



COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/math.html>

Ω Please note: the College electronically stores this outline for five (5) years only.
 It is **strongly recommended** you keep a copy of this outline with your academic records.
 You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

1. Instructor Information

| | | |
|-----|---------------|---|
| (a) | Instructor: | Bree Wilton |
| (b) | Office Hours: | Mon - Fri 10:30 – 11:20 |
| (c) | Location: | E246 |
| (d) | Phone: | 250-370-3471 |
| (e) | Email: | wiltonb@camosun.bc.ca |
| (f) | Website: | https://sites.google.com/site/breewilton/ |

2. Intended Learning Outcomes

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

1. Use descriptive statistical methods to display and describe distributions of data
2. Apply basic properties and concepts of probability to solve practical problems.
3. Use inferential statistical techniques to estimate and test hypotheses about parameters in both one population and two populations scenarios.
4. Conduct elementary regression analysis to solve real life problems.
5. Use Analysis of Variance (ANOVA) to make inferences about multiple populations.
6. Apply basic categorical data analysis techniques to solve practical problems.
7. Use statistical software (such as R) to perform basic statistical data analyses.

3. Required Materials

1. Textbook: *Introductory Statistics A Problem Solving Approach* by Kokoska, 2e.

You may buy the textbook from the bookstore either

- In hard cover format for approximately \$198.
- Or in loose-leaf format for approximately \$132.
- Or online for approximately \$88.

2. Lab manual: MATH 216 R Lab Manual available on my website.

3. Sharp EL-531 Scientific Calculator. *No other calculators are allowed for tests and the final examination.*

4. Course Content and Schedule

| | |
|--|--------------------------|
| An Introduction to Statistics and Statistical Inference | 1.1 – 1.3 |
| Tables and Graphs for Summarizing Data | 2.1 – 2.4 |
| Numerical Summary Measures | 3.1 – 3.4 |
| Probability | 4.1 – 4.5 |
| Random Variables and Discrete Probability Distributions | 5.1 – 5.5 (Poisson only) |
| Continuous Probability Distributions | 6.1 – 6.3 |
| Sampling Distributions | 7.1 – 7.3 |
| Confidence Intervals Based on a Single Sample | 8.1 – 8.4 |
| Hypothesis Tests Based on a Single Sample | 9.1 – 9.6 |
| Confidence Intervals and Hypothesis Tests Based on Two Samples | 10.1 – 10.4 |

| | |
|---------------------------------------|-------------|
| The Analysis of Variance | 11.1 |
| Correlation and Linear Regression | 12.1 – 12.4 |
| Categorical Data and Frequency Tables | 13.1 – 13.2 |

R Labs: This course includes 7 lab sessions. You will need the lab manual for each lab. The lab manual is available from my website (given above) under MATH 216. The labs are designed to familiarize you with the use of a computer as a tool for statistical analysis. The computer software we use is R. Each lab session includes a lab assignment to be submitted for marking. Lab assignments must be handed in by **2pm** on the due date. 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. There will be a lab final exam due in the last week of classes.

Homework Assignments: There will be **online** homework assignments to cover basic concepts as well as a few questions from the later chapters to be handed in. Hand in questions are due by **2pm** on the due date. Late hand-in assignments will be accepted with a penalty of 20% per day until the on time hand-in assignments have been handed back, after which I will no longer accept them. Late online assignments will not be accepted unless there is a documented medical or compassionate reason. There will also be a set of suggested problems from the textbook. In order to get a full understanding of the course materials **you need to do both sets of homework.**

Attendance: Showing up to class is the easiest and most important thing you can do to help succeed the course. Keeping up is an essential part of any statistics course as much of the material builds on itself. If you feel yourself falling behind at any point during the term, then please do not hesitate to come speak to me.

Math Lab: Math lab **E224** is staffed with math tutors available for **free** help. It is a great idea to do your homework there and get help whenever needed.

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.

Academic Integrity: The Department of Mathematics and Statistics has prepared a “red handout” called the *Student Guidelines for Academic Integrity* to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references.

5. Basis of Student Assessment (Weighting)

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|----------------------------------|-----|
| Assignments (online and hand in) | 10% |
| Labs | 5% |
| Tests (50 min each) | 35% |
| Lab Final | 10% |
| Cumulative Final Exam (3 hrs) | 40% |

Please refer to **my website** for tentative *test dates* and *lab due dates*.

Final examinations will be scheduled by the college and they will take place during Dec 11-19. You must be available to write the final examination at the scheduled time. Holidays or scheduled flights are not considered to be emergencies.

6. Grading System

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 | Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite. | 1 |
| 0-49 | F | Minimum level has not been achieved. | 0 |

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 E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

| Temporary Grade | Description |
|-----------------|--|
| I | <i>Incomplete:</i> 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 | <i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. <i>(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)</i> |
| CW | <i>Compulsory Withdrawal:</i> 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. |

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

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

| Suggested Problems in the Textbook | |
|------------------------------------|---|
| Section | Numbered Problems |
| 1.2 | 1-15 odd |
| 1.3 | 21, 23, 27-31 odd, 35, 37 |
| Chpt 1 | 41, 45, 47, 51ab, 53 |
| 2.1 | 1-13 odd |
| 2.2 | 19, 21, 25, 27 |
| 2.3 | 45, 47, 49, 53, 55, 57 |
| 2.4 | 69-81 odd, 87, 89 |
| Chpt 2 | 97, 99, 101, 105 |
| 3.1 | 2 not d,e, 3-9, 13-15 odd, 25 |
| 3.2 | 33-37 odd, 41-49 odd |
| 3.3 | 69-73 odd, 77, 79, 81, 85, 87 |
| 3.4 | 97-109 odd |
| Chpt 3 | 119, 121, 123ab, 129 |
| 4.1 | 1-11 odd, 15-23 odd, 29 |
| 4.2 | 39-49 odd, 53, 55, 57, 61 |
| 4.3 | 73-81 odd, 85, 89, 95 |
| 4.4 | 109-113 odd, 119-125 odd |
| 4.5 | 137, 139, 141b-d, 147-151 odd, 157, 159 |
| Chpt 4 | 173, 179, 181, 183a,b |
| 5.1 | 3, 7, 9, 13, 15, 17 |
| 5.2 | 21, 25, 29, 33, 35, 37 |
| 5.3 | 45, 47, 53, 55a, 57a-c, 59ab |
| 5.4 | 71-81, 87, 89, 93, 95 |
| 5.5 | 109, 115, 119ab, 121a-c, 125, 129 |
| Chpt 5 | 139, 145a-c, 147ab, 149, 151ab |
| 6.1 | 1-7 odd, 13, 15a-c |
| 6.2 | 27-35 odd, 43, 45, 51a-c, 55d |
| 6.3 | 72 |
| Chpt 6 | 107ab, 111ab, 115, 119 |
| 7.1 | 1, 3, 9, 11 |
| 7.2 | 27-33 odd, 37, 39, 41a-c, 43, 47, 49 |
| 7.3 | 61, 65, 67, 71, 73a-c, 75, 79 |
| Chpt 7 | 91, 93, 95, 97, 99a-c, 101 |
| 8.1 | 1-7 odd, 11, 13 |
| 8.2 | 19-23 odd, 27, 29, 31, 37, 39, 43 |
| 8.3 | 55-61 odd, 67ab, 69, 73, 75, 79 |
| 8.4 | 91-99 odd, 103, 107, 109, 111, 115 |
| Chpt 8 | 157, 159a,c, 161, 163, 167, 169 |
| 9.1 | 1-15 and 19-31 odd |
| 9.3 | 57, 61-65 odd, 69, 71a-d, 75-79, 83-87 odd |
| 9.4 | 99, 103-107 odd, 113, 115, 119 |
| 9.5 | 125-129 odd, 135-139 odd, 143-149 odd |
| 9.6 | 167, 169, 171, 177-191 odd |
| 9.2 | 33-35 odd, 37a-c, 41, 43, 45 |
| Chpt 9 | 233, 237, 239, 243, 247 |
| 10.1 | 3- 11 odd, 15-23 odd |
| 10.2 | 37, 43b, 45, 49, 51, 53 assuming unequal variance for all |
| 10.3 | 67, 73, 79 |
| 10.4 | 97, 99, 103, 109, 111, 113, 115, 117 |
| Chpt 10 | 153, 163 |
| 13.1 | 1-7 odd, 11-21 odd |
| 13.2 | 33-39 odd, 43-51 odd |
| Chpt 13 | 59, 61, 63, 65, 67, |
| 11.1 | 1, 3, 11(not b), 13,15, 25 |
| Chpt 11 | 89, 103 |
| 12.1 | 9, 11, 13ab, 25(no plot), 31a |
| 12.2 | 39, 47a(no ANOVA)c-e, 61c (no plot) |
| 12.4 | 89, 91, 95, 97 |