

**PSY 1020 Experimental Design  
2008-09, 2<sup>nd</sup> Term  
Department of Psychology  
The Chinese University of Hong Kong**

**1. Course Description: What is the course about?**

Knowledge acquired through scientific research is bounded by the conditions under which the research is carried out. Consequently, informed consumers of information must understand how scientific research is carried out in order to decide what is true and what is not. This course provides an introduction to scientific research methods in psychological science, experimental design, and data interpretation. You will develop an appreciation for the methods involved in carrying out research on issues in psychology and, hopefully, will become critical – but not cynical – consumers of scientific results, learning to distinguish sound conclusions from those based on faulty reasoning or flawed studies.

**2. Learning Approach: How does the course help you learn about psychology?**

Through lectures you will obtain the basic understanding of the importance and process of scientific research in psychology. Tutorials will demonstrate the process of running statistical analyses. You will also gain real experience by working in a small group to design and conduct an experiment of your own, present your results as a group, and write up the results individually in an APA-style research paper.

**3. Prerequisites: What knowledge do you need before taking this course?**

You should have taken PSY1010 before taking this course.

**4. Contact Information of Teaching Members**

<b>Lecturer:</b>	
Name:	Prof. Alan Chun-Nang Wong
Office Location:	Sino Building 334
Telephone:	2609-6505
Email:	alanwong@psy.cuhk.edu.hk
Lecture Time & Venue:	Wed 9:30 – 11:15 (FYB LT4)
Consultation Hours:	Mon 10-12am
Website:	<a href="http://www.psy.cuhk.edu.hk/en/people/alanwong/index.html">http://www.psy.cuhk.edu.hk/en/people/alanwong/index.html</a>

<b>Teaching Assistants:</b>		
Name:	Dan Lin (Linda)	Zhiyi Qu (Qu Qu)
Office Location:	CKB 326A	CKB 348
Telephone:	31634379	26096724
Email:	dlin@psy.cuhk.edu.hk	zyqu@cuhk.edu.hk
Tutorial Time & Venue:	<b>Group project meetings: Mon 4:30-6:15 (CKB LT3) SPSS workshops: Mon 4:30-6:15 / TBA (SB 349)</b>	<b>Group project meetings: Mon 4:30-6:15 (CKB LT3) SPSS workshops: Mon 4:30-6:15 / TBA (SB 349)</b>
Consultation Hours:	Tue 1-3pm	Fri 1-3pm

## 5. Course Content

Topics	Contents/fundamental concepts
1. Introduction	Introduction of course content.
2. Why, What, and How of Scientific Research	Why do we believe the things we do? The role of chance. What makes something a “science”? What is the difference between science and pseudoscience? Literature search. Elements of a scientific report. The peer review process. Falsifiability. “Normal science” versus “scientific revolutions”.
3. Operational Definitions	Operational definitions: linking psychological concepts to observable events. Manipulation of independent variables and measurement of dependent variables. Methods of measurement. Reliability and validity.
4. Descriptive and Inferential Statistics	Central tendency. Variance. Populations and samples. The focus of interest and the source of confusion. The logic of statistical decision making. Type I and Type II errors
5. Experiments	Experimental and control groups. Random sampling and random assignment. Independent variables, confounding variables, control variables, random variables. Number of levels of the IV; Floor and ceiling effects; Within- vs. between-subjects designs. Randomization and counterbalancing. Factorial designs. ANCOVA. Post-hoc comparisons
6. Other Types of Designs	Real experiments vs. quasi-experiments. Testimonials and case studies.
7. Ethical Issues	Ethical issues in scientific research. Fraud and deceit in the halls of science. The ethics of testing human subjects. Deception in research. Research using animals. The animal rights movement.
8. Presenting Research Findings	How to write a paper and give a presentation.

## 6. Expected Learning Goals and Outcomes

Learning Goals and Outcomes:
<ol style="list-style-type: none"><li>1. Understand research methods in psychology</li><li>2. Enhance critical thinking skills in psychology</li><li>3. Apply scientific methods in psychology to research and daily issues</li><li>4. Enhance cooperation and communication skills.</li></ol>

## 7. Learning Activities

	<b>Interactive Lectures</b>	<b>Group Project Meetings</b>	<b>SPSS Workshops</b>	<b>Self-directed Study</b>
<b>Time per week</b>	2 hours in-class	2 hours in-class	2 hours in-class	2 hours out-of-class
<b>Venue</b>	FYB LT4	CKB LT3	SB 349	Out of class
<b>No. of sessions in total</b>	11 lectures	8 tutorials	4 tutorials	--
<b>Attendance</b>	Optional	Mandatory	Mandatory	--
<b>Teaching Member(s)</b>	Lecturer	Teaching assistants	Teaching assistants	Self-initiated by students
<b>Matching with learning goals and outcomes (LGO)</b>	√ LGO 1 √ LGO 2 √ LGO 3	√ LGO 1 √ LGO 2 √ LGO 3 √ LGO 4	√ LGO 1 √ LGO 3	√ LGO 2 √ LGO 3

Four different types of learning activities will be adopted in this course:

### I. **Interactive Lectures**

- Present and discuss important issues of scientific research in psychology.
- Engage the class in interactive activities to consolidate the understanding and application of concepts.

### II. **Group Project Meetings**

- Discuss in small groups the problem-based group project.
- Present and comment on the experimental designs and findings of each other.

### III. **SPSS Workshops**

- Demonstrate the process of data analyses with different experimental designs.
- Develop hand-on experience in using statistical software.
- Express and comment on statistical issues related to the group project.

### IV. **Self-directed Study**

- Let students take responsibility for design, direct and regulate their own learning about research methods in psychology, to consolidate knowledge and critical thinking skills and to pursue further learning.

## 8. Assessment Scheme

Assessment Mode:	Matching of learning goals:						
<p>Students will be assessed in the form of:</p> <table border="1" style="margin-left: 20px;"> <tr> <td> <p>1. <b>Formative assessment</b> (measures what you have learnt at different stages during the course)</p> </td> </tr> <tr> <td> <p>2. <b>Authentic assessment</b> (measures various abilities that you can apply to address real-life problems or fictional scenarios)</p> </td> </tr> </table>	<p>1. <b>Formative assessment</b> (measures what you have learnt at different stages during the course)</p>	<p>2. <b>Authentic assessment</b> (measures various abilities that you can apply to address real-life problems or fictional scenarios)</p>	<p>Each assessment mode matches with the following learning goals:</p> <table border="1" style="margin-left: 20px;"> <tr> <td> <p>√ Learning Goal / Outcome 1</p> </td> </tr> <tr> <td> <p>√ Learning Goal / Outcome 2</p> </td> </tr> <tr> <td> <p>√ Learning Goal / Outcome 3</p> </td> </tr> <tr> <td> <p>√ Learning Goal / Outcome 4</p> </td> </tr> </table>	<p>√ Learning Goal / Outcome 1</p>	<p>√ Learning Goal / Outcome 2</p>	<p>√ Learning Goal / Outcome 3</p>	<p>√ Learning Goal / Outcome 4</p>
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<p>√ Learning Goal / Outcome 3</p>							
<p>√ Learning Goal / Outcome 4</p>							

Assessment Scheme	Description	Weight	Matching with assessment mode (AS)
Open-book Quizzes	Short-answer questions covering the entire course.	30% (12% & 18% for the 2 quizzes)	√ AM 1
Homeworks	Problem sets related to the process of experimental design	26%	√ AM 2
Group Project	This assignment provides a chance for students to work together to design and run an experiment, collect and analyse data, and present research findings.	26%	√ AM 2
Individual Paper	This assignment provides a chance for students to detail the rationale, design, and findings of an experiment in the APA format	18%	√ AM 2

### Note:

- Students are expected to attend all tutorials.
- Absentees from a quiz for unjustified reasons will not be granted a make-up quiz and will be given a "0" for that quiz. Students with justified reasons will be given a make-up quiz with short-answer questions. The instructor and the teaching assistants reserve the rights for the final decision to grant or not to grant a make-up quiz to a particular student.

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## 9. Learning Resources

Textbooks can be obtained from the bookshop and are also reserved in the library.

Required: *Doing Psychology Experiments* 7th Edition (DPE), D. Martin

Required: *How to Think Straight About Psychology* 8<sup>th</sup> Edition (HTTSAP), K.E. Stanovich

Optional: *Publication Manual of the APA* 5<sup>th</sup> Edition (APA)

Required: Selected articles are available in course website.

## 10. Course Updates

CUForum (<https://cuforum.cuhk.edu.hk/>) will be adopted in this course for posting course notes, announcements, submitting on-line assignments, etc.

For students who are not familiar with the platform of CUForum, you are recommended to read the instructions and guidelines of how to use CUForum once you logged onto CUForum.

## 11. Feedback for evaluation

Students are welcome to give comments and feedback at any time during the class. Stop by to talk to the instructor or teaching assistants. You can also send us emails or post your comments on CUForum.

Around Week 7-8 of the course, we will ask you to give us comments and feedback through an open-ended questionnaire. Some questions will be like “things that you like and do not like about this course”, “suggestions on enhancing the course”, and etc.

## 12. Course schedule

Week	Lecture		Tutorial	
	Date	Topic (Readings)	Date	Topic
1			Jan 5	N/A
2	Jan 7	L1: Introduction	Jan 12	Group Project Meeting 1 (Grouping and topic selection; CKB LT3)
3	Jan 14	L2: Why, What, and How of Scientific Research	Jan 19	Group Project Meeting 2 (Formulating research question; CKB LT3)
4	Jan 21	L3: Operational Definitions I	Jan 26	<i>Lunar New Year Holiday</i>
<b>HOMEWORK 1 DUE ON FEB 2 AT THE BEGINNING OF TUTORIAL</b>				
5	Jan 28	<i>Lunar New Year Holiday</i>	Feb 2	Group Project Meeting 3 (Sharing literature search & revising research question; CKB LT3)
6	Feb 4	L4: Operational Definitions II	Feb 9	N/A
<b>HOMEWORK 2 DUE ON FEB 16 AT THE BEGINNING OF TUTORIAL</b>				
7	Feb 11	L5: Descriptive and Inferential Statistics	Feb 16	Group Project Meeting 4 (Operationalizing research question; CKB LT3)
8	Feb 18	L6: Experiments I	Feb 23	<b>QUIZ 1 (CKB LT3)</b>
<b>HOMEWORK 3 DUE ON MAR 2 AT THE BEGINNING OF TUTORIAL</b>				
9	Feb 25	L7: Experiments II	Mar 2	Group Project Meeting 5 (Designing the experiment: CKB LT3)
10	Mar 4	L8: Experiments III	Mar 9	SPSS workshop I (Gps 1-8; SB 349)
11	Mar 11	L9: Other Types of Designs	Mar 16	SPSS workshop I (Gps 9-15; SB 349)
12	Mar 18	L10: Ethical Issues I	Mar 23	SPSS workshop II (Gps 1-8: SB 349)
13	Mar 25	L11: Ethical Issues II	Mar 30	SPSS workshop II (Gps 9-15: SB 349)
14	Apr 1	<b>QUIZ 2 (FYB LT4)</b>	Apr 6	<b>PROJECT PRESENTATION (Gps 1-5; CKB LT3)</b>
15	Apr 8	<b>PROJECT PRESENTATION (Gps 6-10; FYB LT4)</b>	Apr 13	<i>Easter Holiday</i>
16	Apr 15	<b>PROJECT PRESENTATION (Gps 11-15; FYB LT4)</b>		
<b>INDIVIDUAL PAPER DUE 1 WEEK AFTER PRESENTATION</b>				

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## **14. Academic honesty and plagiarism**

The University places very high importance on honesty in academic work, and has a policy of zero tolerance on plagiarism. Guidelines on academic honesty are on the website on "Honesty in Academic Work: A Guide for Students and Teachers"  
<http://www.cuhk.edu.hk/policy/academichonesty/>.

### Guideline about plagiarism

Any assignment (i.e., project, essay, or paper) that shows evidence of plagiarism will be marked down severely. In simple terms, plagiarism is copying passages and/or ideas from other sources without referencing those sources. Moreover, when you report someone else's ideas/findings you must put it in your own words and not merely copy full sentences or parts of sentences from the source article. It is your responsibility as a scholar-in-training to cite the ideas and work of others correctly. Please visit the following websites for discussions of how to recognize and avoid plagiarism.

<http://ec.hku.hk/plagiarism/introduction.htm>

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

<http://www.hamilton.edu/writing/style/plagiarism/plagiarism.html>

If you commit plagiarism in an assignment, and it is your first offence in the course, the penalty will range from a minimum of a single letter grade reduction in score on the assignment to a maximum of failure on the assignment. A second offence within the same course will result in a minimum penalty of a single letter grade reduction in the course grade to a maximum penalty of course failure. The specific penalty applied is up to the discretion of the professor. In all cases of plagiarism, the student's name will be recorded in a central database maintained by the general office. If a student is referred for plagiarism in more than one course, or more than one instance in the same course, the student's case will be forwarded to the university administration for follow-up action.

### Detecting plagiarism

The Senate Committee on Teaching and Learning requires that all student assignments in undergraduate programmes should be submitted via CUPIDE (the Chinese University Plagiarism IDentification Engine System). Obviously, this policy will only apply to assignments in the form of a computer-generated document that is principally text-based (i.e., excluding calculations in science, brief laboratory reports, drawings in fine arts and architecture, etc.).

- Each student must upload a soft copy of the completed assignment to the plagiarism detection engine CUPIDE, at the URL: <http://cupide.cse.cuhk.edu.hk/student>
- The system will issue a receipt which also contains a declaration of honesty, which is the same as that in <http://www.cuhk.edu.hk/policy/academichonesty/p09.htm>
- The declaration should be signed, and the receipt stapled to a hard copy of the assignment, which should be handed in before the assignment due date.
- Assignments without the receipt will not be graded by teachers.

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**(To be signed by students at the beginning of the semester)**

I promise that all assignments submitted to this course across the entire semester will be original except for source material explicitly acknowledged. I also acknowledge that I am aware of University policy and regulations on honesty in academic work, and of the disciplinary guidelines and procedures applicable to breaches of such policy and regulations as contained in the website <http://www.cuhk.edu.hk/policy/academichonesty/>.

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Signature

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Date

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Name

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Student ID

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Course code

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Course Title