



DEPARTMENT Humanities and Social Sciences

## COURSE OUTLINE - Fall 2025

### PH1250(A2): Practical Logic - 3 (3-0-0) 45 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:** Joseph Van Weelden

**PHONE:**(780) 539-2871

**OFFICE:** C307

**EMAIL:** [JVanWeelden@nwpolytech.ca](mailto:JVanWeelden@nwpolytech.ca)

**OFFICE HOURS:** Tuesday 9:30-11:00 am, Thursday 1:30-3:00 pm.

**CALENDAR DESCRIPTION:** Practical logic is the study of critical thinking in everyday contexts. This class is foundational to all aspects of life, including our professional and personal lives. Without critical thinking people may not be able to differentiate between mere opinion and knowledge, which makes them susceptible to holding false beliefs without the means to make corrections. Critical thinking skills teach us how to identify mistakes in reasoning and how to correct these mistakes. This course teaches students the basic concepts of informal logic required for critical thinking. These concepts include the components of arguments, how to analyze logical inferences, and how to evaluate persuasive language as it is often presented in politics, news, social media, business, and even around the dinner table. In addition, students will learn how to identify logical fallacies, how to recognize good evidence (scientific or otherwise), and how to have fruitful discussions with others about even the most contentious topics.

**PREREQUISITE(S):**

None

**COREQUISITE(S):**

None

**REQUIRED MATERIALS:** We will mostly be working with two (open-source) textbooks:



Matthew J. Van Cleave. Introduction to Logic and Critical Thinking Version 2.0.

Jeffery L. Johnson. Inferring and Explaining.

These textbooks will be posted on myClass, along with all other materials (including the instructor's handouts, additional exercise sheets and PPTs.)

**DELIVERY MODE(S):** On-Campus

## **LEARNING OUTCOMES:**

- Analyze arguments based what counts as evidence in support of claims.
- Analyze arguments to address common mistakes in reasoning.
- Evaluate the validity of deductive arguments using propositional logic.
- Evaluate the validity of deductive arguments using categorical logic.
- Analyze the reasoning used to support our everyday beliefs.
- Analyze the reasoning used to support scientific claims.
- To gain an understanding of important philosophical approaches to critical thinking.
- To develop critical thinking and problem-solving skills through the analysis of logical structure.
- To apply the analysis of logical structure to assumptions, values, principles, and reasoning as they affect society.

## **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://ww.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:**

Class Participation: 10%

6 In-Class Quizzes: 5 % each \* 6 = 30% total

Midterm Exam: 30 % (Thursday, November 6<sup>th</sup>)

Final Exam: 30 % (The final exam will be scheduled during the final exam period. Please check the registrar's posting for a schedule of final examinations.)

## **Expected Statutory Holidays and Breaks: (no class on these days)**

September 30, 2025 – National Day for Truth and Reconciliation

## GRADING CRITERIA:

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

## Grading Chart

| 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 AND TIMELINE (SUBJECT TO REVISION):

| Topic Title                               | Week No. | Details   | Readings.  | Activities   | Date (s)              |
|---|----------|---|--|--|-----------------------|
| Introduction.<br>What is Practical Logic? | 1        | Course Outline and Expectations from Students. An Invitation to Personal Reflection. An Introduction to <i>Thinking Well as a Skill</i> . | Post-Reading: Van Cleave Preface and pp.1-7 and Johnson pp.1-8 | Icebreaker Activity: Am I Living an Examined Life? | Thursday, September 4 |
| Identifying and Reconstructing Arguments  | 2        | The Basic Ingredients of an Argument,   | Van Cleave pp.8-17<br>Johnson pp.25-35                         | Lecture, Group Discussion. Student Exercises       | Tuesday, September 9  |

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|  |   | Argument Mapping,<br><br>Finding the (Main) Argument in a Text.  |  |   | Thursday, September 11                               |
| Evaluating (Deductive) Arguments: Validity and Soundness   | 3 | What makes an argument a good one?<br><br>Validity vs Soundness: Aristotle's Categorical Syllogism as an Illustration. | Van Cleave pp. 18-23, Handout and Worksheet on the Categorical Syllogism | Quiz 1 on September 18 <sup>th</sup><br><br>Exercises on Validity and Soundness | Tuesday, September 16<br><br>Thursday, September 18  |
| Filling in Missing Premises, The Principle of Charity, A Crucial Distinction: <i>Merely Persuading vs Offering an Argument</i> | 4 | More on Reading/Listening for and Reconstructing the (Best Version of) an Argument.                                    | Van Cleave pp.25-49  |   | Tuesday, September 23<br><br>Thursday, September 25. |
| (Semi-) Formal Methods for Evaluating Arguments  | 5 | Propositional Logic, Introducing Truth-Tables, Negation and Disjunction, Translations                                  | Van Cleave pp.50-76  | Quiz 2 on October 2nd   | Thursday, October 2                                  |
| (Semi-) Formal Methods for Evaluating Arguments  | 6 | The Truth-Table Test of Validity, The 8 Valid Forms of Inference.  | Van Cleave pp.76-104   |   | Tuesday, October 7<br><br>Thursday, October 9        |
| Scheduled Practice/Review Days   | 7 | No New Material  | No New Readings  | Worksheets, Handouts, Group Activities  | Tuesday, October 14<br><br>Thursday, October 16      |

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| Categorical Logic   | 8  | (Semi-)Formal Methods for Evaluating Syllogisms,<br>The Venn Test                         | Van Cleave pp.115-139  | Quiz 3 on October 23rd       | Tuesday, October 21<br>Thursday, October 23    |
| Categorical Logic Continued, Inductive Arguments                          | 9  | Distinguishing Deductive from Inductive Arguments.<br>Common Types of Inductive Argument  | Van Cleave pp.23-25, 140-159.  |                              | Monday, October 27<br>Wednesday, October 29    |
| Inductive Arguments Continued   | 10 | More Types of Inductive Argument.<br>Evaluating Inductive Arguments for Strength/Cogency. | Van Cleave pp. 159-176.<br>Handout/exercises on Inductive Arguments. | Midterm Exam on November 6th | Tuesday, November 4<br>Thursday, November 6    |
| A Closer Look at Abductive Arguments (Inferences to the Best Explanation) | 11 | The power of inference to the best explanation.   | Johnson pp.37-47.  |                              | Thursday, November 13                          |
| The Role of Abductive Arguments in Scientific Reasoning.                  | 12 | Inference to the Best Explanation in Scientific Practice.<br>A Case Study.                | Johnson pp.49-65.  | Quiz 4 on November 20th      | Tuesday, November 18,<br>Thursday, November 20 |
| Statistical Reasoning: A Closer Look                                      | 13 | What can the numbers really tell us?  | Johnson pp.95-105.   |                              | Tuesday, November 25                           |

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|   |    |   |                            |   | Thursday,<br>November<br>27                            |
| Causes and<br>Correlations: A<br>Closer Look    | 14 | Causal reasoning,<br>its importance and<br>the challenges it<br>raises. | Johnson pp.107-115.        | Quiz 5 on<br>December<br>4th.               | Tuesday,<br>December 2<br><br>Thursday,<br>December 4  |
| And Now, What<br><i>Not</i> to Do:<br>Fallacies | 15 | Formal and<br>Informal Fallacies  | Van Cleave pp.176-<br>200. | Quiz 6 on<br>December<br>10 <sup>th</sup> . | Tuesday,<br>December 9<br><br>Thursday,<br>December 11 |

## STUDENT RESPONSIBILITIES:

Maintain an inclusive and respectful classroom environment, where no student is made to feel unwelcome or uncomfortable. Kindness and civility are not only compatible with spirited intellectual debate about controversial topics, but essential to it. Any student caught violating this policy will be asked to leave the class. Complete all course readings in advance of the session (s) in which we are to discuss them.

Be an active participant in the course (through contribution to class discussion etc.). My classrooms are NO PHONE ZONES. I would strongly encourage you to develop the habit of not bringing your phone to class at all. If you do bring a phone, you will be asked to turn it completely off and hand it in to me at the beginning of the session (I will provide a bin for this purpose).

Laptops may be used, but if I notice that you are using your laptop for any purpose other than accessing the course material/taking notes, or that you are distracting other students, I will ask you to put your device away.

## 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/polytechnic-leadership/policies-directory>.

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

## ADDITIONAL INFORMATION:

# NORTHWESTERN POLYTECHNIC



If you require special accommodations for any reason or have any concerns about the classroom environment, please do not hesitate to raise this with me. I am invested in creating a space where every student can flourish, and if there is anything holding you back from fulfilling your potential in my classroom, I want to know about it as soon as possible.