Course Description  PSYC2066: Foundations of Cognitive Science  Spring 2020

Textbook
The course uses the recent book:

Instructor
Name: Dr. Janet Hsiao
Office: JCT623 (6/F Jockey Club Tower, Centennial Campus)
Email: jhsiao@hku.hk
Consultation hour: By appointment

Tutor
Name: Myrte Druyvesteyn
Office: JCT617
Email: mldruyv@hku.hk
Consultation hour: By appointment

Name: Mercury Zheng Yueyuan  
Office: JCT712
Email: u3514160@connect.hku.hk
Consultation hour: Wed 14:30-15:30

Name: Mohith Mukund Verma
Office: JCT712
Email: mohith96@connect.hku.hk
Consultation hour: By appointment

Lecture
Fridays, 12:30am – 2:20am, CPD-2.37

Course Objectives for Students
On completing this course, students will be able to:

1. Develop basic understanding of core findings from across the interdisciplinary field of Cognitive Science.
2. Develop research skills and the ability to understand research findings from a variety of the constituent disciplines that make up the field of Cognitive Science, and the ability to critically evaluate such research.
3. Critically reflect upon their own conceptions of the nature of consciousness and mental phenomena, and whether these views are supported by theory and empirical evidence.
4. Work as a member of a team to investigate and study mental phenomena.

Prerequisite:  LING1000 or LING1001 or PHIL1002 or PHIL1012 or PSYC1001 or CSIS1117 or COMP1117

Course website
You should be able to access the Moodle for this course through your HKU portal once you have
successfully enrolled in the course. If you haven’t enrolled for this course, please access Moodle through: http://hkportal.hku.hk/moodle/guest, using the corresponding guest account

Username: psyc2066_2a_2019_guest
Password: PSYC2066_guest

If you have any problem accessing Moodle, please contact the tutor. **Note that it is your responsibility to check the website regularly**, because updated information about the course will be posted there. In addition, course materials will be posted there before class. You are also encouraged to make comments on the site to discuss issues that are relevant to the class.

**Course structure**
The course comprises lectures running from week 3 to week 12. During each lecture the instructor will provide 4 discussion questions related to the course materials and provide guidance on how to tackle them.

**Tutorials**
All tutorials are compulsory; there will be 7 one-hour tutorials (see the course timetable). The tutorials will involve discussing course materials and project presentations. Active participation is encouraged. For the discussion tutorials, you will have to submit an answer to one of the discussion questions listed during the lecture (200 words maximum, excluding references) as an “admission ticket” beforehand. **The deadline for submitting your answer online is 23:59 on the calendar day two days before your tutorial.** During the discussion tutorial the tutor will go through the discussion questions and answers to form the platform for additional learning experiences.

Tutorials are held with the following time slots:

<table>
<thead>
<tr>
<th>Tutor</th>
<th>Myrte Druyvesteyn</th>
<th>Mercury Zheng Yueyuan</th>
<th>Mohith Mukund Verma</th>
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<tr>
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<tr>
<td></td>
<td>Wed 13:30-14:20 (CPD-3.16)</td>
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<td>Mon 11:30-12:20 (CPD-LG40)</td>
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If you have difficulties in selecting tutorial, please contact the course coordinator Ms. Myrte Druyvesteyn at mldruyv@hku.hk.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture</th>
<th>Assigned Reading</th>
<th>Open Book Quiz</th>
<th>Tutorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24 Jan</td>
<td>Chinese New Year holiday (no class)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>31 Jan</td>
<td>Chinese New Year holiday (no class)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>7 Feb</td>
<td>Introduction &amp; The prehistory of cognitive science</td>
<td>Chapter 0 &amp; 1</td>
<td>-</td>
<td>-</td>
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<tr>
<td>4</td>
<td>14 Feb</td>
<td>*The discipline matures: Three milestones</td>
<td>Chapter 2</td>
<td>Chapter 1</td>
<td>0. #Video Reviewing Chapter 0 &amp; 1</td>
</tr>
<tr>
<td></td>
<td>21 Feb</td>
<td>No Class</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>28 Feb</td>
<td>No Class</td>
<td>-</td>
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<tr>
<td>5</td>
<td>6 March</td>
<td>*The turn to the brain</td>
<td>Chapter 3</td>
<td>Chapter 2</td>
<td>1. #Review Chapter 2 + Project group formed</td>
</tr>
<tr>
<td>6</td>
<td>13 March</td>
<td>*Physical symbol systems and language of thought</td>
<td>Chapter 4</td>
<td>Chapter 3</td>
<td>2. #Review Chapter 3 + Project topic determined</td>
</tr>
<tr>
<td>7</td>
<td>20 March</td>
<td>*Neural networks and distributed information processing</td>
<td>Chapter 5</td>
<td>Chapter 4</td>
<td>3. #Review Chapter 4</td>
</tr>
<tr>
<td>8</td>
<td>27 March</td>
<td>*Bayesianism in cognitive science + Group report due</td>
<td>Chapter 7</td>
<td>Chapter 5</td>
<td>4. #Review Chapter 5 + Presentation order announced</td>
</tr>
<tr>
<td>9</td>
<td>3 April</td>
<td>Midterm Exam (Chapter 1 to 5)</td>
<td>-</td>
<td>-</td>
<td>5. #Review Chapter 7 and review midterm questions.</td>
</tr>
<tr>
<td>10</td>
<td>10 April</td>
<td>Good Friday holiday (no class)</td>
<td>-</td>
<td>-</td>
<td>6. Student presentation (student presentation showcase will be conducted online instead – to be confirmed)</td>
</tr>
<tr>
<td>11</td>
<td>17 April</td>
<td>*Machine learning: From expert systems to deep learning</td>
<td>Chapter 12</td>
<td>Chapter 7</td>
<td>- (no tutorial due to April 13 holiday)</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Activity</td>
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<tr>
<td>12</td>
<td>24 April</td>
<td><strong>Final Exam</strong> (25% from Chapter 1-5; 75% from Chapter 7&amp;12, and student showcase)</td>
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<tr>
<td>13</td>
<td>1 May</td>
<td>Labor Day holiday (no class) + <strong>Individual essay due</strong></td>
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* Discussion question submission  
# Discussion answer submission  
+ Project submission

** Due to the uncertainty of the current situation the schedule can be subject to change
Assessment
Assessment for this course will be 54% coursework and 46% exam. Multiple-choice questions will be used for less than 30% of the total course assessment.

The coursework assessment will consist of three parts:

- **Quality of participation in tutorial discussions** (21%): This assessment consists of two parts: tutorial attendance and discussion participation (7%), and discussion answer submission (14%). The 7 tutorials are compulsory, and each attendance and discussion participation will count 1% of the final mark; students who are late for more than 5 minutes will get a zero mark. The marks for discussion participation will be assessed by the tutors according to the following criteria:
  - Intellectual contribution (40%)
  - Group discussion skills (30%)
  - Communication of ideas (30%)

The discussion answer submitted by each student will be graded according to the understanding of the reading (50%) and analysis and synthesis with new ideas (50%). In total there are 8 submissions.

- **Group project** (33%): 3% for the group summary report, 10% for an oral presentation of the group project, and 20% for the individual essay.

The exam assessment will consist of three parts:

- **Pre-lecture exercises (open-book quizzes)** (6%). There will be 6 pre-lecture exercises; each exercise will count 1% of the total mark.

- **A midterm exam** (20%). The midterm exam will count 20% of the total mark. It will cover chapters 1-5 of the textbook. The midterm exam will consist of multiple choice, fill in the blank, and short answer questions. It will be held on **April 3 Friday 12:30am to 2:20 am at CPD-LG.07 (may be subject to change)**.

- **A final exam** (20%). The final exam will count 20% of the total mark. It will cover chapters 1-5 (25%), and chapter 7 and 12, and the student presentation showcase (75%). The final exam will consist of multiple choice, fill in the blank, and short answer questions. It will be held on **April 24 Friday 12:30am to 2:20 am at KK101 (may be subject to change)**.

Submission of coursework
All written assignments must be submitted online on Moodle; no email submission will be accepted. Late submissions, for whatever reasons, will be marked down by 0.5% of the total marks earned for each minute late. Note that medical conditions do not warrant an extension of the deadline. Technical issues will be considered only if there is an official announcement from Moodle saying that the system is unavailable at the deadline. Thus, please try to finish and submit the coursework as early as possible.

Feedback policy
Please note that we will not return any submitted reports or exam papers. However, we will review pre-lecture exercises and the midterm exam questions during tutorials to help students revise. In
addition, students can get individual feedback about the final exam and reports after the semester, by arrangement with the instructor/tutor. Students will be notified when marks are available online.

Marks appeal
Any dispute on marks you receive on a written assignment or quiz must be made within one week after the marks are available. Another member of the teaching team will re-grade the materials (without seeing the comments and marks given by the original grader). The average of the two marks will be final.

Make-up policy
No make-up will be given for any exercise/exam missed. However, if a medical certificate is provided for the absence, we will estimate your mark for that exercise/exam, using an empirically derived formula, from the marks you and other students obtain in the course.

Academic honesty
*Academic honesty:* Academic dishonesty will not be tolerated. Any student who engages in any form of academic dishonesty (e.g., cheating on exams, plagiarism, self-plagiarism, interfering with grading, falsification and fabrication of data in any academic exercise etc.) will receive a grade of F in this course and will be reported to the Department/Faculty Office/University Disciplinary Committee for further disciplinary action. There will be no exceptions. If you are not sure what constitutes the academic offense of plagiarism, checkout the webpage at [https://tl.hku.hk/plagiarism/](https://tl.hku.hk/plagiarism/). Department of Psychology has formulated departmental policies/guidelines on student misconduct. Visit the website at [http://www.psychology.hku.hk/~main/?page_id=1814](http://www.psychology.hku.hk/~main/?page_id=1814) for more information.

Plagiarism
A hardcopy and a softcopy are required for all written assignments. The softcopy will be checked for plagiarism against a database of articles, books, webpages, and essays submitted by students at HKU and other universities. No credit will be given for an assignment that contains plagiarized materials. Further penalties will also be applied. These penalties include a zero mark for participation in course tutorials and a zero mark for the course. Plagiarism will also be reported to the Department/Faculty Office/University Disciplinary Committee for consideration of possible disciplinary action. Note that you also should not use any materials submitted for another course in this course without proper acknowledgement (i.e., self-plagiarism). Also, for group projects, all group members are responsible for the group submission and will receive the same penalty if plagiarized materials are discovered.

Final grade
Each assessment is designed to assess students’ knowledge of a combination of different course objectives. Students’ final grade will be given according to the following criteria:

- **A:** Excellent (total mark 80+): Students demonstrate consistent evidence of achieving the course objectives and substantial originality in identifying issues and in generating, analyzing, and communicating arguments.
- **B:** Good (total mark 70~79): Students demonstrate frequent evidence of achieving the course objectives and originality in defining and analyzing issues and in creating solutions.
C: Satisfactory (total mark 60–69): Students demonstrate evidence of achieving the course objectives, but some important parts are omitted, e.g., misunderstanding of the materials, or lack of critical thinking, etc.

D: Poor (total mark 50–59): Students barely demonstrate evidence of achieving the course objectives; have assembled the bare minimum of information, poorly digested, and not well organized in presentation.

F: Fail (total mark < 50): Students fail to achieve the course objectives and demonstrate faulty understanding of the fundamental concepts.
Introduction

In this group project, each group is going to interview a cognitive science program alumnus or a researcher who is conducting interdisciplinary research in cognitive science and learn about their experience and research. Each project group will consist of 3-4 students, and students in a group have to be from the same tutorial session. Each tutorial session will accommodate at most 4 groups. A project preference form will be uploaded on Moodle after the end of all tutorial groups in week 5 (6 March). Each student group will fill in a preference form with 10 choices and send it to course coordinator by the end of week 6 (13 March). We will then assign projects to student groups on a first-come-first-serve basis. In general, no more than one student group will be assigned to the same project topic. Students who do not submit a preference form by the end of week 6 will be assigned to join other student groups or form a new group by the teaching team. The tutor will help tutorial participants form project groups. Each group will conduct the interview during week 7-9.

*Due to the current situation please try to arrange the interview by skype/Zoom or telephone. ITS has entered a campus license with Zoom, a video conferencing service, for students to use for facilitating their work and studies. Details are available at https://www.its.hku.hk/services/communication/conferencing/zoom.

Below please find a list of potential interviewees. If you would like to interview those who are not on the list, please discuss with the instructor first. The purpose of the group project is to give students an opportunity to learn from cognitive science researchers about current research and issues in cognitive science, as well as their experience on career planning as a cognitive scientist.

Potential Project List

Alumni of the HKU Cognitive Science Program:

- **Prof. Hakwan Lau**, Professor, Department of Psychology, HKU ([hakwanlau@hku.hk](mailto:hakwanlau@hku.hk)) (on leave from late Feb to mid-March)
  Lau, H., & Michel, M. (2019, June 24). On the dangers of conflating strong and weak versions of a theory of consciousness. [https://doi.org/10.31234/osf.io/hjp3s](https://doi.org/10.31234/osf.io/hjp3s)

- **Dr. Alex Li**, Associate Professor, Department of Counselling and Psychology, Hong Kong Shue Yan University (woli@hksyu.edu)


- **Dr. On-Ting Lo**, Lecturer, Hong Kong Community College, PolyU (otinglo@hkcc-polyu.edu.hk)


**Other Cognitive Science Researchers:**

- **Dr. Antoni Chan**, Associate Professor, Department of Computer Science, City University of Hong Kong (abchan@cityu.edu.hk)


- **Dr. Raine Chen**, Assistant Professor, Department of Applied Psychology, Beijing Normal University/Hong Kong Baptist University, United International College (rainerrchen@uic.edu.hk)


- **Dr. Janet Hsiao**, Associate Professor, Department of Psychology, HKU (jhsiao@hku.hk)

  Option 1:

  Option 2:

- **Dr. Ricky Tso**, Assistant Professor, Department of Psychological Studies, Education University of Hong Kong (rvytso@eduhk.hk)


- **Dr. Jeffery Saunders**, Associate Professor, Department of Psychology, HKU (jsaun@hku.hk)


- Dr. Tianyin Liu, Research Assistant Professor, Department of Social Work and Social Administration, HKU (tianvin@hku.hk)

- Dr. Dorita Chang, Assistant Professor, Department of Psychology, HKU (changd@hku.hk)

- Dr. Heeju Hwang, Assistant Professor, Department of Linguistics, HKU

- Dr. Xiaoqing Hu, Assistant Professor, Department of Psychology, HKU (xiaoqinghu@hku.hk)

- Dr. Xiao Hu, Associate Professor, Faculty of Education, HKU (xiaoxhu@hku.hk)

- Dr. Christophe Dominique Michel Coupe, Assistant Professor, Department of Linguistics, HKU (coupe@hku.hk)
Before the interview, group members should read the interviewee’s representative publication listed above to have some basic understanding about his/her research topic. During the interview, group members should cover the following points:

- Understand the interdisciplinary nature of the interviewee’s research study: What is the research about? Why is it important or interesting? What are the key findings? What are the related disciplines in this research study?
- Understand the research study in terms of the space of cognitive science: What are the techniques used in the research? What is the level of organization in neuroscience and the cognitive domains under examination?
- Understand the interviewee’s background: Why did he/she choose to study in cognitive science? Why did he/she choose to do research in his/her research field?
- Understand current issues and future perspectives in this research area: What are the most important trends/issues in this research area or in cognitive science research in general? Are there any advices for current cognitive science students?

After the interview, group members will work on a group report and prepare a 10-minute presentation together based on what they learn from the interview to share this experience with other students. We will form project groups during the tutorial in week 5, and project groups should decide on which person to interview and submit the project preference form by the end of week 6.

The assessment of the group project consists of 3 parts:
1. Group summary report (3% of the final mark).
2. Oral presentation (10% of the final mark).
3. Individual essay (20% of the final mark).

1. Group summary report

Submit group members’ names together with the interviewee’s name and a summary describing what is going to be presented in the group oral presentation (word limit: 400 words) on the Moodle by 23:59 on March 27. It should be submitted to Moodle by only one group member. If more than one copy is submitted to Moodle by different group members, the teaching team will randomly choose one as the official submission and the mark will be reduced by 10%.

The summary should cover the four points listed above regarding the interview, and a brief reflection/conclusion. Relevant references (following the APA style; see the formatting requirements below) and division of labor among group members for the oral presentation should be included in the end (the 400 word limit does not include these). The group may also choose to report the percentage of contribution among group members (which should be agreed among the members) when the contribution to the project was not equal, and the marks will be given accordingly. Students whose names are not in one of the groups submitted by this deadline will lose 10% of the mark on the individual essay and oral presentation, in addition to a zero mark on the group summary report. The individual essay and oral presentation marks will also be reduced by 10% (of the total marks earned) if the group project is not done by a group of the prescribed size in the summary report.
Students in a group are supposed to work together on the summary report. The summary will be assessed through the following criteria:
- Addressing the task (20%)
- Understanding, analysis, synthesis, and application of knowledge (30%)
- Argumentation (30%)
- Structure/organization (10%)
- Writing mechanics (10%)

2. Oral presentation

The oral presentation should be less than 10 minutes long. Students will do the presentation during the tutorial in week 10, and the best groups will be invited to record their presentation and post it online for the student presentation showcase in week 11. Student groups who are invited and present their projects in the showcase will receive 2% extra mark towards their final grades.

Each group member should contribute equally to the group presentation. When the contribution to the project presentation was not equal, the group may choose to report to the tutor before the presentation the percentage of contribution among group members (which should be agreed among the members), and the marks will be given accordingly.

The oral presentation will be assessed according to the following criteria:
- Addressing the task (10%)
- Understanding, analysis, synthesis, and application of knowledge (20%)
- Argumentation (20%)
- Structure/organization (20%)
- Delivery (20%)
- Presentation mechanics (10%)

3. Individual essay

Students are required to submit an individual essay based on the interviewee’s research study and the interview. In addition to the group materials, students are encouraged to look for additional information. The purpose of the individual essay is to reflect what students have learned from the group project, the course materials, and the feedback of the presentation. The essay should consist of the following sections:
The interdisciplinary nature of the study: What is the research about? Why is it important/interesting? What are the key findings? What are the related disciplines in this research study? (Word limit: 700 words)

The understanding of the study in terms of the space of cognitive science: What are the techniques used in the research? What is the level of organization in neuroscience and the cognitive domains under examination? (Word limit: 100 words)

The understanding of the related issues and future perspectives in this research area: What are the most important trends/issues in this research area or in cognitive science research in general? What is your reflection on this interview project? (Word limit: 700 words)

References

The individual essay will be assessed by the following criteria:
- Addressing the task (20%)
- Intellectual engagement with concepts, theories or issues (30%)
- Personal development and reflection (40%)
- Writing mechanics (10%)

Formatting requirements

1. For both reports, the actual word count should be noted at the end of each section. If your report is longer than the maximal length, your grade will be based on the text within the word limit.
2. Use 12-point Times New Roman font, make it single spaced, and maintain at least a 1-inch margin at the top, bottom, left, and right edges of the paper.
3. Use APA-style formatting for references (For more information, see http://www.apastyle.org/). For example, the basic format for referring to journal articles is:

   Example:

   The basic format for referring to a chapter in a book is:
   Author, A., & Author, B. (Year). Chapter title. In A. Editor, B. Editor, & C. Editor (Eds.), Title of the book (pp. xx-xx). Place name: Publisher.

   Example:

   When referring to the articles in the text, use “ … (Hsiao & Cottrell, 2008; Cottrell & Hsiao, 2011).”
For referring to other types of references, please see:
http://www.apastyle.org/learn/quick-guide-on-references.aspx

Be sure to properly cite any references and sources you use in the reports, such as images, explanations, histories, etc. The reports have to be written in English; be sure to spell-check and proofread your reports. You may use bold headings and subheadings, and you may center titles and headings if you wish. You may use left-justified or fully-justified alignment for the body of your paper.

Grading

The individual essay report is due on May 1st at 23:59. Please submit an electronic copy of your report online on Moodle before the deadline. No email submission will be accepted. You are being graded on the content of your reports and also on the clarity of your writing and the structure of your reports. If you make your writing clear, proofread for clarity and grammar, spell-check your paper, and follow the format guideline, you are likely to get a high grade.

Online resources:
PsycInfo: http://www.apa.org/psycinfo/
Google Scholar: http://scholar.google.com/
HKU Library: http://lib.hku.hk/
Scientific American: http://www.scientificamerican.com/