STAT 3501: Survey Sampling

Instructor: Dr. Jong-Min Kim
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Class Time: Tu, Th 8:00 AM – 9:40 AM in Science 3550
Office hours: Tu, Th 3:30 PM – 5:00 PM or by appointment
Webpage: http://facultypages.morris.umn.edu/~jongmink/Stat3501

Course Objective and Outline
The objective of this course is to introduce basic concepts and theory of designing surveys. Topics include sample survey designs including simple random sampling, stratified random sampling, cluster sampling, systemic sampling, multistage and two-phase sampling including ratio and regression estimation, Horvitz-Thomson estimation, questionnaire design, non-sampling errors, missing value-imputation method, sample size estimation and other topics related to practical conduct of surveys.

Textbooks/Materials

Course handout and PowerPoint (made by Instructor)

Optional Course Reference
Survey Methodolgy (Wiley Series in Survey Methodology) paperback
by Robert M. Groves, Floyd J., Jr. Fowler, Mick P. Couper, James M. Lepkowski, Eleanor Singer, Roger Tourangeau

Course Grading
The grade in the course will be based on four components:

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<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Class participation/discussion in class</td>
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<tr>
<td>Homework</td>
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<td>Midterm Examination 1 (September 22)</td>
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<td>Midterm Examination 2 (October 20)</td>
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<td>Midterm Examination 3 (November 17)</td>
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<td>Final Examination (December 15, 4:00 PM – 6:00 PM)</td>
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Rules for dropping and adding classes are the same as those for the university. Students are expected to attend all classes. University rules associated with academic dishonesty will be followed.

**Disabilities:** Reasonable accommodations will be provided for students with documented physical, sensory, learning, and psychiatric disabilities. Contact Disability Services to work out the details of accommodations. Please feel free to discuss other special needs with me.

**Course Information and Topics**

Survey sampling design is very useful for all academic areas, but especially in the social sciences, education and marketing. This course will be especially helpful for students who might do survey research in the future, but also for students who need to read and understand the survey methods reported in other research. The course will cover the following topics:

- Basic Concepts of Survey Sampling
- Stratified Sampling
- Systematic Sampling
- Cluster Sampling and Subsampling
- Selection with Probabilities proportional to Size Measures
- Questionnaire Design
- Writing Questions for Surveys
- Data Collection Methods
- Analysis of Survey Data
- Computer Analysis of Survey Data using SAS and R