CAMOSUN COLLEGE
School of Arts & Science
Department of Mathematics & Statistics

STAT-218-001
Probability and Statistics 1
Winter 2019

COURSE OUTLINE

The course description is available on the web @ http://camosun.ca/learn/calendar/current/web/stat.html

Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

(a)	**Instructor**	Bree Wilton
(b)	**Office hours**	Mon, Tues, Thurs, Fri 11:30-12:20, Wed 1:30-2:20
(c)	**Location**	E246
(d)	**Phone**	250-370-3471
(e)	**E-mail**	wiltonb@camosun.bc.ca
(f)	**Website**	online.camosun.ca

2. Intended Learning Outcomes

Upon completion of this course a student will be able to:

1.   Compute and interpret descriptive statistics.
2.   Compute and interpret probability and conditional probability.
3.   Compute probability, expectation and variance of a single discrete random variable, or a single continuous random variable. Perform calculations involving Binomial, Poisson, normal, or exponential probability distributions.
4.   Perform calculations involving joint probability distributions of two discrete random variables, or random samples.
5.   Derive and compute maximum likelihood estimates.
6.   Compute and interpret interval estimate for the population mean, population proportion, and determine sample size.
7.   Compute and interpret interval estimate for a difference of two means.
8.   Test hypotheses about a mean, a proportion, and the difference of two means.

3. Required Materials

(a) Texts

1) Textbook:
Probability and Statistics for Engineers and the Sciences by Devore, any edition 5th and up. The 9th edition is sold in the Camosun Bookstore at Lansdowne.
OR
Intro to Probability and Statistics Using R by GJ Kerns. FREE PDF download at http://www2.uaem.mx/r-mirror/web/packages/IPSUR/vignettes/IPSUR.pdf. Hard copies are sold in Camosun Bookstore at Lansdowne.
2) *STAT 218 R Lab Tutorials* available on D2L.

(b) Other
A Sharp EL-531 Scientific Calculator, which is the only calculator allowed for tests and the final exam.

4. Course Content and Schedule

Lecture: Monday – Thursday 12:30 – 1:20 PM, room Y227,
Labs 12:30 – 1:20 PM, Friday in weeks 2, 4, 6, 8, 10, 12 and 14 room E110
Dates for tests and assignments can be found in the Course Calendar.

Sections	Topics
1.1 -1.4	Introduction and Descriptive Statistics
2.1 – 2.5	Probability
3.1-3.4, 3.6	Discrete Random Variables and Probability Distributions
4.1-4.4	Continuous Random Variables and Probability Distributions
5.1-5.5	Joint Probability Distribution and Random Samples
6.1-6.2	Point Estimation (omit The Method of Moments)
7.1-7.3	Statistical Intervals: single sample
8.1-8.5	Tests of Hypotheses: single sample (omit β and sample size determination)
9.1-9.2	Inferences Based on Two Samples (omit β and the choice of sample size)

R Labs: This course includes R lab sessions designed to familiarize students with the use of a statistical software to perform data analysis and the procedure of reporting data analysis results. *You will need the lab tutorial for each lab*. The required lab tutorial is available on D2L. A lab assignment follows each lab session. Lab assignments are due by **2:00pm** on the **Thursday** following each lab session. Late labs will be accepted with a penalty of 20% per day until the on time labs have been handed back, after which I will no longer accept them.

Math Lab (Help Centre): Math lab **E224** is staffed with instructional assistants available for **free face-to-face** help (no, they don't answer emails or phone calls). Lab hours are posted on the lab door and can be viewed at http://camosun.ca/services/help-centres/

Calculator policy: A Sharp EL-531 scientific calculator is required. This is the *only* calculator that will be allowed for tests and the final examination. This calculator is available at the Lansdowne Bookstore, and some other stores.

Homework: The homework for this course will include 1) Problem sets on worksheets, 2) R lab assignments, and 3) Suggested exercises posted on D2L. *In order to get a full understanding of the course materials, which usually leads to a good grade, it is necessary to mindfully complete all three sets of homework. It is essential to review notes and do homework each week and to keep up consistently.* ***Cramming does not work for this course.***

Attendance
Attendance is necessary. Showing up to classes is the easiest and most important thing you can do to help you succeed the course. If you feel yourself falling behind at any point during the term, then please do not hesitate to come to speak to me.

Desire2Learn (D2L)
This class has the assistance of D2L, an online course management system. Most course related materials and announcements will be available on D2L. It is your responsibility to subscribe to the *notifications on D2L* or check it regularly.

Missed Test Policy: Students are expected to make every reasonable effort to write the test at the scheduled time. **A missed test usually counts as a 0**, so if for any reason it appears that you may miss a test,
- **before the test**, talk with the instructor about missing the test, unless an unforeseen emergency makes this impossible, in which case leave a comprehensive message.

- assuming that you qualify for a missed test (for instance, medical or compassionate leave), the weight of the test will be moved to the final exam. There will not be any rewrites of tests.

Please inquire if you have any questions or concerns about your particular situation.

5. Basis of Student Assessment (Weighting)

(a) Lab assignments   10%

(b) Quizzes   10%

(c) Midterms   30%

(d) Final Exam   50%

Please refer to the **Course Calendar** for tentative tests dates and lab assignments due dates.

Final examinations will be scheduled by the College and they will take place during April 15th – 18th and April 23rd - 26th. You must be available to write the final examination at the scheduled time. Vacations or scheduled flights are not considered as emergencies.

6. Grading System

| **X** | Standard Grading System (GPA) |

| | Competency Based Grading System |

7. Recommended Materials to Assist Students to Succeed Throughout the Course

Please see STAT 218 D2L page.

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services
Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies
Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS http://camosun.ca/about/policies/index.html

The following two grading systems are used at Camosun College:

1. **Standard Grading System (GPA)**

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. **Competency Based Grading System (Non GPA)**

   This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://camosun.ca/about/policies/index.html for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

Stat 218 Exercises from Probability and Statistics for Engineering and The Sciences by Devore				
Section	**7e Problems (with answers)**	**Problems (6e)**	**Problems (8e)**	**Problems (9e)**	**Problems (5e)**
2.1	1, 3, 9	1, 3, 9	1, 3, 9	1, 3, 9	1, 3, 9
2.2	13, 15, 17, 21, 23	13, 15, 17, 21, 23	13, 15, 17, 21, 23	13, 15, 17, 21, 23	13, 15, 21
2.4	45, 47, 49, 51, 63, 65	45, 47, 49, 51, 63, 65	45, 47, 49, 51, 63, 65	45, 47, 49, 63, 65	29, 31, 33
2.5	71, 73, 75, 79, 85	69, 71, 73, 77, 83	71, 73, 75, 79, 85	71, 73, 75, 79, 85	45, 49, 51
Ch 2 supp.	99, 101, 103	89, 91, 97, 99, 101, 107, 111	91, 93, 99, 101, 103, 109, 113	91, 93, 99, 101, 103, 109, 113	71, 73, 77
					97, 99
1.1	5	5	5	5	
1.2	15, 19ab	15, 19ab	15, 19ab	15, 19ab	5
1.3	33, 35, 37, 43	33, 35, 37, 43	33, 35, 37, 43	33, 35, 37, 43	13, 19(a-b)
1.4	45, 51, 55, 59	45, 51, 55, 59	45, 51, 55, 59	45, 51, 55, 59	33, 37, 39(b), 41
Ch 1 supp.	69, 81	65, 69, 81	69, 81	69, 81	45, 51(b), 55
					65, 69
3.1	5, 7, 9	1, 5, 7, 9	1, 5, 7, 9	1, 5, 7, 9	
3.2	11, 13, 17, 22	11, 13, 17, 21	11, 13, 17, 22	11, 13, 17, 23	3, 7,
3.3	32, 36, 38, 42	31, 35, 37, 41	32, 36, 38, 42	32, 36, 38, 42	11, 13, 23
3.4	47, 49, 55, 59, 65	45, 47, 51, 55, 61	47, 49, 55, 59, 65	47, 49, 55, 59, 65	31, 37, 41
3.6	81, 83, 85	77, 79, 81	81, 83, 85	81, 83, 85	47, 51, 53
Ch3 supp.	97, 99, 103, 109, 111	93, 95, 99, 105, 107	97, 99, 103, 109, 111	97, 99, 103, 109, 111	75, 77, 79
					91, 93, 97
4.1	1, 3, 9	1, 3, 9	1, 3, 9	1, 3, 9	
4.2	13, 15, 21, 23	11, 13, 15, 21, 23	11, 13, 15, 21, 23	11, 13, 15, 21, 23	3, 9
4.3	29, 31, 35, 39, 41, 43, 53	27, 29, 33, 35, 37, 39, 49	29, 31, 35, 39, 41, 43, 53	29, 31, 35, 39, 41, 43, 53	13, 15, 23
4.4	59, 61	59. 61	59, 61	59, 61	27, 29, 33, 35, 37
4.6	87	81	87	87	59
Ch4 supp.	99, 101, 103, 111ab	93, 95, 97, 105ab	99, 101, 103, 111ab	99, 101, 103, 111ab	79
					89, 91, 93
5.1	3, 5, 7	3, 5, 7	3, 5, 7	3, 5, 7	
5.2	23, 35	23, 35	23, 35	23, 35	3, 5
5.3	37, 39, 41	37, 39, 41	37, 39, 41	37, 39, 41	23, 35
5.4	47, 49, 53	47, 49, 53	47, 49, 53	47, 49, 53	41(a) - (c)
5.5	59, 61, 65, 67, 69	59, 61, 65, 67, 69	59, 61, 65, 67, 69	59, 61, 65, 67, 69	53, 55
Ch5supp.	75, 79, 83	75, 79, 83	75, 79, 83	75, 79, 83	59, 65, 67
					75, 79
6.1	1, 5, 7, 9, 11, 13	1, 5, 7, 9, 11, 13	1, 5, 7, 9, 11, 13	1, 5, 7, 9, 11, 13	
6.2	22b, 23, 25	22b, 23, 25	22b, 23, 25	22b, 23, 25	1, 7, 9
					23, 25(a)
7.1	3, 5	1, 3, 5, 11	1, 3, 5, 11	1, 3, 5, 11	
7.2	19, 23	13, 15, 17, 19, 21, 23	13, 15, 17, 19, 21, 23	13, 15, 17, 19, 21, 23	1, 5, 7
7.3	29, 33	29, 33, 41	29, 33, 41	29, 33, 41	13, 15, 21, 25
Ch7 supp.	47, 51	47, 51, 55	47, 51, 55	47, 51, 55	29(a)-(c), 33, 39
					45, 49, 53
8.1	1, 3, 7, 9ab	1, 3, 7, 9ab	1, 3, 7, 9ab	1, 3, 5, 9, 11a	
8.2	21, 23, 29	19a, 21, 23, 25a, 31	19a, 21, 23, 25a, 31	15, 17a, 19a, 21a, 25	1, 3, 7, 9(a - b)
8.3	35, 37	35, 37, 39	37a, 39, 41	29, 31, 35a, 39a, 41	21, 27, 31
8.4	49, 51, 53, 55, 57	47, 49, 51, 53, 55	47, 49, 51, 53, 55, 57	43, 45, 47a, 49a	35, 41(a)
Ch8 supp.	65, 67, 69, 73, 75	61, 63, 65, 67, 71, 73	65, 67, 69, 71, 73	57, 59, 61, 63, 69, 73	47(a-b), 49, 51, 53
					59, 69
9.1	1ab, 3	1ab, 3, 5ab, 9, 11	1ab, 3, 5ab, 9, 11	1ab, 3, 5ab, 9, 11	
9.2	17ab, 21, 29, 33	17ab, 21, 25, 33	17ab, 21, 25, 33	17ab, 21, 29, 33	3, 7, 17bc, 21, 25