

# Critical Thinking and Data Literacy

CORE1901 (L1-L6) - Spring 2023

The Hong Kong University of Science and Technology

## Syllabus (Tentative)



Downloaded from: <https://www.quora.com/What-are-the-greatest-books-to-learn-problem-solving-and-critical-thinking>

Course Schedule: Tues & Thurs 09:00 – 10:20 (LTA)

## Course Instructors

### Lectures

- Prof. HUNG, Jenny, Assistant Professor/HUMA ([hunjhung@ust.hk](mailto:hunjhung@ust.hk))

### Tutorials - Science and Technology Group

- Prof. LIU, Y.S. Marshal, Associate Professor of Engineering Education/CBE ([keysliu@ust.hk](mailto:keysliu@ust.hk))
- Prof. MA, Robin Lok-Wang, Assistant Professor of Engineering Education/MAE ([melwma@ust.hk](mailto:melwma@ust.hk))
- Prof. VONG, Kenward, Assistant Professor/CHEM ([kvong@ust.hk](mailto:kvong@ust.hk))

### Tutorials - Business Group

- Prof. JAISINGH, Jeevan, Associate Professor of Business Education/ISOM ([jeevan@ust.hk](mailto:jeevan@ust.hk))
- Dr SAUERWEIN, Meike, Lecturer I/ENVR ([meike@ust.hk](mailto:meike@ust.hk))

### Tutorials - Personal Life and Society Group

- Prof. MILES, Steven B., Professor/HUMA ([hmsbmiles@ust.hk](mailto:hmsbmiles@ust.hk))
- Prof. ZHANG, Dong, Assistant Professor/SOSC ([dongzhang@ust.hk](mailto:dongzhang@ust.hk))
- Prof. CHASNOV, Jeffrey Robert, Professor/MATH ([machas@ust.hk](mailto:machas@ust.hk))

### Instructional Assistants

- Mr. AU-YEUNG, Chapmann ([aychapmann@ust.hk](mailto:aychapmann@ust.hk))
- Ms. CHOY, Yee Lam (Stephanie) ([ylcsteph@ust.hk](mailto:ylcsteph@ust.hk))

## **Course Description**

This course provides an introduction to critical thinking and data literacy.

Students will be equipped with critical tools to analyse problems of reasoning, evaluate the truthfulness of evidence, examine the fallacies of thinking, as well as the ability to construct valid arguments and reasonable solutions for their personal and professional life.

## **Course ILOs**

Upon completion of this course, students are expected to be able to do the following:

1. Identify and analyse relevant information, data, and sources for problems
2. Articulate assumptions made in arguments
3. Construct valid arguments using analytical skills, data, and evidence
4. Justify solutions with relevant criteria and standards
5. Evaluate implications and consequences of the solutions
6. Communicate decisions effectively using data and evidence

## **Course Highlights**

1. One of the Foundations courses of the University's Common Core Program which is designed to enhance students' critical thinking and problem-solving competencies. These competencies are transferable which can be used throughout their undergraduate study.
2. Students will learn critical tools to analyse problems of reasoning, evaluate the truthfulness of evidence, examine the fallacies of thinking, as well as the ability to construct valid arguments and reasonable solutions in the lectures.
3. The tutorials are delivered with problem-based learning approach to enhance active learning.

## **Assessment**

- 1. Class Participations - 15%
- 2. Written Assignments - 3 x 20%
- MC Quizzes - 25% (1<sup>st</sup> Quiz on Feb 23; 2<sup>nd</sup> Quiz on Mar 16)

## **Textbook**

Chatfield, Tom. 2018. Critical Thinking: Your Guide to Effective Argument, Successful Analysis & Independent Study. Sage Publications Ltd. (All readings will be uploaded to Canvas.)

### Course Schedule (tentative)

Lectures at LTA (Weeks 1-6)

	Date	Content	Readings
Module 1: Argumentation	Feb 7	Introduction. What is an Argument?	Chatfield, ch. 1
	Feb 9	Reconstructing an Argument	Chatfield, ch. 2
Module 2: Reasoning	Feb 14	Deduction	Chatfield, ch. 3
	Feb 16	Induction	Chatfield, ch. 4
	Feb 21	Abduction	Chatfield, ch. 5
	Feb 23	<b>Quiz</b>	No readings
Module 3: Fallacies	Feb 28	Formal Fallacies	Chatfield, ch. 8
	Mar 2	Informal Fallacies	Chatfield, ch. 10 (selected)
Module 4: Cognitive bias	Mar 7	What is a Heuristic?	Chatfield, ch. 9
	Mar 9	The Anchoring & Representativeness Heuristic	Chatfield, ch. 11
	Mar 14	Loss aversion & Confirmation bias	No readings
	Mar 16	<b>Quiz</b>	No readings

### Tutorials (Weeks 7-12)

Please refer to Canvas for more information.