MGT 580
Psychometric Methods in Management
First Module, 2020

Course Information

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Office Hour: Monday and Thursday, 12:30-1:30 pm, or by appointment

Classes:
Sessions: Monday and Thursday, 1:30 am-3:20 pm
Venue: PHBS Building, Room XXX (TBD)

Course Document Website:
Course Management System

1. Course Description

1.1 Context

Course Overview

Purpose

The basic objectives of this course are for you to learn the fundamental concepts, methods and principles of psychological measurement. Particular attention will be devoted to teaching you how to practically apply this knowledge and skill to an empirical research work. Specifically, you will first learn the methodology, and then use the statistical software, STATA, to analyze the data as well as explain the data output practically. Please note that we will not address statistics techniques in detail, as this material should be covered in other courses.

Learning Goals

We will focus on three very specific learning goals. By the end of the course you should have developed the ability to execute managerial research, apply STATA software to analyze research questions, and to give practical, supported explanations.

- Clarify your research question and meaningfully build up the corresponding research model as well as hypotheses.
- Understand and apply the appropriate analysis procedure to answer research questions and know why this process is the best way to execute.
- Have the ability to critique existing research work and analyze its strengths and weaknesses.

Prerequisites

This course is designed for master students in various social sciences, or anyone who will be conducting research in and around organizations. Although the course is not primarily about statistics, we will apply some fundamental statistical language in a fairly broad, top-down way. All students should have taken and mastered an entry-level course in statistics, specifically, one that covers the basics of linear regression.

1.2 Textbooks and Reading Materials

Learning Materials

Readings and other materials in class will be used to highlight the knowledge and skill of fundamental management data analysis.

Required

- All required readings can be found on Websites (Course Management System or Google Drive), and I will upload all slides before/after class.
- There is no textbook for this class.
- All topic readings have been chosen carefully to be: 1) clear and accurate; 2) not too technical; and 3) not too lengthy and time consuming.

Additional Readings & Resources

- Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach.* Hillsdale, NJ: Lawrence Erlbaum. **(P&S)**
- Singleton, R. A., Jr., & Straits, B. C. (2017). *Approaches to social research* (6th ed.). New York: Oxford University Press. **(S&S)**
- Fowler Jr, F. J. (2013). *Survey research methods (5th ed.)*. Sage publications. **(F)**

- **STATA**: Please install STATA by 9/9
  - Official website: http://www.stata.com/support/
  - UCLA Statistical Consulting: https://stats.idre.ucla.edu/
- **Personal Laptop/Computer**: Please use a computer as the main tool to join the online course and make sure you can function your cam, mic and speaker/headphone correctly.
- **WeChat**: We will use WeChat as another channel to communicate if necessary, and each group will build your group talk for group discussion.
- **Google Scholar**: You have to know how to use Google Scholar to search academic information.
- **APA format**: https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html

1.3 Methodology and Accountabilities

Course Methodology

To achieve the stated learning goals, this course will be heavily weighted toward active learning – that is, in-class discussions, exercises, and cases. With this emphasis on active learning, you and your peers will contribute significantly to the learning that occurs in class. Your learning, therefore,

is a mutual responsibility shared by you, your peers, and the instructor. The success of this learning method hinges on everyone's commitment to a special set of accountabilities, as noted below.

Instructor's Accountabilities

To ensure learning goals are achieved, my accountabilities for this course are:

- **Foster a classroom environment conducive to active learning**
- Determine reading assignments, cases, and exercises which stimulate active learning
- Provide clear feedback to students that encourages and enhances learning

Students' Accountabilities

To ensure learning goals are achieved, students' accountabilities for this course are:

- **Complete all assigned readings prior to each class**
- Actively contribute to class discussions, and exercises
- Complete all assignments as scheduled to both enhance and demonstrate learning

Please come to class prepared to contribute to class discussion, which will encourage robust discussions and maximize learning.

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	O
	1.2. Students are able to professionally present their ideas and also logically explain and defend their arguments.	O
2. Our graduates will be skilled in teamwork and leadership.	2.1. Students will be able to lead and participate in groups for projects, discussions, and presentations.	O
	2.2. Students will be able to apply leadership theories and related skills.	O
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify ethical issues, provide solutions and rationales.	O
	3.2. Our students will practice ethics for the duration of the program.	O
4. Our graduates will have a global perspective.	4.1. Students will have international exposures.	
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	O
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	
	5.3. Our students will demonstrate competency in critical thinking.	O

2.2 Course Specific Objectives

"When you can measure what you are speaking about, and express it in numbers, you know something about it; when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science."

~Lord Kelvin, 1891, pp. 80 – 81.

"*We must measure what is measurable and make measurable what cannot be measured."*

---Galileo

Active Learning

As the instructor of this class, I will do my best to facilitate the learning process and create a positive learning environment, but in the end, what you gain from the class is largely determined by you and your colleagues. Therefore, every student in this class needs to be well prepared before class, actively participate in class, and diligently work on all assignments in class.

From General Ideas to Academic Language

The course is organized and facilitated in ways to help you clarify your potential research question as a meaningful academic output. Specifically, 1) we will learn how to analyze a question's "value", 2) we will use academic "language" to present your research question, 3) next, we will design a "tool (e.g., questionnaires)" to bring the evidence to exanimate the corresponding question, 4) we will learn how to use the software, STATA, to derive "numbers" to evaluate whether our data support our expectation and to come up with substantiated explanations as well. More importantly, through this process, I hope you will gain confidence in this procedure as it is one of the best ways to approach research questions, but at the same time I want you to be aware of its shortcomings.

Teamwork

Learning how to collaborate with others is a crucial skill in business. In life we rarely have the opportunity to work with a perfect group; therefore, the ability of being able to integrate and interact with team members to achieve a business goal is critical. Although this class mainly teaches methodological skill, the collaboration between you and your team members will be crucial in determining the quality of your final project. I encourage you to have regular interactions with your team members, ask each other thoughtful questions and have active discussions and debates on issues raised.

2.3 Assessment/Grading Details

Overall Grading Policy

Grading will be based on class participation, discussion, 3-5 time class exercises, 3 quizzes and a group based presentation and term paper. Points earned on each of the following assignment will be totalled.

	Weight	Note & Due Date
Participation & Discussion	20%	*Read Note Carefully
Quizzes	30%	Sep. 24, Oct. 22 & Nov. 5
Exercises	20%	Oct. 26, 29 & Nov. 2
Group Presentation	15%	Nov. 5 & 9
Group Paper	15%	Nov. 13 (5PM)

Note: If you are far away from our time zone and cannot join our online course, you definitely cannot involve our class participation & discussion. In this case, I will assign another SEVEN assignments corresponding to different topics in our class to assure your learning quality. Please contact the teaching assistant and me as soon as possible if you are in this case.

Expectations regarding Grades

The assumption in this class is that an A+, A or A- must be *earned* and such grades are reserved only for the students that truly excel based on class expectations. To earn an A or A+, students must demonstrate mastery of the material, exceptional analytical skills, and the ability to integrate interdisciplinary ideas and knowledge.

Some students may think that putting efforts into a course would automatically earn them an "A" or "B" grade, regardless of the level of mastery of the learning outcomes for this course. In other words, some students mistakinly equate effort with mastery, which is not true.

There will be several quizzes and exercises given throughout the semester where students are required to submit the answers back to me. These answers should be brief and concise. Students must present the STATA result using descriptive everyday language rather than in technical terms only. This will be an important criterion used to grade the submitted answers.

Absences

Absences totalling more than three hours in a 3 unit class, four hours in any 4 unit class, and 5 hours in a 5 unit class, automatically lower the final grade by one step (example: an A- to a B+). Each successive absence will in turn lower the grade by an additional step. Absences immediately before or after weekends or holidays, or due to travel during the week are considered double absences. If a student is tardy to a class 4 times, it will count as 1 absence. Students are responsible for class work during their absences.

Plagiarism

Written answers in a quiz or exercise provide an important mean of monitoring learning throughout the course. When these answers show that certain topics are not well understood, these topics will be reviewed in class. Students may consult with each other regarding the concepts and principles underlying the methods used. However, *written answers should represent the work of each individual student. Moreover, students must not obtain answers to homework questions from students who have previously taken this course or copy any other classmate's answer*. Drawing from the work of current or past students is considered a violation of the honor code and carries the

risk of failing the course and other appropriate sanctions. Students are also strongly encouraged to ask questions in class for discussion. These questions help us collectively address points of confusion and pursue issues that extend beyond the assigned readings.

(1) Participation & Discussion (20%)

Class activities will be based on the assumption that you are familiar with the materials presented on the course management system or google drive; therefore, you should be prepared for class and will be randomly called upon to discuss assigned materials. Your Participation & Discussion grade will reflect my assessment of your total contribution to the learning environment. Contributions to the learning environment can come in many forms -- making observations, answering questions, summarizing other's views, commenting on other students' comments, or debating the instructor's view. *It is not the form or the frequency that matters, but the extent to which what you say makes a contribution to your own or your peers' learning. Did your contribution move the conversation forward? Did it offer an alternative view that we had not considered? Did it provoke deeper thinking?* In other words, it is the quality of your contribution, not the quantity that matters.

You cannot participate if you are absent. **Class attendance is required.** You should plan to attend every class and be on time for class. Participation & Discussion score for missed classes will be scored as a zero for that day. Please e-mail me if you know you are going to be absent – this will enable me to score your participation as "not present" rather than "not participating." Finally, the quality of interactions in class will be strongly linked to your participation grade. I will be using a "randomly function APP" to arbitrarily pick someone to answer questions in class.

(2) Group Presentation & Team Peer Rating (15% + 15%)

You will present your team research project to the class inn the last two classes. It will be a formal group presentation and will be worth 15% of the total grade. Each group will have approximately 25-30 minutes for the presentation (including Q&A). We will have peer rating after the group presentations. Peer evaluation will **NOT** affect the final grade of the evaluator or the presenter; however, it may be used to judge a student's contribution if there is concern whether the student is doing his or her share of work. Peer ratings will be kept strictly confidential.

- 2-3 team members in each group (TBD)
- 15-20 minutes for presentation and 10 minutes for discussion
- **Group presentation date: November 9 & 12**
- Each group will research and choose a topic
- Use the knowledge you learned in class to analyze and evaluate the topic
- Teach us something we don't know.

Assessment criteria

- Present your ideas clearly
- Get the audience involved in your presentation
- Demonstrate that you understand the knowledge you have learned
- Show a solid logical analysis in your work
- Manage the presentation time properly
- Plan, organize, lead, and coordinate the presentation constructively and smoothly
- Overall impression.

(3) Group Paper (15%)

Contents

- **Submission deadline: November 13, (5 pm), NO DELAY!**
- The maximum page number is 20 (double-line spaced, excluding references, appendix, figures and tables);

Recommended paper structure

- Title
- Introduction
  - Why do you want to write on this topic?
  - What new information can we learn from your paper?
  - What are the main theories you are going to use (optional)?
  - What is the key message or idea of the paper?
- Hypotheses
- Method
- Result
- Discussion
  - Include limitations and future recommendations
- Conclusion
- Present your conclusions
- Reference (Please follow the APA format)
- Appendix
  - Figure (Research Model)
  - Tables (Correlation Table, Regression Table…etc.)

Assessment criteria

- Cover all necessary sections mentioned above
- Present a clear line of reasoning such as how you frame your hypotheses
- Be creative in your thinking
- Show solid and clear analysis procedure
- Perform correct manuscript format without any error
- Use proper and adequate references to support your arguments

(4) Three Quizzes (30%)

Students will be given a set of 4 to 6 questions for each quiz. The questions will require students to critically think about and integrate all topics covered in the course. All quiz answer should be typed. These three quizzes will be worth 30 pts. Please bring your laptop to class and turn in your answer file back to me via email. Please make sure you have confirmed with me that I have received your answer sheet before you leave the class.

(5) Exercise (20%)

The exercises in this course will be done in class and will require your application of research method skills to data. We plan to have three exercises in the end of this course. These exercises will help you and me to understand how much you learned from this class.

Policy on Missing the Deadline

For fairness sake, we need a policy regarding missed deadlines for assignments and exams. Missing any deadline (e.g., group presentation PowerPoint, individual paper and final exam sheet) will be penalized 5% for each day (24-hour period) beyond the due date.

2.4 Academic Honesty and Plagiarism

Moral code of conduct is to be observed strictly in all courses taken at Peking University HSBC Business School. This means that there will be no deceptive behavior in any work you submit. Students in Human Resource Management (Course Number XXX) are bound by the Honor Code and the following specific guidelines for all works completed in this course.

- Individual work is to be completed without the assistance of others.
- Assignments identified as team-based work are to be completed by members of the team only.
- While group interaction is encouraged when studying, any work submitted under your name must be your own work.
- Plagiarism in any form, including the use of previous years' materials will not be tolerated.
- Written deliverables must use appropriate citations to signify when arguments or analyses rely on the ideas or insights of others, including any class materials.
- Any use of class assignments of case analyses or any other material in any format from any course taught at any time in the past or present will be considered a violation of the Honor Code.
- Unless specific permission is granted to the entire class, when preparing a case, confine your analysis to the facts of the case, using your common sense and deductive reasoning to draw conclusions from the facts and information presented.
- If you use ideas that are not your own, you must give credit where credit is due.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to **PHBS Student Handbook**.

3. Topics, Teaching and Assessment Schedule

Class	Date	Topic	Content	Note
1	Sep. 7	Foundation	• Rules for this class • A research example • Plagiarism	
2	Sep. 10	Research Tools Basic Statistical Knowledge	• How to find your research question • STATA • Google Scholar, SSCI	
3	Sep. 14			
4	Sep. 17	Research Model Variables Hypotheses & Theories	• Independent Variable • Dependent Variable • Moderator • Mediator	team member list (Sep. 20)
5	Sep. 21			
6	Sep. 24	Reliability & Validity * Survey	•	Quiz 1 (Sep. 24)
7	Sep. 28			
8	Oct. 12	Measurement Factor Analysis Survey Design	• Non-experimental operationalizations of constructs • EFA, CFA…more • Questionnaire order	
9	Oct. 14			
10	Oct. 15	Multiple Regression / Incremental Validity	• Moderated Regression • Mediated Regression	
11	Oct. 19			
12	Oct. 22	Extra Analysis	• t-test, ANOVA	Quiz 2
13	Oct. 26	Exercise I	• Research Case I	
14	Oct. 29	Exercise II	• Research Case II	
15	Nov. 2	Exercise III	• Research Case III	
16	Nov. 5	Quiz 3		
17	Nov. 9	Group Presentation I		
18	Nov. 12	Group Presentation II		

Note: This schedule may be modified as needed.