

DEPARTMENT of Science

COURSE OUTLINE – Fall 2025

ST 1510 (A2): Introduction to Applied Statistics I – 3 (3-0-2) 75 Hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR: Dr. Brian Redmond
OFFICE: J206
OFFICE HOURS: TBD

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CALENDAR DESCRIPTION: The course includes data collection and presentation, descriptive statistics. Probability distributions, sampling distributions, and the central limit theorem; point estimation and hypothesis testing; correlation and regression analysis; goodness of fit and contingency table.

PREREQUISITE(S): Mathematics 30-1 or Mathematics 30-2

COREQUISITE(S): None

REQUIRED MATERIALS:

- Harris Learning Solutions account. Please follow the link provided and the instructions therein. [Registration Form](#)
Pricing is as follows: \$52 CAD
- Scientific, non-graphing calculator.
- Textbook: [Introductory Business Statistics](#) by Holmes, Illowsky and Dean
(Free open-source textbook on OpenStax)

DELIVERY MODE(S):

| | | | | |
|----------|------|-----|---------------------|------|
| Lectures | A2: | M W | 10:00 AM – 11:30 AM | J204 |
| Lab: | AL1: | T | 2:30 PM – 4:20 PM | A307 |
| Lab: | AL2: | R | 2:30 PM – 4:20 PM | A307 |

LEARNING OUTCOMES:

By the end of this course, students will be able to:

1. Summarize and describe data using appropriate sampling methods, numerical measures, and graphical displays.
2. Apply probability rules, counting techniques, conditional probability, and Bayes' Theorem to solve problems.
3. Analyze discrete and continuous probability distributions, including binomial, geometric, Poisson, uniform, exponential, and normal models.
4. Explain and apply the Central Limit Theorem to sampling distributions of means and proportions, including normal approximations.
5. Construct and interpret confidence intervals for means, proportions, and variances using appropriate distributions.
6. Conduct hypothesis tests for one and two samples, evaluate significance and errors, and interpret results using both p-values and critical values.
7. Apply Chi-square tests for goodness-of-fit and independence, and one-way ANOVA, interpreting results using appropriate statistical methods.
8. Model relationships between variables using correlation and simple linear regression, test coefficients, and construct both confidence and prediction intervals.
9. Communicate statistical results clearly in written, graphical, and numerical forms, and critically evaluate statistical claims in real-world contexts.
10. Use technology to perform statistical analysis, interpret output, and verify results with course concepts and formulas.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check the transferability of this course at the Alberta Transfer Guide main page <http://www.transferalberta.alberta.ca>.

** For courses with alpha (letter) grading, a grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

EVALUATIONS:

| | |
|--------------|------|
| Labs: | 15% |
| Assignments: | 20% |
| Midterm: | 25% |
| Final: | 40% |
| <hr/> | |
| Total: | 100% |

GRADING CRITERIA:

Please note that most institutions will not accept your course for transfer credit **IF** your grade is **less than C-**.

| Alpha Grade | 4-point Equivalent | Percentage Guidelines | Alpha Grade | 4-point Equivalent | Percentage Guidelines |
|-------------|--------------------|-----------------------|-------------|--------------------|-----------------------|
| A+ | 4.0 | 95-100 | C+ | 2.3 | 67-69 |
| A | 4.0 | 85-94 | C | 2.0 | 63-66 |
| A- | 3.7 | 80-84 | C- | 1.7 | 60-62 |
| B+ | 3.3 | 77-79 | D+ | 1.3 | 55-59 |
| B | 3.0 | 73-76 | D | 1.0 | 50-54 |
| B- | 2.7 | 70-72 | F | 0.0 | 00-49 |

COURSE SCHEDULE/TENTATIVE TIMELINE:

| Week | Topics | Important Dates | Lecture/Lab Count |
|---------------------|-------------------------|--|-------------------|
| 1 Sept. – 7 Sept. | Introduction, Chapter 1 | Course begins on Wed. Sept. 3 No labs this week | 1Lec/0Lab |
| 8 Sept. – 14 Sept. | Chapter 1,2 | | 2Lec/1Lab |
| 15 Sept. – 21 Sept. | Chapter 3 | | 2Lec/1Lab |

| | | | |
|---------------------|----------------------|---|--------------------|
| 22 Sept. – 28 Sept. | Chapter 4 | | 2Lec/1Lab |
| 29 Sept. – 5 Oct. | Chapter 5 | TR Day, Tues., Sept. 30, no classes | 2Lec/0Lab |
| 6 Oct. – 12 Oct. | Chapter 6 | | 2Lec/1Lab |
| 13 Oct. – 19 Oct. | | Monday, Oct. 13, Thanksgiving Day – no classes Midterm Wed. Oct. 15 | 1Lec/1Lab |
| 20 Oct. – 26 Oct. | Chapter 7 | | 2Lec/1Lab |
| 27 Oct. – 2 Nov. | Chapter 8 | | 2Lec/1Lab |
| 3 Nov. – 9 Nov. | Chapter 9 | | 2Lec/1Lab |
| 10 Nov. – 16 Nov. | | Fall Break | |
| 17 Nov. – 23 Nov. | Chapter 10 | | 2Lec/1Lab |
| 24 Nov. – 30 Nov. | Chapter 11 | | 2Lec/1Lab |
| 1 Dec. – 7 Dec. | Chapter 12 | | 2Lec/1Lab |
| 8 Dec. – 11 Dec. | Chapter 13 | Thurs. Dec 11, Last Day of Classes | 2Lec/1Lab |
| 13 Dec. – 20 Dec. | Final exam period | | |
| | | | Total: 26Lec/12Lab |

STUDENT RESPONSIBILITIES:

This is a challenging course. Success requires regular attendance, timely completion of assignments and labs, and at least 10 hours of weekly study outside of class. Collaboration with classmates is encouraged, but each student must submit their own work and ensure they understand it fully.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available <https://www.nwpolytech.ca/about/polytechnic-leadership/policies-directory>.

**Note: all Academic and Administrative policies are available on the same page.