# NORTHWESTERN POLYTECHNIC

**DEPARTMENT SCIENCE**

**COURSE OUTLINE – Fall 2023**

**ST1510 (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.

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|---|---|---|---|
| **INSTRUCTOR:** | **Tom McLeister** | **PHONE:** | (780) 539-2961 |
| **OFFICE:** | J212 | **E-MAIL:** | tmcleister@nwpolytech.ca |
| **OFFICE HOURS:** | MTWR 13:00 -14:00   F 10:00--11:00 | | |

**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:** Mathematics 30-1 or equivalent or Mathematics 30-2 or equivalent

**REQUIRED TEXT/RESOURCE MATERIALS:**
Open (free) textbook at www.lyryx.com:  Introductory Statistics, Current Edition (by Illowsky, Dean, openstax) (Click here to go to download page!)

**DELIVERY MODE(S):**

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|---|---|---|---|---|
| **Lecture:** | A3 | T R | 10:00 – 11:20 | J204 |
| **Lab:** | AL1 | M | 14:30 – 16:20 | A312 |
| | AL2 | W | 14:30 – 16:20 | A312 |

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**LEARNING OUTCOMES:** At the end of this course, the student should be able to:
• Demonstrate basic knowledge of descriptive statistics and its use
• Perform calculations and solve problems involving elementary probability theory
• Perform elementary analysis of research data and to interpret the results of statistical tests.
• Demonstrate a conceptual knowledge of the concepts and principles involved in inferential statistics
• Select the appropriate statistical test.
• Analyze data using the computer program EXCEL.

**TRANSFERABILITY:**

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

** 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:**

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|---|---|
| Assignments | 10% |
| Lab Reports | 10% |
| Midterms | 2 × 20%  (Tentatively Thur Oct19, Thur Nov 23) |
| Lab Exam | 10%  (AL1 Mon Dec 4;  AL2 Wed Dec 6) |
| Final Exam | 30% (Cumulative, during exam period Dec 14—21 inclusive) |

**GRADING CRITERIA:**

Please note that most universities 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 | 90-100 | | C+ | 2.3 | 67-69 |
| A | 4.0 | 85-89 | | 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 |

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**COURSE SCHEDULE/TENTATIVE TIMELINE:**

Chapters 1,2   Sampling, Experiments, Graphs, Measures of Central Tendency and Spread
Chapters 3-7   Probability, Probability Distributions, Binominal, Normal, Sampling Distributions of $\bar{x}$
   and $\hat{p}$, Central Limit Theorem
Chapter 8    Confidence Intervals
Chapter 9-11   Hypothesis Tests about the Mean, Proportion, Two Populations, Chi-square
Chapter 12   Linear Regression, Correlation, Inference about $B$
Chapter 13   ANOVA

**STUDENT RESPONSIBILITIES:**

Students are responsible for all lecture material, labs and readings. Students are expected to practice the material by doing problems from the textbook and/or exercises posted on myClass. Assignments are not accepted if handed in late. If a midterm is missed due to illness the weight will be put on the next midterm or the final. If the final is missed due to illness it will be deferred (see calendar for information). A doctor's note and a phone message or email will be required in both cases. It is the student's responsibility to be available to write the exam at the scheduled time. Writing early is not permitted.

## 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 at https://www.nwpolytech.ca/about/administration/policies/index.html.

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