



Department of Mathematics & Statistics

STAT 230

Elementary Applied Statistics

FALL 2021

Professor Information

Professor: Emelie Lee
Campus: Online
E-mail: elee@okanagan.bc.ca
Office Hours: Any time by appointment

Section Information

Section: 001
Class Times: Tuesday 8:00 - 9:20
Thursday 9:00 - 9:20
Fri 8:00 - 8:50

Calendar Description

Stat 230-3-4

Elementary Applied Statistics

An introductory course in applied statistics with a focus on life sciences for students with a first-year calculus background. Topics include estimation and testing of hypotheses about population parameters, an introduction to analysis of variance, linear regression, chi-square analysis, and some non-parametric tests. Essential preliminary topics in descriptive statistics and probability are presented as a basis for such procedures. Emphasis includes problem formulation, models, assumptions and interpretation of results. This course is also offered in the Department of Biology as BIOL 202. Students will receive credit for only one of BIOL 202, STAT 230, STAT 121, STAT 124 (4,0,0)

Prerequisites:

- MATH 112
or admission to the Post-Baccalaureate Diploma in Marketing and Data Analytics program (the co-requisite of MATH 122 is not required for students in the Post-Baccalaureate Diploma in Marketing and Data Analytics)

Corequisites:

- MATH 122

Transfer Information

Please refer to the transfer guide, available online at <http://www.bctransferguide.ca>. Students are encouraged to save a copy of current transfer information for their own records.

Course Materials

The required text for this course is:

OPENINTRO STATISTICS - 4E Diez/Barr/Cetinkaya-Rundel
Download page: <https://www.openintro.org/stat/textbook.php>
PDF is posted on Moodle.

Course Evaluation

Your grade in this course will be broken down as follows:

Assignments/Quizzes	40%
Tests	30%
Final Exam	30%

Where:

- **Assignments/Quizzes** will be given each week. Late assignments and missed quizzes will receive a score of zero.
- **Tests** there will be two tests held during scheduled class time. Test dates will be posted on Moodle.
- **Final Exam** will be cumulative and held at a time set by the college during the final exam period. The final exam schedule is generally made available approximately half way through the semester.

Learning Outcomes

The following are the anticipated learning outcomes of the course.

1. Interpret the meaning of statistics computed from quantitative variables.
2. Demonstrate different sampling methods.
3. Use several techniques to determine random samples.
4. Solve probability problems including conditional probability, using basic probability rules and probability trees.
5. Compute probabilities for discrete and continuous random variables.
6. Solve probability problems using the binomial distribution and the normal distribution.
7. Apply the Central Limit Theorem to problems involving the binomial distribution, the sample mean and the sample proportion.
8. Construct confidence intervals for single population means and proportions.
9. Construct confidence intervals for the difference in two population means and proportions.
10. Use linear regression to make predictions and test for significance.
11. Conduct hypothesis tests for the population mean and the difference between population means.
12. Conduct hypothesis tests for the population proportion and the difference between population proportions.
13. Conduct non-parametric hypothesis tests (for two categorical variables).
14. Solve problems involving the dependence of qualitative variables and goodness-of-fit, using Chi-Square Tests and contingency tables.
15. Compare multiple means using ANOVA.

Course Content

We will cover chapters 1 – 8 in the textbook.

- Chapter 1: Introduction to data
- Chapter 2: Summarizing data
- Chapter 3: Probability
- Chapter 4: Distributions of random variables
- Chapter 5: Foundations for inference
- Chapter 6: Inference for categorical data
- Chapter 7: Inference for numerical data
- Chapter 8: Introduction to linear regression

Department Policies

- All written assignments are due at the start of class. All assignments not handed in within the first five minutes of class will be assigned a grade of zero.
- The math department does not give make-up exams nor does the department allow students to write exams out of time without a valid medical or compassionate reason.
- It is expected the student attends all classes. If a student misses a class, it is the student's responsibility to get the material covered in class from their peers.
- No students may change sections of a course after the final add/drop date. If students wish to switch sections after the first day of class but before the final add/drop date, they should consult the chair of the Math department in order to not lose grade progress.
- Failure to achieve a grade of at least 45% on the final exam of a course will result in a failing grade for the course.
- When a student fails a course as a result of failing to achieve a final exam grade of 45%, the maximum grade that will be awarded is 49%.
- Calculators used for exams will satisfy the department's calculator policy. For Stat 230, students are allowed a non-programmable, non-graphing scientific calculator.
- A formula sheet will be provided for this course.
- The final exam for this course shall be cumulative.

Important Dates

Statutory Holiday (no classes)	Mon., Sep. 6
Orientation day (no classes)	Tue., Sep. 7
Classes begin	Wed., Sep. 8
Last day to register	Fri., Sep. 17
Last day to receive a refund for course drop	Fri., Sep. 17
Last day to drop a course without a withdrawal being recorded on the student's record	Fri., Sep. 17
Statutory Holiday (no classes)	Thu., Sep. 30
Statutory Holiday (no classes)	Mon., Oct. 11
Last day to withdraw without academic penalty	Fri., Oct. 29
Statutory Holiday (no classes)	Thu., Nov. 11
No classes	Fri., Nov. 12
Last day of classes	Mon., Dec. 6
Final exam period	Wed., Dec. 8 - Sat., Dec. 18

Success Centres

Okanagan College's Learning and Success Centres are located on all campuses and help students become effective, independent learners through one-to-one and small group academic assistance in Math, Science, English (reading & writing), ESL Skills and Study Skills. For more information visit:

<http://www.okanagan.bc.ca/administration/students/learning-centres.html>

Okanagan College Policies

Final Exam Policy: The procedures relating to final exams are significantly different than those that involve midterms. Final exam policy is determined by the college and a much more formal process is invoked should a student be unable to write the final exam. It is stated in the final exam policy that student travel plans are not a valid reason for writing an out-of-time final exam. As such, it is essential that you do not make travel plans prior to the final exam schedule being posted. The full final exam policy can be found at the following link.

<http://webapps-5.okanagan.bc.ca/ok/Calendar/Examinations>

The final exam schedule is determined by the Office of the Registrar and posted at the following link sometime around the middle of the semester.

<https://www.okanagan.bc.ca/office-of-the-registrar/scheduling-office/scheduling-office#finalexam>

Academic Integrity Policy: Okanagan College requires that all students are informed of the Academic Integrity Policy included in the College Calendar which can be found at the following link:

<http://webapps-5.okanagan.bc.ca/ok/Calendar/AcademicIntegrity>

College Student Conduct Policies: Okanagan College requires that students are informed of acceptable Student Conduct Policies included in the College Calendar which can be found at the following link:

<http://webapps-5.okanagan.bc.ca/ok/Calendar/StudentConduct>

Student Advising & Counselling

Accessibility Services collaborates with the academic departments of the college to arrange appropriate accommodation for students with a disability. If you require academic accommodation, please contact disability services. Contact, and other relevant information, can be found at:

<https://www.okanagan.bc.ca/accessibility-services>

Counselling Services has professionally trained staff that are available to assist students in coping with problem areas in their life (including: personal & career counselling, study skills) that interfere with maximizing their academic and social potential. For more information visit:

<http://www.okanagan.bc.ca/counselling-services>