DETAILED COURSE OUTLINE

A. COURSE OVERVIEW

**Department:** Psychology

**Subject/Catalog Number(s):** PSYC 221

**Single or Multi-Term Course:** Single Term

**Course Units:** 3.0

**Course Title:** Cognitive Psychology

*Course Calendar Description*

Cognitive psychology is the study of the mind. By employing the scientific method, cognitive psychologists develop an understanding of the processes involved in all aspects of thinking, including attention, perception, memory, reasoning, language, and problem-solving. With the human brain considered to be the most complex object known to exist, and maybe the most powerful learning system known to exist, the study of the thinking processes it produces is immensely challenging. With this complexity and the challenge of using our own thinking to study human thinking, cognitive psychology represents a rich and fascinating research domain.

**Prerequisites**

PSYC 100/6.0 Principles of Psychology

**Learning Hours**

Learning hours include in-class lecture/seminar/laboratory/tutorial hours (formerly referred to as contact hours) and out-of-class online/private study hours. This information will be the basis for setting up the course components in PeopleSoft, and should be consistent with the proposed units assigned to the course. For example, a 3.0-unit course would normally require from 110 to 130 total learning hours or hours on task.

<table>
<thead>
<tr>
<th>Teaching method</th>
<th>Average hours per week</th>
<th>Number of weeks</th>
<th>Total hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-class hours</strong></td>
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<td></td>
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<tr>
<td>Lecture</td>
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<tr>
<td>Seminar</td>
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<td>Laboratory</td>
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<td>Tutorial</td>
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<td>Group learning</td>
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<tr>
<td>Individual</td>
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</table>
### Time Commitment
Students can expect to spend approximately 9 to 10 hours per week (120 hours total) reading, watching videos, studying, and completing discussions or lab activities.

### Method of Delivery
Online format with video materials, communication and discussion assignments conducted via the OnQ platform. The cognitive labs will be conducted via the online COGLAB 5 platform, but the submission of cognitive labs will be via the OnQ platform.

### Learning Outcomes
- Identify and explain classic and current issues within cognitive psychology (including but not limited to perception, attention, memory, knowledge, language, problem solving, and reasoning and decision making).
- Identify and explain standard methodological approaches used in the study of human cognition and cognitive neuroscience.
- Engage in critical reading of empirical evidence used to examine theories of cognition.
- Explain how experimental findings inform theories of cognition.
- Collaborate with peers to analyze experimental designs and theories and effectively communicate the results.

### Required Materials
- Bundle which consists of Goldstein textbook and COGLAB 5 Access (ISBN-10: 1305416422)

<table>
<thead>
<tr>
<th>Other</th>
<th>instruction</th>
<th>Off-campus activity</th>
<th>Private study</th>
<th>Total hours on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online activity</td>
<td>4</td>
<td>12</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Off-campus activity</td>
<td>6</td>
<td>12</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Total hours on task</td>
<td></td>
<td></td>
<td></td>
<td>120</td>
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Assessment Structure and Overview

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Formative or Summative</th>
<th>Weight</th>
<th>Alignment with Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Discussions (highest 4 out of 5)</td>
<td>Formative</td>
<td>20%</td>
<td>1,2,5</td>
</tr>
<tr>
<td>Online Quizzes (highest 8 of 10)</td>
<td>Summative</td>
<td>20%</td>
<td>1,2</td>
</tr>
<tr>
<td>Cognitive Lab Assignments (highest 4 out of 5)</td>
<td>Summative with formative elements</td>
<td>20%</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td>Final Exam (proctored)**</td>
<td>Summative</td>
<td>40%</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

**Online Quizzes**
There are 10 quizzes. The quizzes will consist of 10 multiple-choice questions based on the weekly material from weekly videos and textbook readings. Your final quiz grade will be based on your highest 8 quizzes.

**Online Discussions**
- On odd-numbered weeks, you will complete a discussion assignment.
- Week 1:
  - You will participate in an unmarked discussion assignment meant to familiarize you with the discussion forum.
- Weeks 3, 5, 7, 9, and 11:
  - You will be randomly assigned to small groups and have a TA or the instructor assigned to your group to facilitate your discussion. There will be three components to each discussion assignment:
    - **Initial post:** Each student will first provide a response to the discussion question,
    - **Participation:** Each student will participate in discussion forum by responding to other students’ posts.
    - **Final post:** Your discussion group will provide a single final submission to the dropbox.
  - You will be marked on the quality of your initial post, your contribution to the discussion forum, and the quality of the group’s final submission to the dropbox.
  - Each discussion will be worth 10 points (2 points for your individual initial post, 2 points for participating in the discussion forum, and 6 points for the group’s final dropbox submission).
  - Your final discussion grade will be based on your best 4 discussions.

**Cognitive Lab Assignments**
- On even-numbered weeks, you will complete a cognitive lab assignment.
- Week 2:
  - You will participate in an unmarked cognitive lab assignment meant to familiarize you with the structure of the cognitive labs.
• Weeks 4, 6, 8, 10, and 12:
  o You will complete a cognitive lab, and submit a written assignment (maximum 2 pages in length). Each written assignment is designed to demonstrate your understanding of that week’s cognitive lab.
  o Each cognitive lab will be worth 10 points (rubric provided for each individual lab).
  o Your final cognitive lab grade will be based on your best 4 cognitive labs.

Final Exam
The Final Exam is three hours in length and includes multiple-choice and short answer questions based on the material from the entire term. The specific date for the final exam will be announced later in the term.

Late Policy
• Online discussions must be completed within the open discussion period of 5 days, otherwise a grade of zero will be assigned.
• Online quizzes must be completed during the 24 hour testing window, otherwise a grade of zero will be assigned.
• Late cognitive lab assignments will be penalized 10% per day late including weekend days.

Communication
The teaching team contact information is located on the home page of the course (see “Teaching Team”). For general questions about the course, please post to the discussion forum topic, Questions (located on the upper right corner of the home page of the course). Feel free to help answer your peer’s questions on this forum. We will reply to email inquiries and discussion forum questions usually within 24 hours. Please use email for inquiries that are more personal in nature or questions such as academic accommodations, marking issues, etc. If you need to have a more detailed conversation, please schedule a virtual office meeting with the Professor.

Accessibility/Accommodation
Queen’s University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities.

If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Queen’s Student Accessibility Services (QSAS) and register as early as possible. For more information, including important deadlines, please visit the QASA website at: http://www.queensu.ca/studentwellness/accessibility-services/

Academic Integrity
Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see www.academicintegrity.org). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community can thrive.
Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University; see Senate Report on Principles and Priorities http://www.queensu.ca/secretariat/policies/senateandtrustees/principlespriorities.html.

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments conform to the principles of academic integrity. Information on academic integrity is available on the Arts and Science website (see http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity), and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Copyright Statement
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Copying this material for distribution (e.g. uploading material to a commercial third-party website) can lead to a violation of Copyright law. Find out more about copyright here: http://library.queensu.ca/copyright.

Discussion Forum and Email Guidelines

Please consider the following guidelines when posting to the discussion forum and when sending emails to your professor or your TA:

1. **Be clear**: Make sure the subject line of your email or discussion forum post reflects its content.
2. **Use appropriate language**: If you have a question and you are feeling emotional, don’t send the message, save it, and review it "later". Don’t use ALL CAPITAL LETTERS--it’s equal to shouting or screaming. Also, when you communicate online, you do not see a person’s face or expressions and this makes for easy misinterpretation. A rule of thumb to remember is, “Would I say this if I were talking face to face to this person?”
3. **Make a good impression**: Your words and content represent you; review and edit your emails and discussion posts before sending.
4. **Share**: Share resources, ideas and tips with other students.
5. **Open-minded**: Keep an “open-mind”. Be willing to express your opinion and be respectful of the opinions of others.
**Grading Method**

The final grade received for the course will be derived by converting the student’s numerical course average to a letter grade according to Queen’s Official Grade Conversion Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Numerical Course Average (Range)</th>
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<tbody>
<tr>
<td>A+</td>
<td>90-100</td>
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<tr>
<td>A</td>
<td>85-89</td>
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<tr>
<td>A-</td>
<td>80-84</td>
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<tr>
<td>B+</td>
<td>77-79</td>
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<tr>
<td>B</td>
<td>73-76</td>
</tr>
<tr>
<td>B-</td>
<td>70-72</td>
</tr>
<tr>
<td>C+</td>
<td>67-69</td>
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<tr>
<td>C</td>
<td>63-66</td>
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<tr>
<td>C-</td>
<td>60-62</td>
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<tr>
<td>D+</td>
<td>57-59</td>
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<tr>
<td>D</td>
<td>53-56</td>
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<tr>
<td>D-</td>
<td>50-52</td>
</tr>
<tr>
<td>F</td>
<td>49 and below</td>
</tr>
</tbody>
</table>

**Student Resources**

- **The Library** offers many great services to enhance your learning while at Queen’s.  
  - [http://library.queensu.ca](http://library.queensu.ca)
- **Writing Services**  
  - [http://sass.queensu.ca/writingcentre/](http://sass.queensu.ca/writingcentre/)
- **Student Wellness Services** support the personal, academic and social development of students at Queen's University by providing a range of programmes and services.  
  - [http://www.queensu.ca/studentwellness/](http://www.queensu.ca/studentwellness/)
- **Career Services** offers students various services including workshops.  
  - [https://careers.sso.queensu.ca/home.htm](https://careers.sso.queensu.ca/home.htm)
<table>
<thead>
<tr>
<th>Week</th>
<th>Required Course Material</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| Week 1 January 9-15 | • Module 1 Outline  
• Goldstein Chapter 1  
• Chapter 1 Video Lessons  
• Intro to Discussion Forum | Intro to Discussion Forum (not graded):  
• Responses due Jan. 22 @ 11:55pm |
| Week 2 January 16-22 | • Module 2 Outline  
• Goldstein Chapter 2  
• Chapter 2 Video Lessons  
• Intro to Cognitive Labs Task | Intro to Cognitive Labs (not graded):  
• Due January 22 @ 11:55pm |
| Week 3 January 23-29 | • Module 3 Outline  
• Goldstein Chapter 3  
• Chapter 3 Video Lessons  
• Discussion #1 | Quiz #1 (Chapters 1-2)  
• Opens January 24 @ 9:00am  
• Due January 25 @ 9:00am  
Discussion #1  
• Initial post due Jan. 26 by 10:00am  
• Response due Jan. 29 by 11:55pm |
| Week 4 January 30-February 5 | • Module 4 Outline  
• Goldstein Chapter 4  
• Chapter 4 Video Lessons  
• Cognitive Lab #1 | Quiz #2 (Chapter 3)  
• Opens January 30 @ 9:00am  
• Due January 31 @ 9:00am  
Cognitive Lab #1  
• Due February 3 at 11:55pm |
| Week 5 Feb. 6-12 | • Module 5 Outline  
• Goldstein Chapter 5  
• Chapter 5 Video Lessons  
• Discussion #2 | Quiz #3 (Chapter 4)  
• Opens February 6 @ 9:00am  
• Due February 7 @ 9:00am  
Discussion #2  
• Initial post due Feb. 9 by 10:00am  
• Responses due Feb. 12 by 11:55pm |
| Week 6 Feb. 13-17 | • Module 6 Outline  
• Goldstein Chapter 6  
• Chapter 6 Video Lessons  
• Cognitive Lab #2 | Quiz #4 (Chapter 5)  
• Opens Feb. 13 @ 9:00am  
• Due Feb. 14 @ 9:00am  
Cognitive Lab #2  
• Due February 17 at 11:55pm |
| Reading Week Feb. 20-26 |  |  |
| Week 7 Feb. 27-March 5 | • Module 7 Outline  
• Goldstein Chapter 7  
• Chapter 7 Video Lessons  
• Discussion #3 | Quiz #5 (Chapter 6)  
• Opens Feb. 27 @ 9:00am  
• Due Feb. 28 @ 9:00am  
Discussion #3  
• Initial post due March 2 by 10 am  
• Responses due March 5 by 11:55 pm |
| Week 8  | March 6-12 | • Module 8 Outline  
• Goldstein Chapter 8  
• Chapter 8 Video Lessons  
• Cognitive Lab #3 |
|---------|------------|-----------------------|
|         |            | **Quiz #6 (Chapter 7)**  
• Opens March 6 @ 9am  
• Due March 7 @ 9am |
|         |            | **Cognitive Lab #3**  
• Due March 10 by 11:55pm |

| Week 9  | March 13-19 | • Module 9 Outline  
• Goldstein Chapter 9  
• Chapter 9 Video Lessons  
• Discussion #4 |
|---------|-------------|-----------------------|
|         |             | **Quiz #7 (Chapter 8)**  
• Opens March 13 @ 9am  
• Due March 14 @ 9am |
|         |             | **Discussion #4**  
• Initial post due March 16 by 10am  
• Responses due March 19 by 11:55pm |

| Week 10 | March 20-26 | • Module 10 Outline  
• Goldstein Chapter 11  
• Chapter 11 Video Lessons  
• Cognitive Lab #4 |
|---------|-------------|-----------------------|
|         |             | **Quiz #8 (Chapter 9)**  
• Opens March 20 @ 9am  
• Due March 21 @ 9am |
|         |             | **Cognitive Lab #4**  
• Due March 24 by 11:55pm |

| Week 11 | March 27-April 2 | • Module 11 Outline  
• Goldstein Chapter 12  
• Chapter 12 Video Lessons  
• Discussion #5 |
|---------|------------------|-----------------------|
|         |                  | **Quiz #9 (Chapter 10)**  
• Opens March 27 @ 9am  
• Due March 28 @ 9am |
|         |                  | **Discussion #5**  
• Initial post due March 30 by 10:00 am  
• Response due April 2 by 11:55pm |

| Week 12 | April 3-7 | • Module 12 Outline  
• Goldstein Chapter 13  
• Chapter 13 Video Lessons  
• Cognitive Lab #5 |
|---------|-----------|-----------------------|
|         |           | **Quiz #10 (Chapter 12)**  
• Opens April 3 @ 9am  
• Due April 4 @ 9am |
|         |           | **Cognitive Lab #5**  
• Due April 7 @ 11:55pm |
Module 1: Introduction to Cognitive Psychology

Learning Outcomes

By the end of this module, you will

- Outline key historical developments in the history of cognitive psychology.
- Describe the impact of behaviourism on the study of mind.
- Describe the decline of behaviourism and the impact that the “cognitive revolution” had on the study of mind.
- Explain the role of models in cognitive psychology.

Learning Resources

- Required Reading
  - Read Goldstein Chapter 1

- Video Lessons
  - Chapter 1 Video Lessons

- Further Exploration (not required)

Learning Activities (see course timeline for specific due dates)

- Participate in the introduction to discussion forum (not graded).
Module 2: Cognitive Neuroscience

Learning Outcomes

By the end of this module, you will

- Discuss how neurons represent information.
- Explain localization of function and the principle of double dissociations.
- Describe in basic terms how functional magnetic resonance imaging works.
- Describe how brain imaging has contributed to our understanding of brain function.
- Explain the concept of distributed representations.

Learning Resources

- **Required Reading**
  - Read Goldstein Chapter 2

- **Video Lessons**
  - Chapter 2 Video Lessons

- **Further Exploration**
  - (not required)

Learning Activities *(see course timeline for specific due dates)*

1. Participate in the introduction to discussion forum *(not graded).*
2. Complete introduction to cognitive labs *(not graded).*
Module 3: Perception

Learning Outcomes

By the end of this module, you will

- Identify the basic characteristics of perception
- Explain why perception is difficult for machines
- Discuss key conceptualizations of object perception.
- Explain how empirical evidence informs our understanding of perception.
- Describe how perception interacts with action

Learning Resources

- Required Reading
  - Read Goldstein Chapter 3

- Video Lessons
  - Chapter 3 Video Lessons

- Further Exploration (not required)

Learning Activities

1. Complete Quiz #1 based on weeks 1 and 2 materials
2. Participate in Discussion Forum 1: Illusions
Module 4: Attention

Learning Outcomes

By the end of this module, you will

- Describe major models of selective attention, in particular Broadbent’s filter model and Lavie’s load model.
- Explain how empirical evidence informs our understanding of attentional control.
- Examine how our understanding of attentional processes has been applied to everyday life, in particular in the context of driving.
- Discuss how failures to attend impact our behaviour

Learning Resources

- **Required Reading**
  - Read Goldstein Chapter 4

- **Video Lessons**
  - Chapter 4 Video Lessons

- **Further Exploration**
  - **(not required)**

Learning Activities

1. Complete Quiz #2 based on week 3 material
2. Complete Cognitive Lab Assignment #1
Module 5: Short-Term and Working Memory

Learning Outcomes

By the end of this module, you will

- Explain major models of short-term and working memory, in particular the modal model.
- Identify and explain the key characteristics of short-term memory.
- Describe the key components of working memory, in particular the phonological loop and the visuospatial sketch pad.
- Describe how working memory is implemented in the brain.
- Explain how empirical evidence informs our understanding of short-term and working memory.

Learning Resources

- **Required Reading**
  - Read Goldstein Chapter 5

- **Video Lessons**
  - Chapter 5 Video Lessons

- **Further Exploration**
  - (not required)

Learning Activities

- Complete Quiz #3 based on week 4 materials (chapter 4)
- Participate in Discussion Forum #2
Module 6: Long-Term Structure

Learning Outcomes

By the end of this module, you will

- Compare the relation between short-term and long-term memory processes.
- Compare the relation between episodic and semantic memory.
- Explain automatic aspects of long-term memory, in particular procedural memory, priming, and conditioning.
- Describe how long-term memory is implemented in the brain.
- Describe how empirical evidence informs our understanding of long-term memory.

Learning Resources

Required Reading
- Read Goldstein Chapter 6

Video Lessons
- Chapter 6 Video Lessons

Further Exploration (not required)

Learning Activities

- Complete Quiz #4 based on week 5 materials (chapter 5)
- Complete Cognitive Lab Assignment #2
Module 7: Long-Term Memory: Encoding, Retrieval, and Consolidation

**Learning Outcomes**

By the end of this module, you will

- Describe how information is encoded into and retrieved from long-term memory.
- Explain how empirical evidence informs our understanding of how memories are consolidated into long-term memory representations.
- Explain how empirical evidence informs our understanding of encoding, retrieval, and consolidation.

**Learning Resources**

**Required Reading**
- Read Goldstein Chapter 7

**Video Lessons**
- Chapter 7 Video Lessons

**Further Exploration**
- (not required)

**Learning Activities**

1. Complete Quiz #5 based on week 6 materials (chapter 6)
2. Participate in Discussion Forum #3
Module 8: Everyday Memory and Memory Errors

Learning Outcomes

By the end of this module, you will

- Identify and describe key characteristics of autobiographical memory.
- Describe how memory for exceptional events is unique, especially in terms of its connection with emotion.
- Discuss how evidence supports the theory that memory is “constructed”.
- Describe the fallibility of memory in particular how it can be modified and how false memories can be created
- Explain how the fallibility of memory has real world consequences, in particular in terms of eyewitness memory.

Learning Resources

- Required Reading
  - Read Goldstein Chapter 8

- Video Lessons
  - Chapter 8 Video Lessons

- Further Exploration
  (not required)

Learning Activities

1. Complete Quiz #6 based on week 7 materials (chapter 7)
2. Complete Cognitive Lab Assignment #3
Module 9: Knowledge

Learning Outcomes

By the end of this module, you will

- Explain the semantic network approach to the understanding of knowledge representation.
- Describe the empirical evidence that supports and the evidence that does not support the Collins and Quillian model.
- Explain how connectionist models represents and learns information.
- Describe the four hypotheses as to how information is represented in the brain and the evidence for and against each one.

Learning Resources

- **Required Reading**
  - Read Goldstein Chapter 9

- **Video Lessons**
  - Chapter 9 Video Lessons

- **Further Exploration**
  - (not required)

Learning Activities

- Complete Quiz #7 based on week 8 materials (chapter 8)
- Participate in Discussion Forum #4
Module 10: Language

Learning Outcomes

By the end of this module, you will

- Describe the word superiority effect and its implications for language processing.
- Describe the word frequency effect.
- Explain the concept of coherence and how inference helps produce coherence.
- Explain syntactic co-ordination and describe how syntactic priming has been used to support syntactic co-ordination.
- Compare the syntax-first approach and the interactionist approach to parsing.
- Describe the Sapir-Whorf hypothesis, and empirical evidence that supports this hypothesis.

Learning Resources

- Required Reading
  - Read Goldstein Chapter 11
- Video Lessons
  - Chapter 11 Video Lessons
- Further Exploration (not required)

Learning Activities

- Complete quiz #8 based on week 9 materials (chapter 9)
- Complete Cognitive Lab Assignment #4
Module 11: Problem Solving

Learning outcomes

By the end of this module, you will

- Describe the gestalt approach to the understanding of problem-solving.
- Describe the information approach to the understanding of problem-solving.
- Explain how analogies are used to solve problems.
- Describe differences between how experts and novices solve problems, and limitations on expertise in problem-solving.
- Describe the role of creativity in problem-solving.

Learning Resources

Required Reading
- Read Goldstein Chapter 12

Video Lessons
- Chapter 12 Video Lessons

Further Exploration (not required)

Learning Activities

1. Complete Quiz #9 based on week 10 materials (chapter 11)
2. Participate in Discussion Forum #5
Module 12:Judgement, Decisions, and Reasoning

Learning Outcomes

By the end of this module, you will

- Explain the concept of heuristics and provide examples.
- Describe factors that influence decision making processes.
- Describe the mental model approach to reasoning.
- Explain the concept of conditional syllogism and describe the types of syllogisms.
- Explain the Wason four-card problem.
- Explain the dual systems approach to thinking.

Learning Resources

Required Reading

- Read Goldstein Chapter 13

Video Lessons

- Chapter 13 Video Lessons

Further Exploration (not required)

Learning Activities

1. Complete Quiz #10 based on week 11 materials (chapter 12)
2. Complete Cognitive Lab Assignment #5
Extra stuff in case I rearrange chapters covered:

Week 13

Topics
- Judgment, decisions, and reasoning

Unit learning outcomes
- Add unit level learning outcomes.

Readings
- Goldstein Chapter 13

Activities