MATH 3426 Sampling

Course Outline – Spring 2024

1. **Instructor**
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2. **Teaching Assistant**
   Name: Tianhao CHEN
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   Name: Xin XU
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3. **Meeting Time and Venue**
   <u>Lectures:</u>
   L1
   Date/Time: 09:00am-10:20am (Mon, Wed)
   Venue: Room 2404

   <u>Tutorials:</u>
   T1A
   Date/Time: 12:00pm-12:50pm (Tue)
   Venue: LG426 (LIB)

   T1B
   Date/Time: 06:00pm-06:50pm (Tue)
   Venue: CYTG009A

4. **Course Description**
   Credit Points: 3 units
   Pre-requisite: MATH 2411

   Brief information:
   This course covers basic and standard sampling design and estimation methods. Implementation with R/Excel will also be discussed for survey data analysis. Topics include simple random sampling, stratified random sampling, systematical sampling, cluster sampling, etc.

5. Intended Learning Outcomes
On successful completion of this course, students are expected to be able to:

No.	ILOs
1	Recognize and use appropriately important technical terms and definitions in sampling.
2	Understand the estimators in different sampling schemes and apply them in concise form.
3	Apply sampling techniques in familiar situations.
4	Analyze survey data using different statistical models with R/ Excel.

6. Assessment Scheme
a. Examination duration: 2 or 3 hrs for the final exam.
b. Percentage of examination.

Assessment	Assessing Course ILOs
30% by assignments	1, 2, 3, 4
70% by final exam	1, 2, 3, 4

c. The grading is assigned based on students' performance in assessment tasks.

7. Student Learning Resources
Lecture Notes:
The course notes are available online. These notes give a concise (to the point) presentation of the course material, usually enough for most students. Some supplementary material can also be found and downloaded on the course webpage.

Reference Books:
- "Elementary Survey Sampling" (Duxbury Press) by Richard L. Scheaffer, William Mendenhall, R. Lyman Ott, Kenneth G. Gerow.

8. Teaching
Weekly schedule: 3 hrs for lecture and 1 hr for tutorial

9. Course Schedule
Keyword Syllabus:
- Introduction to survey sampling
- Overview of the process of survey sampling
- Simple Random Sampling
- Stratified Simple Random Sampling
- Systematic Sampling
- Cluster Sampling
- Survey Data Analysis