Instructor: Dr. Debaraj Sen, Office: LB 1041-21 (SGW), Phone: 514-848-2424, Ext. 3241
E-mail: debaraj.sen@concordia.ca

Office Hours: Wednesdays, 11:00-12:30.


Grading

The final grade will be based on the following three components:

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>(a) Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>(b) Midterm Test</td>
<td>32%</td>
</tr>
<tr>
<td>(c) Final Exam.</td>
<td>48%</td>
</tr>
</tbody>
</table>

NOTE: It is the Department's policy that tests missed for any reason, including illness, cannot be made up. If you miss the midterm test because of illness (to be confirmed by a valid medical note), the final exam can count for 80% of your final grade.

IMPORTANT: PLEASE NOTE THAT THERE IS NO “100% FINAL EXAM” OPTION IN THIS COURSE.

Notes:

a. The midterm will take place in class on **Thursday, March 7, 2017**.

b. **Midterm test will cover until weeks 7 inclusively.**

c. There will be no make-up tests.

d. The final examination will cover everything taught in the course.

e. Assignments will be handed bi-weekly and collected in class.

f. Late assignments will not be accepted.

g. There are no supplemental privileges in this course.
<table>
<thead>
<tr>
<th>Weeks</th>
<th>Chapters</th>
</tr>
</thead>
</table>
| 1     | Chapter 1: Introduction  
        Why use surveys?  
        What is a good survey?  
        Basic terminology for survey, sampling  
        Sources of error |
| 2 & 3 | Chapter 2: Simple Probability Samples  
        Definitions of Probability sampling  
        Simple Random Sampling  
        Estimation of means and totals  
        Estimation of proportions  
        Sampling weights  
        Confidence Intervals  
        Determining sample size  
        Systematic Sampling  
        Randomization theory results for SRS  
        Prediction Approach for SRS  
        Use an SRS |
| 4 & 5 | Chapter 3: Stratified Sampling  
        Definition and theory  
        Sampling weights in Stratified Random Sampling  
        Allocation of sample to strata  
        Defining strata  
        Model based inference for Stratified Random Sampling  
        Quota sampling |
| 6 & 7 | Chapter 4: Ratio and Regression Estimation  
        Estimation of a ratio  
        Ratio estimation of a mean or total  
        Regression estimation of a mean or total  
        Ratio estimation with Stratified Samples  
        Mid-Term Test |
| 8 & 9 | Chapter 5: Cluster Sampling with Equal probabilities  
        Definition and notation  
        One-Stage Cluster Sampling  
        Clusters of equal sizes  
        Clusters of unequal sizes  
        Two-stage cluster sampling  
        Designing a Cluster Sample  
        Systematic sampling |
| 10 & 11 | Chapter 6: Sampling with Unequal Probabilities  
        One-stage sampling with replacement.  
        Two-stage sampling with replacement.  
        Unequal probability sampling without replacement  
        Randomization theory results and proofs |
| 12 & 13 | Chapter 8: Non-response & Review  
        Effect of non-response in samples  
        Designing Surveys to reduce non-response errors  
        Weighting for differential non-response  
        Imputation for non-response  
        Parametric models for Nonresponse |