

To accomplish this, this is a **skills-based** course, meaning that you will be constantly applying the skills we are teaching you.

Course and Class Structure

This is not a typical course, as it emphasizes application of all materials. You will notice that there is very little lecturing and much more class-based discussion and activity.

A typical class will go something like this:

1. **Introduction (5-10 minutes):** a brief introduction to the topic by your instructors.
2. **Quiz (5 minutes):** on the readings for the day.
3. **Overview (10-15 minutes):** comments and overview of that day's readings by your instructors, questions about the concepts of the day.
4. **Group Analysis (30-40 minutes):** described in detail below; groups of 4-6 people will discuss and analyze essays or presentations.
5. **In-class Exercise (10-40 minutes):** we will sometimes spend time on an activity meant to integrate and further reinforce the concepts of the day.
6. **Real-World Applications (if time permits):** various aspects of life in the "real world" of science (how to write, give presentations, find a suitable grad school, get a good job in research, etc.). The contents of this segment will not be tested on the exams—the real test will be life itself.

Some Advice We Can Give You

1. **You are responsible for reading assigned material BEFORE the class.** Read 'actively' – pay attention to what you're reading, ask yourself what point(s) the author(s) is trying to make, why this matters, and so on. Read it critically. Try to apply it to the material you'll be submitting.
2. Attend class. If you must miss a class, talk to a classmate – get their lecture notes. Lecture notes are sparse and the bulk of learning happens through the activities.
3. If you're having any trouble with the course, please speak to the instructor or the TA right away. We are here to help you (in fact, it is our job and duty to do so!). Please always reach out.

Readings

All of your reading are available online on the course website, and you do not need to purchase any materials for this course. The readings are organized into four groups:

- **[Beveridge]:** Beveridge, WIB (1957). *The Art of Scientific Investigation* (3rd ed.). Caldwell, NJ: Blackburn
- **[Heuer]:** Heuer RJ, Jr. (1999). *Psychology of Intelligence Analysis*.
- **[B&K]:** Browne MN, and Keeley SM. (2009). *Asking the Right Questions* (8th ed). Prentice.
- **[By Name]:** All named readings (e.g., Dweck) are available online sorted by name.

Tips for Reading Actively

You will be doing a lot of reading in this course. This will not only include the reading material for each day, but also original scientific research for your critiques, the essays of your classmates, etc. As such, it is critical that you learn to “read actively”:

- **Active reading means thinking while reading.** Most scientific articles are not written as novels that can absorb you in their world and story. Because of this, you need to immerse yourself in the reading and not expect it to draw you in. You will find much beauty and interest once you are stuck in a reading yourself, however.
- **Find the structure of the argument.** Without understanding the shape of the paper and what the author is trying to say, you will not be able to understand how each sentence and paragraph fits. If it helps, make a flowchart of the argument.
- **Constantly write down your thoughts.** Big or small – nobody is going to read them, but reflect and note the thoughts, the ideas, and the questions you have.
- **Write a brief summary.** When you are done reading any significant portion, write (without copying) a summary of the argument. You will quickly find out which parts made sense and which did not.
- **Don’t be afraid of not understanding.** These topics are hard (there is a reason you need a Ph.D. to contribute to them). You will get it. We’ll help you with this.

Requirements

Quizzes	10%
Essays	15%
Presentations	10%
Group Analysis	15%
Critique	15%
Debates	10%
Midterm	10%
Final Exam	15%

Scaling Policy

The Cognitive Systems Program reserves the right to scale grades in order to maintain fairness across different sections or with school norms. The anticipated distribution of grades is an average of 65 – 67% with SD of 14%. *Once submitted by us, the grades that you receive in this course may be scaled by the faculty (either up or down).* Your grades are not official until they appear on your transcript.

This is also good – if the grades are too low, we will bring them up!

Quizzes (In-Class, Solo)

Brief questions about the readings covered that day; these will be asked at the beginning of most classes. Students will have 5-6 minutes to answer. Questions will be straightforward. The answers should be brief. The mark for each quiz will be 0, 1/2, or 1.

Essays (Submitted, Solo)

Topics will be provided before or during class. Each essay will be no more than 400 words. Each student will hand in 3. A subset will be randomly selected each time for group analysis.

Presentations (In-Class, Solo)

Presentations of studies that illustrate the point of the day, along with a commentary. Each student will do 2.

Group Analysis (In-Class, Group)

Groups of 4-5 students will analyze submitted material (essays or presentations) according to the criteria discussed and provided. These analyses themselves will be marked. Only those students present during an analysis will get the mark for that analysis.

Critique (Submitted, Solo)

Each student will find two papers on a topic from a research area of Cognitive Systems (Computer Science, Psychology, or Linguistics) and write an essay comparing the strengths and weaknesses of each. Detailed information about the form of the critiques is available on the course website and below.

Debates (In-Class, Group)

Four sessions will be held, during which teams of students will debate particular issues concerning research in Cognitive Systems. Detailed information about the form of the debates is available on the course website and below.

Midterm and Final Exam (In-Class, Solo)

These will cover the contents of the readings and the notes posted online (whether or not they were discussed in class). It will test the general skills developed up to that point.

Details on Critiques

The goal of the 5200-word critique is for you to write a critique of two research papers on your favourite topic in Cognitive Systems— one very influential (Paper 1 > 100 citations); the other not (Paper 2 < 10 citations). The topics of the papers should be similar enough that the author of one could be a reviewer for the other, but no common authors. These should be source papers on empirical work (NOT review or theoretical/philosophy papers). Each paper should be published in an academic journal and be at least 5 years old. You will analyze the quality of writing, the arguments, of the research design, etc.

Each paper (influential or not) can only be claimed by one student. A paper belongs to the first student who claims it by emailing the TA. Any other discussion based on that source will be disregarded. You don't have to register your paper(s), but if you don't, you run the risk of being scooped.

A critique will have its mark reduced to 85% of its current value for every 24-hour period (or part thereof) that it is late. This reduction is compounded for each day it is late. Critiques will not be accepted after the date of the final exam.

Remaining details on the critique are available online.

Details on Debates

The purpose of the debates is to allow you to practice hands-on skills at analysis and critique of arguments. Students will be divided into groups of 2-3 people and will then be given a choice of possible topics. Groups will select the topics that most interest them, and the TA will attempt to give each group their first choice.

Once two groups have chosen the topic, they should prepare (together or apart) for the debate. *You will not know whether you will argue for or against the debate point (this will be determined by a coin toss just before the debate).* You must therefore prepare to argue either position. Each team will present an agreed-upon definition, opening remarks, a rebuttal against the other team, a brief “crossfire” segment, and closing remarks. There will then be an opportunity for questions.

The grade will be assigned by an evaluation of the other class members and your instructors. Each group member will also indicate what percentage of the work was performed by each group member. Grades will then be allocated according to the mutually agreed division of labour.

Remaining details on the debates are available online.

UBC Early Alert Program

During the term, we will do our best to reach out and offer support if we are concerned about your academic performance or wellbeing. We also encourage you to come and speak with us if you need assistance.

In addition, we identify our concerns using Early Alert. The program allows academic, financial, or mental health concerns to be identified sooner and responded to in a more coordinated way. This provides you with the earliest possible connection to resources like academic advising, financial advising, counselling, or other resources and support to help you get back on track.

The information is treated confidentially and is sent because we care about your academic success and wellbeing. For more information, please visit earlyalert.ubc.ca.

Academic Misconduct

What counts as Academic Misconduct?

The University of British Columbia has a very precise definition of which behaviours count as academic misconduct. You are strongly encouraged to read and make sure you understand this policy. If you have any questions, please ask us. You can find the UBC policy on Academic Misconduct here:

www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,111,959

How is Academic Misconduct Caught?

Very easily (we are psychologists, after all). Besides being able to easily catch cheating during exams from simply seeing you, the Department has implemented software that can reliably detect cheating on multiple-choice quizzes, midterms, and exams by analyzing the patterns of students' responses.

How is Academic Misconduct Treated?

In all cases of suspected academic misconduct, the parties involved will be pursued to the fullest extent dictated by the guidelines of the University. Strong evidence of cheating may result in a zero credit for the work in question. According to the University Act (section 61), the President of UBC has the right to impose harsher penalties including (but not limited to) a failing grade for the course, suspension from the University, cancellation of scholarships, or a notation added to a student's transcript.

Academic misconduct, including cheating, plagiarism, and handing work in somebody else's name is simply not worth it. If you are struggling in this course, please come and talk to us – it is our job to help you!

Date	Topic	Assignment	Readings
Jan-03	Course Introduction		Dweck
Jan-05	Levels of Explanation		Marr
-- The Structure of Arguments --			
Jan-10	Belief and Knowledge	Essay 1A	Burton, B&K 1,2
Jan-12	Argument Structure	Essay 1B	B&K 4, Booth
Jan-17	Meanings of Terms	Essay 1C	B&K 5, N&B, Freedman
Jan-19	~ DEBATES 1 ~		
Jan-24	Hypothesis	Presentation 1B	Heuer 4, Beveridge 4
Jan-26	Assumptions	Essay 2A	B&K 6, Heuer 6
Jan-31	Reasoning	Presentation 1C	Taleb, B&K 7
Feb-02	Bias	Essay 2B	Cohen & Cohen
Feb-07	Evidence	Presentation 1A	
Feb-09	~ DEBATES 2 ~		
-- Sources of Evidence --			
Feb-14	Observation	Essay 2C	Heuer 2, Beveridge 8
Feb-16	Intuition, Review		Claxton, Beveridge 6
Feb-21	No Class (Midterm Break)		
Feb-23			
Feb-28	~ MIDTERM ~		
Mar-02	Thought Experiments		Tittle
Mar-07	Selecting Alternatives		Cadsby, B&K 10, Heuer 8
Mar-09	~ DEBATES 3 ~		
-- Experimentation --			
Mar-14	Paradigms	Presentation 2B	Beveridge 9, Kuhn
Mar-16	Role of Chance	Essay 3C	Gilovich, Yang
Mar-21	Research Questions	Presentation 2A	Baumeister, Abelson (11-14)
Mar-23	Analysis	Essay 3B	Sieger, Jamieson, Simmons
Mar-28	Experimental Design	Essay 3A	Cohen
Mar-30	~ DEBATES 4 ~		
-- Formalization --			
Apr-04	Logic	Presentation 3C	Magus
Apr-06	Algorithms, Networks	Critiques Due	Simon, Barabasi (55-64)
Final Exam will be Scheduled during Exams Period			