



**COURSE OUTLINE**

1. **Course:** STAT 321, Introduction to Probability - Fall 2019

Lecture 01: MWF 10:00 - 10:50 in EEEL 161

Instructor	Email	Phone	Office	Hours
Scott Robison	Sarobiso@UCalgary.ca	403 220-7346	MS 590	M 11:15am-1pm @ MS522 W 12:00-2:00pm @ MS522

**Course Site:**

D2L: STAT 321 L01-(Fall 2019)-Introduction to Probability

**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 267 or 277.

**Antirequisite(s):**

Credit for Statistics 321 and Engineering 319 will not be allowed.

**Note(s):**

- a. Statistics 205, 213, 217, and 327 are 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. Also known as: (formerly Mathematics 321)

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
Quizzes	50% (Highest marked quiz will count for 20%, the next three highest quiz marks will evenly split the remaining 30%, the lowest quiz will not count towards your grade)	written during regular scheduled lab time
		Quiz 1, Oct. 3
		Quiz 2, Oct. 17
		Quiz 3, Oct. 31
		Quiz 4, Nov. 21
Final Examination	50%	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.

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

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

This course has a registrar scheduled final exam.

#### **Supplemental Information or Grade Limiting Statement(s):**

1. A student **must** have at least **three marked, non-zero, quizzes** to receive a final grade higher than F. Meaning, you can only be granted two excused absences.
  - The first excused absence will become your lowest quiz mark, and therefore not count toward your grade.
  - The second excused absence will be recorded as a **zero** in your grade book, but will not result in an automatic failure of the course.
  - **Any** unexcused absences will result in an automatic final grade of F.
2. A passing mark on the final exam, at least 50%, is required to earn a minimum final grade of C-. For example, if your grade going into the final exam is a 93% but you fail the final exam the best grade you can achieve is D+

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

In the event that a student misses the midterm or any course work due to illness, supporting documentation, such as a medical note or a statutory declaration will be required (see [Section M.1](#); for more information regarding the use of statutory declaration/medical notes, see [FAQ](#)). Absences must be reported within 48 hrs.

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 themselves with these regulations. See also [Section E.3](#) of the University Calendar.

A *physical copy* of the statutory declaration, doctors note etc. must be provided to me within 72 hours of the quiz. You may drop this documentation at the undergraduate math office (MS476) and ask them to put it in my mailbox, or slip the documents under my door MS590.

**Note:** Just because you submit documentation does not mean it will be approved as an excused absence.

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

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

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

Required Textbook(s):

WACKERLY, DENNIS, MENDENHALL, WILLIAM, SCHEAFFER, RICHARD L., *MATHEMATICAL STATISTICS WITH APPLICATIONS 7E*: DUXBURY PR.

Course Notes may be downloaded from D2L course web page.

Note: course notes will only be available for download for 14 days after they are discussed in class. The D2L website will be taken down the day before the final exam and will not be reposted.

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

Non-programmable/non-graphing calculators and R or R Studio are allowed in your quizzes. Formula sheets are not permitted on your quizzes or final exam.

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 **10 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 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
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

### In-term Grade Appeal Process

If you would like to have a quiz re-graded you will have to submit the original copy of the assignment to be re-graded along with a document explaining what questions are affected and the reason for a re-grade. If this is not done or the reason given is not appropriate no re-grade will be given.

In the event your re-assessment is accepted there is no timetable for its completion, other than the end of term. You may want to make a copy of your assessment before handing the original in as you may not be given it back.

## 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:** 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).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. 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](mailto:svsa@ucalgary.ca)) or phone at [403-220-2208](tel:403-220-2208).
- 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. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **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, 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. See [Section E.4](#) of the University Calendar.

- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). 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.
- h. **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.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@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: [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca).
- j. **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.
- k. **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.
- l. **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:

- Define a random experiment; conceptualize its sample space and the various events the random experiment could produce.
- Apply various laws of probability to solve probability problems that are framed in both theoretical and applied contexts
- Read, replicate, and create mathematical proofs of probability theorems covered in the course
- Recognition of quantification of random events through the creation of a random variable ; employment of probability foundations to design a probability model of a random variable
- Differentiation between discrete and continuous random variables, analysis of the random variable' s properties through an examination of its distribution shape, its measure of centre (mean/expected value), and its measure of spread (variance or standard deviation)
- Derivation of a moment generation function and subsequent employment of calculus methods to compute the moments of a random variable.
- Differentiate between when to apply the various probability models covered in the course (Bernoulli, Binomial, Negative Binomial, Geometric, Hypergeometric, Poisson, Normal, Gamma and its special cases (Chi -square and Exponential)). In addition, demonstrate application of such probability models to compute probabilities
- Recognize the synergies between two random variables through the visualization of their joint probability distribution function and its employment to compute simultaneous probabilities and derive conditional distribution functions
- Distinguish between dependence and independence of a pair of random variables and compute the covariance between the random variables.
- Statement and application of the Central Limit Theorem to both the sample mean and the sample proportion

in order to consider the probable (and improbable) values of these statistics

Department Approval:

Electronically Approved

Date: 2019-08-26 13:04