

**DEPARTMENT SCIENCE**  
**COURSE OUTLINE – Winter 2023**

**ST1510 (B3): 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:** Therar Kadri                      **PHONE:** (780) 539-3278  
**OFFICE:** J209                                      **E-MAIL:** [TKadri@NWPolytech.ca](mailto:TKadri@NWPolytech.ca)  
**OFFICE HOURS:** M&T 1:00 PM -3:00 PM – R 1:00 PM -2:30 PM

**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)/COREQUISITE:** Prerequisites: Mathematics 30-1 or equivalent or Mathematics 30-2 or equivalent

**REQUIRED TEXT/RESOURCE MATERIALS:**

Open (free) textbook at [www.lyryx.com](http://www.lyryx.com): Introductory Statistics, Current Edition (by Illowsky, Dean, openstax) ([Click here](#) to go to download page!)

**DELIVERY MODE(S):**

**Lecture:**                      **B3**      **M W**                      **8:30 – 9:50**                      **G111**

## COURSE OBJECTIVES:

This course provides an introduction to statistical methods and their applications. The main topics are: obtaining and summarizing data with graphs and numeric measures; probability theory; and statistical inference (drawing conclusions from sample data by carrying out a hypothesis test). This course also comes with a lab component; students will use EXCEL as a tool to further help their understanding in statistical analysis.

## LEARNING OUTCOMES:

To demonstrate the basic knowledge of descriptive statistics and its use. To perform elementary analysis of research data and to interpret the results of statistical tests. To demonstrate a conceptual knowledge of the concepts and principles involved. To select the appropriate statistical test. To be able to enter and 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.transferralberta.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:

Assignments 10%:

Lab Reports 10%

Midterms 2 × 20% (Tentatively Week 5: Wed Feb 1, Week 10: Wed Mar 15)

Lab Exam 10% (BL1 Wed Apr 5)

Final Exam 30% (Cumulative, during exam period Apr 17 - Apr 24)

## GRADING CRITERIA: (The following criteria may be changed to suite the particular course/instructor)

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                 |

**COURSE SCHEDULE/TENTATIVE TIMELINE:**

| <b>Weeks</b>            | <b>Chapters</b>   |
|-------------------------|---|
| Week 1 (Jan 4)          | Chapter 1: Sampling and Data  |
| Week 2 (Jan 9,11)       | Chapter 2: Descriptive Statistics   |
| Week 3 (Jan 16,18)      | Chapter 2: Descriptive Statistics   |
| Week 4 (Jan 23,25)      | Chapter 3: Probability Topics   |
| Week 5 (Jan 30, Feb 1)  | Chapter 4: Discrete Random Variables  |
| Week 6 (Feb 6,8)        | Chapter 5: Continuous Random Variable<br>Chapter 6: The Normal Distribution |
| Week 7 (Feb 13,15)      | Chapter 7: The Central Limit Theorem  |
| Winter Break (Feb20-24) |   |
| Week 8 (Feb 27, Mar 1)  | Chapter 8: Confidence Intervals   |
| Week 9 (Mar 6,8)        | Chapter 9: Hypothesis Testing with One Sample                               |
| Week 10 (Mar 13,15)     | Chapter 10: Hypothesis Testing with Two Samples                             |
| Week 11 (Mar 20,22)     | Chapter 11: The Chi-Square Distribution                                     |
| Week 12 (Mar 27,29)     | Chapter 12: Linear Regression and Correlation                               |
| Week 13 (Apr 3,5)       | Chapter 13: F Distribution and One-Way ANOVA                                |
| Week 14 (Apr 10,12)     | Revision  |

**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. 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.

**STATEMENT ON PLAGIARISM AND CHEATING:**

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the Northwestern Polytechnic Calendar at <https://www.nwpolytech.ca/programs/calendar/> or the Student Rights and Responsibilities policy which can be found at <https://www.nwpolytech.ca/about/administration/policies/index.html>.

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