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| <b>Course Code</b>    | HP4061   |
| <b>Course Title</b>   | Laboratory in Cognitive Psychology   |
| <b>Pre-requisites</b> | HP1000 Introduction to Psychology<br>HP1100 Fundamentals of Social Science Research<br>HP2600 Cognitive Psychology |
| <b>No of AUs</b>      | 4  |

### Course Aims

This course aims to equip students with knowledge and skills in methodology and critical thinking that are needed to conduct focused independent research in Cognitive Psychology. In this laboratory course, students will be introduced to common research paradigms and methods used in Cognitive Psychology. The course will have a specific applied focus in which students will gain hands-on practical experience in gathering data using classical paradigms, analyzing the data using appropriate statistical technique, writing up, and presenting a research paper. In addition, students will also be introduced to research methods and analyses in the key cognitive psychology areas such as perception, attention, memory, and learning.

### Intended Learning Outcomes (ILO)

By the end of this course, you should be able to:

1. Identify common research paradigms and key methods used in Cognitive Psychology, and how to avoid common pitfalls
2. Design and conduct an independent research study; learn how to create their own experiments
3. Collect empirical data and analyze data using appropriate statistical techniques
4. Write and present a research report using proper APA format
5. Recognize the importance of research ethics

### Course Content

In this laboratory course, students will be introduced to common research paradigms and methods used in Cognitive Psychology. The course will have a specific applied focus in which students will gain hands-on practical experience in gathering data using classical paradigms, analyzing the data using appropriate statistical technique, writing up, and presenting a research paper. In addition, students will also be introduced to research methods and analyses in the key cognitive psychology areas such as perception, attention, memory, and learning.

### Assessment (includes both continuous and summative assessment)

| Component                                    | ILO Tested | Related Programme LO or Graduate Attributes | Weighting                             | Team/Individual | Assessment Criteria / Rubrics |
|--|------------|---|---------------------------------------|-----------------|-------------------------------|
| 1. Continuous Assessment 1 (CA1): Create and | 1, 2, 3, 4 | * Creativity & Competence.                  | 25%: 15% shared marks, 10% individual | Team            | Appendix 1                    |

|   |               |                          |  |            |  |
|---|---------------|--------------------------|--|------------|--|
| conduct an experiment and write lab report          |               |                          | contribution (via peer-evaluation)   |            |  |
| 2. Continuous Assessment 2 (CA2): Empirical project | 1, 2, 3, 4, 5 | *Creativity & Competence | 65%: 20% shared marks, and 45% individual contribution (via peer-evaluation and instructor observation ) | Team       | Students learn how to generate research ideas, create testable hypothesis, create experiments, collect and analyze data, present their results in class, and write up a full lab report. Students also need to appreciate research ethics and seek ethics approval to carry out studies. |
| 3. CA3: Class participation                         | 1, 2          | *Competence              | 10%  | Individual | Students should raise questions in class and critique on other fellow students' work.  |
| Total   |               |                          | 100%   |            |  |

### Formative feedback

CA1: Students will be provided specific feedback based on their experiment package and writings in lab report. General feedback on students' performance will be provided to all students.

CA2: Students will be provided specific feedback weekly in order to develop their research ideas, experiment package, and ethics application during the incubation of their creative research projects. Also, students will critique on the works of other teams, as guided by the instructor.

Finally, students will receive their specific feedback on their project presentations and writings in lab report. General feedback on students' performance will be provided to all students.

CA3: Students will discover whether their standpoints are valid through class discussion.

### Learning and Teaching approach

| Approach           | How does this approach support you in achieving the learning outcomes?   |
|--------------------|--|
| Proactive learning | The course focuses on inculcating a culture of proactive individual and collaborative learning. The roles of the instructors are to facilitate discussion and to guide you to acquire fundamental concepts and theories. You are expected to adopt, adapt and synthesize the acquired concepts and theories into practice by creating your own experiments and critique on others' work. |

### Reading and References

Barry H. Kantowitz, Henry, L. Roediger III, David G. Elmes (2015). *Experimental Psychology* (10<sup>th</sup> edition). ISBN-13: 978-1-111-35799-3

### Course Policies and Student Responsibilities

#### (1) General

You are expected to complete all assigned pre-class readings and activities, attend all seminar classes punctually and take all scheduled assignments by due dates. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for seminar sessions they have missed. You are expected to participate in all seminar discussions and activities.

#### (2) Absenteeism

Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies.

If you miss a lecture, you must inform the course instructor via email prior to the start of the class.

### Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a

set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

### Course Instructors

| Instructor | Office Location | Phone    | Email                |
|------------|-----------------|----------|----------------------|
| Charles Or | HSS-04-16       | 63168934 | charlesor@ntu.edu.sg |
|            |                 |          |                      |
|            |                 |          |                      |

### Planned Weekly Schedule

| Week   | Topic  | ILO   | Readings/ Activities |
|--------|--|-------|----------------------|
| Week 1 | Research paradigms and methods in cognitive psychology. Introduction to experiment builder           | 1,2   | Chapters 1-3         |
| Week 2 | Perception and Psychophysics. Practice creating an experiment  | 1,2   | Chapters 6-7         |
| Week 3 | Attention and Reaction Time. Practice experiment building  | 1,2   | Chapter 8            |
| Week 4 | Memory. Practice experiment building   | 1,2   | Chapter 10           |
| Week 5 | How to design and analyze experiments. How to write the Methods and Results sections in lab reports. | 1,3,4 | Chapter 3,5          |
| Week 6 | Learning and Conditioning.   | 1,3   | Chapter 9            |

|         |   |         |            |
|---------|---|---------|------------|
|         | Practice statistical analysis.                                    |         |            |
| Week 7  | How to make hypothesis and write introduction in research reports | 1,4     | Chapter 5  |
| Week 8  | Research ethics. Project proposal presentations                   | 2,5     | Chapter 4  |
| Week 9  | Project progress reports  | 2,3,5   |            |
| Week 10 | How to interpret results and write Discussion in lab report       | 1,3,4   | Chapter 5  |
| Week 11 | Project Progress reports  | 2,3     |            |
| Week 12 | Individual differences  | 1       | Chapter 12 |
| Week 13 | Project final presentations                                       | 2,3,4,5 |            |