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## Experimental Design and Analysis

Course No: 02804000

Program: Graduate

Credit: 2

Instructor: Chen Fangyuan

Prerequisite:

Semester: 2015 Fall

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Instructor's resume/brief introduction(Within 500 words):

Dr. Fangyuan Chen is an Assistance Professor of Marketing at the Guanghua School of Management, Peking University. Her main research interest is consumer subjective experiences and revolves around three themes: (a) product anthropomorphism, (b) subjective vitality, and (c) affect and information processing. For instance, Fangyuan examines what motivations cause consumers to anthropomorphize products, and how consumers get transformed as a result of anthropomorphizing products. Across her research, she also investigates how consuming vices provide beneficial impacts on consumer vitality (the subjective sense of having energy). Vice consumption provides immediate gratification but also carries adverse consequences in the long term and makes people feel guilty. When vice consumption can be justified on the grounds of lower autonomy, the negative influence of guilt is reduced while the intrinsic enjoyment of the vice remains unchanged. Thus, lowered autonomy enhances the vitality induced by vices. This research is published in the Journal of Consumer Research.

Dr. Chen received her PhD degree from Hong Kong University of Science and Technology and her Bachelor's degree in Marketing from Fudan University, Shanghai, China.

Instructor's contact information:

**To be Determined**

TA's contact information:

**To be Determined**

Office hour:

**Wednesdays 15:00-17:00, or by appointment**

### **Program Learning Goals and Objectives**

- 1 **Learning Goal 1** Graduates will be thoroughly familiar with the specialized knowledge and theories required for the completion of academic research.
  - 1.1 Objective 1 Graduates will have a deep understanding of basic knowledge and theories in their specialized area.

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- 1.2 Objective 2 Graduates will be familiar with the latest academic findings in their specialized area and will be knowledgeable about related areas.
  - 1.3 Objective 3 Graduates will be familiar with research methodologies in their specialized area, and will be able to apply them effectively.
- 2 **Learning Goal 2** Graduates will be creative scholars, who are able to write and publish high-quality graduation dissertation and research papers.
    - 2.1 Objective 1 Graduates will write and publish high-quality graduation dissertation and research papers
    - 2.2 Objective 2 Graduates will be critical thinkers and innovative problems solvers.
  - 3 **Learning Goal 3** Graduates will have a broad vision of globalization and will be able to communicate and cooperate with international scholars
    - 3.1 Objective 1 Graduates will have excellent oral and written communication skills
    - 3.2 Objective 2 Graduates will be able to conduct efficient academic communication in at least one foreign language
  - 4 **Learning Goal 4** Graduates will be aware of academic ethics and will have a sense of social responsibility.
    - 4.1 Objective 1 Graduates will have a sense of social responsibility.
    - 4.2 Objective 2 Graduates will be aware of potential ethical issues in their academic career.
    - 4.3 Objective 3 Graduates will demonstrate concern for social issues.

### **Course Overview**

This course is scheduled on Tuesday afternoons (13.00-16.00) and Thursday mornings (9.00-12.00), Room 216, Guanghua Building. Our first meeting time is November 24<sup>th</sup>, 2015.

### **Course Objectives**

The objectives of this course are to introduce experimental designs and the analysis of experimental data to the PhD students in Marketing, Consumer Behavior, and related fields. In this process, I will explain the rationale for commonly used statistical procedures via hand calculation. By the end of the semester, you should be sufficiently comfortable about analyzing data using hand calculation. In addition, you should develop the ability to evaluate the methodology of other people's research papers.

### **Detailed Course Plan**

Throughout the semester, we will discuss the following topics.

1. Introduction: Why Experiments; Alternatives to Controlled Experiments; Generalization and Theoretical Explanations.
2. Fundamental Principles of Experimental Designs and Validity Issues.
3. Foundations of ANOVA & One-way ANOVA.

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4. The Sensitivity of An Experiment: Effect Size, Power, & Sample Size Determination.
  5. Planned Contrasts and Post-hoc Comparisons.
  6. Between-Subjects Factorial Designs – Part 1
  7. Between-Subjects Factorial Designs – Part 2
  8. Single Factor Within-Subjects Designs and Contrasts.
  9. Mixed Two-Factor Design
  10. Analysis of Covariance, Slope Analysis, and Tests for Mediation\*

\*Subject to revision later.

### **Final Exam**

Final exam is tentatively scheduled on December 31<sup>st</sup> 2015. In the exam, you will be asked to evaluate the design of behavioral studies and conduct data analyses of different experiments. More details for the exam will be announced later in the semester.

### **Teaching Methods**

Although I would like to run the course in a seminar format, given the nature and scope of the subject, it is very likely that we will end up with lectures most of the time. Nonetheless, I expect your active participation in the class discussions. As there are many topics, you may have to master some topics via self-study.

### **IT tools to be used in the classroom**

Standard equipment, microphone and laser pointer.

### **Textbooks**

The prescribed textbook for this course is Keppel, Geoffrey (2004), *Design and Analysis: A Researcher's Handbook* (4<sup>th</sup> edition). As this book seems to be quite expensive, it is pretty OK to obtain a used copy of the third edition of Keppel's book (search Amazon, Abe, Alibris, half.com, etc.).

### **References & Readings**

I will also assign a few chapters from the following two texts as supplementary readings: Aronson, Elliot, Phoebe C. Ellsworth, J. Merrill Carlsmith, and Marti H. Gonzalez (1990), *Methods of Research in Social Psychology* (New York: McGraw Hill); Cook, Thomas D. and Donald T. Campbell (1979), *Quasi-Experimentation: Design and Analysis Issues for Field Settings* (Houghton Mifflin). I will distribute hardcopy of the additional readings to you.

### **Videos, CD-ROMs and other adjunct learning resources used**

**To be Determined**

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### **Rules students must follow**

Chapters will be assigned which should be read *before* each class. At the end of each class, some problems from the texts will be assigned to reinforce the concepts covered. Please submit your homework at the beginning of each class. No late submission will be accepted under any circumstances.

Homework will also include discussions of existing published and unpublished studies. Throughout the course, you will be asked to evaluate and critique designs in research papers as if you were a reviewer for a journal. For each paper, a student will have the responsibility to briefly present the paper and guide the class discussion on the paper. When guiding the class discussion, please do assume that everyone read the paper. Therefore, prepare a 15-minute presentation of the following: a. What are the central findings of this paper? Is the theorizing and underlying process clear? b. What is the methodology employed by the author(s)? Is the methodology appropriate? c. What you like and dislike about the experiments? d. Are there any alternate explanations for the results? e. What would you have done differently to test the hypothesis? Non-presenters should also actively participate in class discussion. Your class participation grade will be determined by active discussion of the papers, as well as your presentation and critique of the assigned paper(s).

### **Course Assessment**

Evaluation of the course will be based on class participation and presentation (20%), assignments (30%), and mid-term and final exam (50%).