

**Syllabus for PSY 1010B Introduction to Statistics**  
**Fall term for Academic Year 2008 – 2009**

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

In this course you will learn to understand the logic, purpose and techniques of statistical analyses, particularly those for psychology.

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

We will emphasize active participation to facilitate the understanding of logic and attempt to reduce load of memory.

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

None.

**4. Contact Information of Teaching Members**

Lecturer:

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MSN: [liqiang.huang@hotmail.com](mailto:liqiang.huang@hotmail.com)

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<u>Office:</u>	SB304C	SB339
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<u>Office hours:</u>	Mon 2:30-4:30pm	Tue. 3pm-5pm
<u>E-mail:</u>	<a href="mailto:shlau@psy.cuhk.edu.hk">shlau@psy.cuhk.edu.hk</a>	<a href="mailto:ywu@psy.cuhk.edu.hk">ywu@psy.cuhk.edu.hk</a>
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## 5. Course Content

Topics	Contents/fundamental concepts
1. Basic concepts in statistics	Organization of this class, definition of variable, data, etc
2. Descriptive statistics	Central tendency (mean, median, mode) and variability
3. Normal Distribution	Normal curve, Z score, sampling, probability
4. Hypothesis Testing I	Null and research hypothesis, level of significance
5. Hypothesis Testing II	The distribution of means, Z test
6. Effect size, power	The effect size and statistical power in hypothesis testing
7. One-sample, paired t-test	Hypothesis testing of 1 group against a baseline when population variance is unknown
8. two-sample t-test	Hypothesis testing of the difference between 2 groups
9. One-way ANOVA	Hypothesis testing of the difference between n groups
10. Correlation	Relationship between 2 set of data
11. Simple Regression	How to use 1 set of data to predict another
12. Chi-square test	Hypothesis testing with nominal variables
13. Review Session	Reviewing all the knowledge in this course

## 6. Expected Learning Goals

Learning Goals:
<ol style="list-style-type: none"> <li>1. Students will understand and apply basic statistical methods.</li> <li>2. Students will learn the scientific thinking to solve problems and make judgments.</li> <li>3. Students will learn to present and read the research results in a scientific way.</li> </ol>

## 7. Expected Learning Outcomes

Learning Outcomes:	Matching of learning goals:
<p>Upon completion of this course, students will be expected to:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>Learning Outcome 1</b></p> <ul style="list-style-type: none"> <li>• Students will know the procedure to carry out statistical methods in psychology and be able to both use them in practical question and understand them in the scientific literature.</li> </ul> </div>	<p>Each learning outcome matches with the following learning goals:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <ul style="list-style-type: none"> <li>√ Learning Goal 1</li> <li>√ Learning Goal 2</li> <li>√ Learning Goal 3</li> </ul> </div>

<p><b>Learning Outcome 2</b></p> <ul style="list-style-type: none"> <li>Students will understand the logic behind those procedures and know how to solve similar questions.</li> </ul>	<ul style="list-style-type: none"> <li>√ Learning Goal 1</li> <li>√ Learning Goal 2</li> <li>√ Learning Goal 3</li> </ul>
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## 8. Learning Activities

	<b>Interactive Lecture</b>	<b>Tutorial Preparation Meeting</b>
<b>Time per week</b>	2 hours in-class	1 hour in-class
	Mon. 9:30am-11:15 am	Thu. 4:30pm-5:15pm
<b>Venue</b>	CKB UG04	SB 349
<b>No. of sessions In total</b>	13 lectures	13 sessions
<b>Attendance</b>	Mandatory	Mandatory
<b>Teaching Member(s)</b>	Lecturer	Teaching assistants
<b>Matching with learning goals (LG)</b>	<ul style="list-style-type: none"> <li>√ LG 1</li> <li>√ LG 2</li> <li>√ LG 3</li> </ul>	<ul style="list-style-type: none"> <li>√ LG 1</li> <li>√ LG 2</li> <li>√ LG 3</li> </ul>
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### **Tutorial**

In the tutorials, the TA will answer questions, discuss homework assignment, lead discussion of relevant materials, and supervise the presentation of group projects, and the quizzes. First, a brief review of the concepts, methods and skills relating to the contents learned from the lectures will be covered in the beginning of each tutorial. Second, to facilitate your understanding of basic statistics, details for each statistic method (t-test, ANOVA etc) will be taught step by step in the tutorial. Finally, an instruction of SPSS for statistic analysis will be given. Also, we will have a group discussion of relevant questions or problems encountered in each homework or quiz.

## 9. Assessment scheme

Assessment Mode:	Matching of learning goals:				
<p>Students will be assessed in the form of:</p> <table border="1" style="width: 100%;"> <tr> <td style="padding: 5px;"> <p>1. <b>Formative assessment</b> (measures what you have learnt at different stages during the course)</p> </td> </tr> <tr> <td style="padding: 5px;"> <p>2. <b>Summative assessment</b> (in the form of an examination to test your understanding of the subject knowledge at the end of the course)</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>Summative assessment</b> (in the form of an examination to test your understanding of the subject knowledge at the end of the course)</p>	<p>Each assessment mode matches with the following learning goals:</p> <table border="1" style="width: 100%;"> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> <li>√ Learning Goal 1</li> <li>√ Learning Goal 2</li> <li>√ Learning Goal 3</li> </ul> </td> </tr> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> <li>√ Learning Goal 1</li> <li>√ Learning Goal 2</li> <li>√ Learning Goal 3</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>√ Learning Goal 1</li> <li>√ Learning Goal 2</li> <li>√ Learning Goal 3</li> </ul>	<ul style="list-style-type: none"> <li>√ Learning Goal 1</li> <li>√ Learning Goal 2</li> <li>√ Learning Goal 3</li> </ul>
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Assessment Scheme	Weight	Matching with assessment mode (AM)
Answering questions in Classes	5%	√ AM 1
Group Project	10%	
Homework	15%	
Quiz 1	22%	
Quiz 2	22%	
Quiz 3	26%	√ AM 2

### Answering questions in Classess

Credits worth up to 5% is given for answering questions actively and precisely in the class.

### Group Project

You will be assigned to 1 of 6 groups. You should collect data on the assigned topic and conduct an appropriate statistical analysis. Each group is scheduled to give a 10 minutes presentation (ideally in PowerPoint).

*Please email the TA as soon as possible about 3 preferred topics (see the list below). Priority will be given to those who emailed earlier.*

Group1: Do students of different majors spent the same amount of time on schoolwork? You should compare 3 majors or more.

Group2: Are CUHK students of different years (1st year, 2nd year, 3rd year) equally friendly to strangers?

Group3: Would make-up help the attractiveness (of female students)?

Group4: Study the relationship between the hours (male students) spent on exercise and the physical strength.

Group5: Study the relationship between dress style (formal vs. casual) and attractiveness.

Group6: As for talking to stranger, are CUHK students friendlier to the same or the opposite sex.

### **Quizzes and homework**

There will be three quizzes. Quiz 1 covers Lectures 1-5, Quiz 2 covers Lectures 6-9, Quiz 3 will be *accumulative* (It will cover the whole course). The quizzes will be based on the lectures, tutorials, and also the relevant sections of textbook. The knowledge and skill on the software SPSS will *not* be covered in the quizzes.

The purpose of the quizzes and homework is to ensure that you understand the logic and concepts of the statistical methods and know how to use them. You can freely browse book and notes in the tests so you can focus on understanding instead of memorizing. You will be required to complete MC (multiple-choices) and SA (Short answer) questions.

Homework must be handed in one week after it is handed out, by 5pm. It should be placed in the class mailbox. Please note that you **MUST** do the entire homework by yourself – you **MUST NOT** work with anyone else.

## **10.Learning Resources**

### **Textbook**

Aron, A., Aron, E. N., & Coups, E. J. (2006). *Statistics for Psychology (4<sup>th</sup> ed)*. Upper Saddle River, NJ: Pearson Education.

Green, S. B., & Salkind, N. J. (2003). *Using SPSS for Windows and Macintosh: Analyzing and Understanding Data*. Upper Saddle River, NJ: Pearson Education. (*For reference only*)

## **11.Course Updates**

Updated information of this course will be provided on Class Web Page:  
<http://cuforum.cuhk.edu.hk>

## **12.Feedback for Evaluation**

Students are welcome to give comments and feedback at any time during the semester, either to the instructor or to the teaching assistants.

We will also ask you to give us comments and feedback through an open-ended questionnaire a couple of times in the semester. Some questions will be like “things that you like and do not like about this course”, “suggestions on enhancing the course”, etc.

### 13.Course Schedule

#### Lecture/Tutorial Schedule

Week	Lecture			Tutorial		Homework
	Date	Topic	Chap	Date	Topic	
1	Sep. 1	1. Basic concepts in statistics	1	Sep. 4	Introduction	
2	Sep. 8	2. Descriptive statistics	2	Sep. 11	No tutorial	# 1
3	Sep. 15	No lecture	3	Sep. 18	Basics of SPSS	
4	Sep. 22	3. Normal Distribution	4	Sep. 25	Normal Distribution	
5	Sep. 29	4. Hypothesis Testing I		Oct. 2	Hypothesis Testing	
6	Oct. 6	5. Hypothesis Testing II	5	Oct. 9	<b>Quiz 1</b>	# 2
7	Oct. 13	6. Effect size, power	6	Oct. 16	Power Analysis	
8	Oct. 20	7. One-sample, paired t-test	7	Oct. 23	t-test	# 3
9	Oct. 27	8. two-sample t-test	8	Oct. 30	2-sample t-test	
10	Nov. 3	9. One-way ANOVA	9	Nov. 6	<b>Quiz 2</b>	# 4
11	Nov. 10	10. Correlation	11	Nov. 13	Correlation	
12	Nov. 17	11. Regression	12	Nov. 20	Review	# 5
13	Nov. 24	12. Chi-square test	13	Nov. 27	Group Presentation	

Because of the holidays, the Review session and the Quiz 3 will be scheduled in the week of December 1st (the exact date to be announced).

## **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.

**(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

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name

\_\_\_\_\_  
Student ID

PSY1010B  
Course code

Introduction to statistics  
Course Title