Instructor: Brian Trainor, Adjunct Faculty (btrainor@luc.edu)
Classroom: Corboy Law Center - Room 710
Class time: Monday & Wednesday, 5:00 - 8:00 p.m., May 18th – June 24th
Office hours: By appointment

School of Education Conceptual framework
Our school’s conceptual framework is “professionalism in service of social justice”. This course contributes to this framework by equipping students with knowledge and experience for conducting valid quantitative research. Through conducting, interpreting, and reporting reliable social science studies, researchers can help further the scholarly understanding of the events and practices that influence the field of education. The ultimate outcome of this understanding is to ensure that all individuals, no matter their ability, race, religion, socioeconomic status, age or gender benefit from effective social science research.

Course Goals
This course provides an introduction to data analysis and statistical inference. Specially, students learn to:
- describe data (quantitatively and graphically)
- conduct hypothesis tests
- select and compute statistical estimates
- use computer packages to accomplish these tasks, and
- interpret and write about the results of the estimates and tests.
Knowledge of basic algebra is required, as is an understanding of the fundamental principles of descriptive statistics and hypotheses; knowledge of higher mathematics (e.g., trigonometry, calculus) is not required.

Technological knowledge and skills
Students use SPSS (Statistical Package for the Social Sciences) to analyze data using NELS (National Education Longitudinal Study) dataset in this class. NELS is one of the largest and most important datasets collected by the U.S. government, including extensive measurements of students’ beliefs, aspirations, attitudes, and background, as well as related information from teachers, parents, and schools. Students are expected to be able to graphically summarize data (e.g., using histograms) and perform hypothesis tests (e.g., t-tests, chi-square tests, and regression).

Diversity
School of Education is committed to ensure the learning environment and activities are designed with respect of individual and cultural differences. The examples used in this class are chosen to reflect the diversity.

Required text
Recommended text

Homework
Six homework assignments will make up the points devoted to homework. The assignments are not all equal in length. Total homework points will be converted to a percentage score, then weighted and combined with exam scores to obtain a final overall grade. You are encouraged to work with other student in the class to discuss the questions and the direction of analysis asked in the HWs. However, individual should write up the answers separately and turn in a copy of their own work by the due date.

In order to prepare for the exams, answer keys to all HW assignments will be provided. Because students need access to these answers in a timely manner in order to best prepare for the final exam, late work cannot be accepted.

Examinations
There are two exams for this course. The exams are open-book and open-note, and you may use calculators during the exam. However, books, notes, and calculators may not be shared or circulated during exams, so be sure to bring your own materials.

Participation
Regular attendance and participation in class discussions are expected. If a student needs to miss a class, they are responsible for learning the material on their own time and adhering to any due dates. Please discuss any planned absences with the instructor ahead of time to make sure you understand potential due dates.

Evaluation
Grades will be based on points accumulated on homework and examinations. There will be 100 total possible points, distributed as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework assignments</td>
<td>60%</td>
</tr>
<tr>
<td>Final exam</td>
<td>35%</td>
</tr>
<tr>
<td>Participation</td>
<td>5%</td>
</tr>
</tbody>
</table>

The grade ranges in terms of percentage are:

- 100.0-92.0 = A
- 91.9-88.0 = A-
- 87.9-84.0 = B+
- 83.9-80.0 = B
- 74.9-72.0 = C+
- 71.9-70.0 = C
- 79.9-75.0 = B-
- 69.9-65.0 = C-

64.9 and below = F
Other important issues:

**Academic Honesty**
Academic honesty is an expression of interpersonal justice, responsibility and care, applicable to Loyola University faculty, students, and staff, which demands that the pursuit of knowledge in the university community be carried out with sincerity and integrity. The School of Education’s Policy on Academic Integrity can be found at: [http://www.luc.edu/education/academics_policies_integrity.shtml](http://www.luc.edu/education/academics_policies_integrity.shtml). For additional academic policies and procedures refer to: [http://www.luc.edu/education/academics_policies_main.shtml](http://www.luc.edu/education/academics_policies_main.shtml)

**Accessibility**
Students who have disabilities which they believe entitle them to accommodations under the Americans with Disabilities Act should register with the Services for Students with Disabilities (SSWD) office. To request accommodations, students must schedule an appointment with an SSWD coordinator. Students should contact SSWD at least four weeks before their first semester or term at Loyola. Returning students should schedule an appointment within the first two weeks of the semester or term. The University policy on accommodations and participation in courses is available at: [http://www.luc.edu/sswd/](http://www.luc.edu/sswd/)

**Harassment (Bias Reporting)**
It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of his or her race, color, national origin, gender, sexual orientation, disability, religion, age or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfill its educational and health care mission. For this reason, every incident of harassment, discrimination or abuse undermines the aspirations and attacks the ideals of our community. The university qualifies these incidents as incidents of bias.

In order to uphold our mission of being Chicago's Jesuit Catholic University-- a diverse community seeking God in all things and working to expand knowledge in the service of humanity through learning, justice and faith, any incident(s) of bias must be reported and appropriately addressed. Therefore, the Bias Response (BR) Team was created to assist members of the Loyola University Chicago community in bringing incidents of bias to the attention of the university. If you believe you are subject to such bias, you should notify the Bias Response Team at this link: [http://webapps.luc.edu/biasreporting/](http://webapps.luc.edu/biasreporting/)

**EthicsLine Reporting Hotline**
Loyola University Chicago has implemented EthicsLine Reporting Hotline, through a third party internet & telephone hotline provider, to provide you with an automated and anonymous way to report activities that may involve misconduct or violations of Loyola University policy. **You may file an anonymous report here on-line or by dialing 855-603-6988. (within the United States, Guam, and Puerto Rico)**

The University is committed to the highest ethical and professional standards of conduct as an integral part of its mission of expanding knowledge in the service of humanity through learning,
justice and faith. To achieve this goal, the University relies on each community member's ethical behavior, honesty, integrity and good judgment. Each community member should demonstrate respect for the rights of others.

www.luc.edu/ethicsline

Electronic Communication Policies and Guidelines
The School of Education faculty, students and staff respect each other’s rights, privacy and access to electronic resources, services, and communications while in the pursuit of academic and professional growth, networking and research. All members of the university community are expected to demonstrate the highest standards of integrity, communication, and responsibility while accessing and utilizing technology, information resources, and computing facilities. A link to the Loyola University Chicago and School of Education official policies and guidelines can be found at:

http://www.luc.edu/media/lucedu/education/pdfs/SOE_Cyberbullying_Policy.pdf

IDEA Objectives

1. Gaining factual knowledge (terminology, classifications, methods, trends)
2. Learning fundamental principles, generalizations, or theories
3. Learning to apply course material (to improve thinking, problem solving, and decisions)
4. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course
5. Acquiring skills in working with others as a member of a team
6. Developing creative capacities (writing, inventing, designing, performing in art, music, drama, etc.)
7. Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc.)
8. Developing skill in expressing oneself orally or in writing
9. Learning how to find and use resources for answering questions or solving problems
10. Developing a clearer understanding of, and commitment to, personal values
11. Learning to analyze and critically evaluate ideas, arguments, and points of view
12. Acquiring an interest in learning more by asking questions and seeking answers
## Tentative schedule

<table>
<thead>
<tr>
<th>Dates</th>
<th>Topics</th>
<th>Readings</th>
<th>HW Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/19</td>
<td>Introduction &amp; measure scales</td>
<td>Ch.1</td>
<td></td>
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<tr>
<td>5/20</td>
<td>Describing data &amp; introduction to SPSS</td>
<td>Ch.2</td>
<td></td>
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<tr>
<td>5/25</td>
<td>No Class, Memorial Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/27</td>
<td>Basic concepts of probability &amp; normal distribution</td>
<td>Ch.3 &amp; 5</td>
<td>HW1</td>
</tr>
<tr>
<td>6/1</td>
<td>Sampling distribution &amp; hypothesis testing</td>
<td>Ch.4</td>
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<tr>
<td>6/3</td>
<td>Hypothesis tests applied to means: Variance known</td>
<td>Ch.7</td>
<td>HW2</td>
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<tr>
<td></td>
<td>Hypothesis tests applied to means: Variance unknown--One-sample t-test</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypothesis tests applied to means: Variance unknown--Two-sample t-test</td>
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<td></td>
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<tr>
<td>6/8</td>
<td>Power</td>
<td>Ch.8</td>
<td>HW3</td>
</tr>
<tr>
<td>6/10</td>
<td>Correlation &amp; Simple Regression</td>
<td>Ch.9</td>
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<tr>
<td>6/15</td>
<td>Analysis of variance (ANOVA)</td>
<td>Ch.11</td>
<td>HW4</td>
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<tr>
<td>6/17</td>
<td>Chi-square</td>
<td>Ch.6</td>
<td>HW5</td>
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<tr>
<td>6/22</td>
<td>Review</td>
<td></td>
<td>HW6</td>
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<tr>
<td>6/24</td>
<td><strong>Final exam</strong></td>
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Dispositions
Each course in the School of Education focuses on one or more professional dispositions. Students are offered opportunities to receive feedback on their dispositional growth in the areas of professionalism, fairness and/or the belief that all students can learn. The expected behaviors for the specific dispositions for this class and the evaluation rubric are listed in the end of this syllabus.

Evaluation of Disposition in RMTD 404

<table>
<thead>
<tr>
<th>Area</th>
<th>Target</th>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic Inquiry</td>
<td>Candidate communicates effectively and appropriately with faculty and peers.</td>
<td>Candidate is working on communicating effectively and appropriately with faculty and peers.</td>
<td>Candidate is unable to communicate effectively and appropriately with faculty and peers.</td>
</tr>
<tr>
<td>AEA A.3</td>
<td>Candidate’s written work is appropriate and effective for the course.</td>
<td>Candidate’s written work is sometimes appropriate and effective for the course.</td>
<td>Candidate’s written work is inappropriate and ineffective for the course.</td>
</tr>
<tr>
<td>Responsibilities for General and Public Welfare</td>
<td>Candidate is able to meet all deadlines. Candidates appropriately represent procedures, data, and findings – attempting to prevent misuse of their results.</td>
<td>Candidate is sometimes able to meet all deadlines. Candidates represent procedures, data, and findings in a manner that is likely to allow the misuse of their results.</td>
<td>Candidate is unable to meet all deadlines. Candidates misrepresent procedures, data, and findings. There is minimal attempt to prevent misuse of their results.</td>
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<tr>
<td>Timeliness</td>
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<tr>
<td>Integrity/Honesty</td>
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<tr>
<td>AEA C.5</td>
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