02 and LEC 03'.
- Mid-term exam and final exam is held through D2L Quizzes.

Course Site:

D2L: STAT 217 L01-(Winter 2022)-Introduction to Statistics II

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

Equity Diversity & Inclusion:

The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

2. **Requisites:**

See section 3.5.C in the Faculty of Science section of the online Calendar.

Prerequisite(s):
Statistics 213.

Antirequisite(s):
Credit for Statistics 217 and either Statistics 205 or 327 will not be allowed. Not available to students who have previous credit for one of Statistics 321, Engineering 319 or Digital Engineering 319 or are concurrently enrolled in Statistics 321, Engineering 319 or Digital 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:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
Assignments[1]	20%	Ongoing		
TopHat	3%	Ongoing		
Lab exam[2]	13%	Ongoing		
Flexible grading[3]	9%	Ongoing		
Mid-term exam[4]	22%	Mar 08 2021 at 12:00 am (75 Minutes)	online	D2L Quizzes
Registrar Scheduled Final Exam	33%	Will be available when the final exam schedule is released by the Registrar	online	Will be available when the final exam schedule is released by the Registrar

[1] The tentative deadline: Jan 30, Feb 13, Mar 6, Mar 20, Apr 3, and Apr 12

[2] Held by each of assigned lab session in-person on March 29, 31, and April 1. A hand written, 8 by 11, one sided cheat sheet for the lab exam is allowed.

[3] Out of mid-term exam, lab exam, and final exam, the highest of three adds 6% of the weight. The second highest of three adds 3% of the weight.

[4] The available windows for mid-term exam is for 24 hours. However, once students access the exam, 75 minutes of the exam time will be given.

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	93 %	88 %	83 %	78%	73%	68 %	63 %	60%	58%	48 %	43 %

This course will have a Registrar Scheduled Final exam that will be delivered on-line. The Final Examination Schedule will be published by the Registrar's Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 2 hours.

Per section G.5 of the online Academic Calendar, timed final exams administered using an on-line platform, such as D2L, will be available on the platform. Due to the scheduling of the final exams, the additional time will be

added to **the end** of the registrar scheduled **synchronous** exam to support students. This way, your exam schedule accurately reflects the **start time** of the exam for any **synchronous** exams. E.g. If a **synchronous** exam is designed for 2 hours and the final exam is scheduled from 9-11am in your student centre, the additional time will be added to the **end** time of the **synchronous** exam. This means that if the exam has a 1 hour buffer time, a synchronous exam would start at 9 am and finish at 12pm.

- the latest you should start an asynchronous exam would be 8 am in order to be able to submit the exam at 11am and have the full 3 hours.

The University of Calgary offers a flexible grade option, Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade

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, one possible arrangement is that the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course. This option is at the discretion of the coordinator and may not be a viable option based on the design of this course.

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

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

6. **Course Materials:**

Recommended Textbook(s):

> James McClave and Terry T Sincich, "*Statistics*", *13th Edition, with Custom Chapter MyStatLab & Minitab RVP*. Pearson.

Statistical software **R** should be used.

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:**

Open book and notes are allowed for online exams. Lab exam is closed book. Communication to other individuals during the exams is not allowed.

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 Services:** For more information, see www.ucalgary.ca/wellnesscentre or call 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 (svsa@ucalgary.ca) or phone at 403-220-2208. The complete University of Calgary policy on sexual violence can be viewed at (https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Sexual-and-Gender-Based-Violence-Policy.pdf)

    d. **Misconduct:** 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. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

        Student Handbook on Academic Integrity
        Student Academic Misconduct Policy and Procedure
        Research Integrity Policy

        Additional information is available on the Student Success Centre Academic Integrity page

    e. **Academic Accommodation Policy:**

        It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf

        Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-

for-Students-with-Disabilities-Procedure.pdf.

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the Request for Academic Accommodation Form and sending it to Mark Bauer by email bauerm@ucalgary.ca preferably 10 business days before the due date of an assessment or scheduled absence.

f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). 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:

- Conduct appropriate parametric and/or non-parametric single and multiple population comparisons (for both qualitative and quantitative data types), applying confidence interval estimation and hypothesis testing. Verify the necessary conditions of: the Normality, the equality of variance, and the dependence of the data structure(s)
- Recognize and distinguish between Type I and Type II errors that accompany statistical hypothesis testing. Displaying the ability to calculate the probabilities associated with these errors, for both single population proportions and large sample sized population means
- Evaluate the correlation between bivariate data for two qualitative variables
- Determine the 'Goodness-of-Fit' of an empirical data set to the well-known probability models: Binomial, Poisson, as well as any specified well-defined model.
- Model and verify the statistical significance of the model relating two quantitative variables (least- squares estimation). Demonstrate awareness of the conditions of the linear model and validate that these conditions are met through various techniques. Produce confidence interval estimation of both the mean and an individual value of the response variable
- Display and interpret the least-squares-estimate for Multiple Linear Regression. To defend, model, and verify the statistical significance of the regression equation's estimate from two or more quantitative and/or qualitative independent variables.
- Conduct population parameter comparisons between three or more quantitative variables through the employment of the balanced: One-Way-ANOVA/Post Hoc inference (Tukey's HSD), Two- Way-ANOVA (including repetition), and with selected Non-parametric counterparts.
- Demonstrate how to use critical thinking, formulae, and statistical software to provide solutions for both theoretical and practical applications of course material.

Electronically Approved - Jan 06 2022 17:17

Department Approval

Electronically Approved - Jan 10 2022 10:15

Associate Dean's Approval