Syllabus
STAT 693-0002 Statistical Methods for Measurement Errors
Northern Illinois University Fall, 2015

Instructor: Duchwan Ryu
Office: 361E  Office Hours: MW 1-2 (feel free to ‘drop in’)
Phone: 815-753-6858  E-mail: dryu@niu.edu

Class: MWF 9:00 am - 9:50 am at DuSable Hall 461


References: We will use some examples.


Course Description: This course is concerned with linear, nonlinear and nonparametric regression problems when some of the predictors may be hard to measure, and only noisy versions of them are available. Applications include trying to measure long-term nutrient intake, long-term blood pressure, airborne particulates, household lead levels, etc.

The course will address the question: What are the effects of measurement error on estimation and inference, and how does one correct for these effects? Two main methods will be described: Simulation/Extrapolation (SIMEX) and Likelihood/Bayes.
**Intended Learning Outcomes:** (i) Understanding the effect of measurement errors on the statistical inference; (ii) Enabling to model the measurement errors adequately and (iii) Correct the effect of measurement errors in the statistical models.

**Assessment:**

- **Homework:** Homework will be assigned on every Friday.

- **Exams:** There will be about 2 student lectures for each, a mid-term report (Due to Nov. 20) and a final project (Due to Dec. 14).

- **Grade:** The course grade will be based on 100 points with Homeworks (50), Mid-term report (20) and Final Project (30).

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<tr>
<th>Grade</th>
<th>Mark Range</th>
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<tbody>
<tr>
<td>A</td>
<td>A:90-100</td>
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<tr>
<td>B</td>
<td>B:84-86</td>
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<td>C</td>
<td>C+:74-76</td>
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<tr>
<td>D</td>
<td>D:60-66</td>
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<tr>
<td>F</td>
<td>F:Below 60</td>
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**Course Resources:** Course website on Blackboard will be noticed.

**Course Policies:** No late penalty for homework.

**Accessibility:** Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or drc@niu.edu.
Academic Integrity: Policies on Academic Integrity, Attendance and Accessibility statement is available at http://www.niu.edu/stat/courses/pdfs/Accessibility_Statement.pdf.

Proposed Course Schedule:

- Weeks 1-2: Introduction (Chapters 1-2)
- Weeks 3-7: Functional Modeling (Chapters 3-6)
- Weeks 8-10: Structural Modeling (Chapters 7-8)
- Weeks 11-13, 15-16: Special Topics (Chapters 9-14)
- Weeks 14: Thanksgiving break