Introduction

We live in an information-rich world. The information is often presented as numbers, graphs and charts. In order to make decisions one need to be able to interpret such information. Furthermore, there is an increased need to be able to present information using statistics and figures. This course provides an introduction to collecting, analyzing, displaying and understanding data. The topics covered include the basics of sampling, statistics, probability, and reading and creating charts, graphs, and tables.

Course Objectives

The objective of the course is to provide solid foundation to students in order to understand, evaluate, and make strategic decisions based on data.

More specifically, by the end of the course, participants will be able to:

1. Read and interpret quantitative information, and be able to make decisions based on it;
2. Identify problems/issues that can be examined and remedied with data-driven analysis;
3. Design data-driven projects, analysis, and evaluation;
4. Communicate effectively using data in relevant contexts;

Course Organization

Each class session will cover the topic(s) indicated on the syllabus for that day. Class sessions will include lectures by the instructor, class discussions of assigned readings and/or in-class activities designed to illustrate the principles and theories presented in readings and lectures.

Readings

The Schedule of Lectures and Required Readings lists session topics and required readings. Assigned readings are subject to amendment by the instructor.

There is no required textbook for this class. Required readings will be available on Oncourse worksite for Z519.
Grading and assignments
All grades will be assigned according to the Department of Information and Library Science (ILS) Grading Policy for Master’s and Specialist Level Students. This policy was defined by student and faculty members of ILS’s Curriculum Steering Committee and was adopted by the Faculty on November 11, 1996, as an aid in evaluation of student performance:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Numerical Equivalent</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
<td>Outstanding achievement. Student performance demonstrates full command of the course materials and evinces a high level of originality and/or creativity that far surpasses course expectations.</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>Excellent achievement. Student performance demonstrates thorough knowledge of the course materials and exceeds course expectations by completing all requirements in a superior manner.</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>Very good work. Student performance demonstrates above-average comprehension of the course materials and exceeds course expectations on all tasks as defined in the course syllabus.</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>Good work. Student performance meets designated course expectations, demonstrates understanding of the course materials and is at an acceptable level.</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td>Marginal work. Student performance demonstrates incomplete understanding of course materials.</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
<td>Unsatisfactory work. Student performance demonstrates incomplete and inadequate understanding of course materials. Coursework performed at this level or below will not count toward the MLS or MIS degree. For the course to count towards the degree, the student must repeat the course with a passing grade.</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
<td>Unacceptable work. Coursework performed at this level will not count toward the MLS or MIS degree. For the course to count towards the degree, the student must repeat the course with a passing grade.</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>Failing. Student may continue in program only with permission of the Dean.</td>
</tr>
</tbody>
</table>

Assignments and percentage of the final grade:
1) Homework assignments 50%
2) Class participation 5%
3) Final project
   a. Presentations 10%
   b. Report 35%
1) **Homework assignments.** There will be homework assignments for sessions 2-11. The assignments will be posted to Oncourse on the day of the class and will be due two days later (Wednesday) by 5 pm. Your work must be posted to Oncourse, preferably in PDF format. Late submission and submissions by email or in paper will not be accepted. Each assignment will carry a maximum of 5 points. Receiving the maximum number of points requires providing detailed and correct answers. Homework assignments will constitute 50% of the student’s final course grade.

2) **Class participation.** Each student is expected to come prepared to the class and participate actively in class activities and the discussion. Participation grade is based on demonstrated familiarity with the assigned material and the capability to contribute constructively to the class discussion. Class participation will constitute 5% of the student’s final course grade.

3) **Final project.** Students will choose among several data sources and will then be provided an individualized data set. The students will need to analyze the data thoroughly (applying the techniques discussed in the class). The students will produce both a detailed technical report of their analysis and either an info dashboard or infographic highlighting the results. These two elements are to be submitted to Oncourse as a final report and they would constitute 35% of student’s final grade. Deadline is May 2, 10 am. In addition, each student is going to give a presentation highlighting the major findings of their analyses. The presentations will constitute 10% of student’s final grade. The final report must address any feedback received during the presentation.

**Late Submissions**

In fairness to students who turn in assignments on time, late papers will not be accepted unless arrangements have been made with the instructor at least 24 hours prior to the submission date.

**Incompletes**

Each student is expected to complete all coursework by the end of the term. A grade of incomplete [ I ] will be assigned only when exceptional circumstances warrant. In such cases timely notification is critical.

**Academic Dishonesty**

As Dr. Alice Robbin observes in her Fall 2008 syllabus for S506, there is more to avoiding plagiarism than simply citing a reference. Dr. Robbin points out that, in order to aid students both in recognizing plagiarism and in avoiding the appearance of plagiarism, Indiana University’s Writing Tutorial Services has prepared a short guide entitled "Plagiarism: what it is and how to recognize and avoid it". This guide is available at: <http://www.indiana.edu/~wts/wts/plagiarism.html>. The guide provides explicit examples of plagiarism and offers strategies for avoiding it. Each student should be familiar with this document and use it as a guide when completing assignments.

Dr. Robbin offers three "rules" for avoiding inadvertent plagiarism -- rules that she gleaned from Ralph Brower, a colleague at Florida State University:

1. Whenever you "borrow" material, from any resource whatsoever, for inclusion in a document you are writing, you must provide a footnote, endnote or parenthetical reference (with accompanying bibliographic citation) identifying the original resource. If you have any questions about how to do this, review the guidelines set out in the 5th edition of the APA Style Manual.

2. Any time that you quote any resource verbatim, you must enclose the text in quotation marks and identify the original resource, as indicated in (1).
3. Text that you paraphrase and ideas that you "borrow" must also be attributed, as indicated in (1), even if you do not quote the original source verbatim.

Policies on academic dishonesty have been established by Indiana University and the School of Library and Information Science. These policies, which have been set out in the Code of Student Ethics, will be adhered to in this class. Any assignment that contains plagiarized material or indicates any other form of academic dishonesty will receive, at a minimum, a grade of F. A second instance will result in an automatic grade of F for the course. Penalties may be harsher depending on the severity of the offense.

Notice
If you are a student with a special need, please feel free to discuss it with the instructor.
SCHEDULE OF LECTURES AND REQUIRED READINGS

NOTE: For each class session, the following schedule includes a topic statement and a list of required readings. Required readings are listed in the order in which they should be read.

Session 1 -- January 11
Topic: Introduction to z519.

NO CLASS January 18 – MLK Day

Session 2 -- January 25
Topic: Where do data come from?
Required readings for Session 2:

Session 3 -- February 1
Topic: Sampling
Required readings for Session 3:

Session 4 -- February 8
Topic: Describing data numerically: sample size and central tendency
Required readings for Session 4:

Session 5 -- February 15
Topic: Describing data numerically: shape and spread of distributions
Required readings for Session 5:


Session 6 -- February 22
Topic: Describing data visually: tables
Required readings for Session 6:

Session 7 -- February 29
Topic: Describing data visually: charts and graphs
Required readings for Session 7:
- Few, Stephen. (2012). *Show Me the Numbers: Designing Tables and Graphs to Enlighten* (pp. 45-51 and 87-135).

Session 8 -- March 7
Topic: The meaning of relationships
Required readings for Session 8:

NO CLASS March 14 -- Spring Break

Session 9 -- March 21
Topic: Studying relationships - networks
Required readings for Session 9:

Session 10 -- March 28
Topic: Probabilities
Required readings for Session 10:


**Session 11 -- April 4**

**Topic:** Storytelling with data, info dashboards and infographics

**Required readings for Session 11:**


**Session 12 -- April 11**

**Topic:** Workshop

**Session 13 -- April 18**

**Topic:** Presentations

**Session 14 -- April 25**

**Topic:** Presentations