Core Concepts of Logical Analysis

Course description: In today's information-saturated world, the ability to think critically and reason effectively is more important than ever before. This course offers students a comprehensive dive into the realm of logical thinking; the primary goal is to arm students with a robust toolkit for discerning, evaluating, and constructing compelling arguments while steering clear of common reasoning pitfalls. Through the course, students will actively engage in classroom discussions and participate in challenging problem-solving exercises. By the end of this course, they should possess the knowledge to critically analyse arguments, deconstruct, and evaluate arguments to identify fallacies, and construct logically sound and persuasive positions. Ultimately, the course aims at enhancing students' analytical skills and critical thinking abilities, empowering them to navigate the complexities of the modern world with precision and clarity.

Readings: This course will follow the textbook *A Concise Introduction to Logic,* 13th Edition, by Patrick J. Hurley and Lori Watson.

Assessment structure:
Internal assessments: 50 marks
External assessment: 50-mark in-class final exam.

Syllabus and tentative schedule:

Weeks 1 – 3: Critical Reasoning: Identifying arguments in everyday life

- *What makes for an argument?* - Distinguishing between a collection of statements (opinion, belief, report, exposition, advice, warning, illustration, or example) and arguments.
- Conditional Statements
- Deductive and Inductive reasoning
- Assessing arguments in everyday life for validity, soundness, strength, and cogency.
- Reading: Chapter 1 of Hurley and Watson

Weeks 4 – 6: Critical Reasoning: Informal Fallacies

- Fallacies of Relevance: appeal to force/pity/people, accident, strawman, missing the point, red herring, argument against the person.
- Fallacies of Weak Induction: appeal to unqualified authority/ignorance, hasty generalization, false cause, slippery slope, weak analogy.
- Fallacies of Presumption, Ambiguity, and Illicit Transference: begging the question, complex question, false dichotomy, suppressed evidence, equivocation, composition, division.
- Fallacies in Ordinary Language
- Reading: Chapter 3 of Hurley and Watson

Weeks 7 – 9: Categorical Propositions and Syllogisms

- Components of categorical propositions – subject class, predicate class, quantifier, and copula
- Quality (universal/particular) and quality (affirmative/negative)
- Boolean standpoint on existential import, Venn Diagrams, and Modern Square of Opposition
- Combining the counter-example method (from chapter 1) and Venn diagrams to test validity of categorical syllogisms.
- Reading: Chapter 4 of Hurley and Watson.

Weeks 10 – 14: Propositional logic

- Symbols and Translation
- Truth Functions of compound statements
- Truth Tables for Propositions
- Truth Tables for Arguments
- Indirect Truth Tables
- Reading: Sections 6.1 - 6.6 of Chapter 6 of Hurley and Watson

Weeks 15: Revision and discussion