

# Statistical Reasoning

## Course Syllabus

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## Course Information

### Course Description

Reading the newspaper, perusing consumer reports, and analyzing political data are all activities in which we engage on a daily basis. People who want to persuade us, or attract our dollars use statistics to help us make up our minds.

This course will teach students the basic concepts of statistics. As a group, we will investigate topics in descriptive statistics, correlation, normal distributions, probability, sampling distributions and hypothesis testing. By the end of this course, students will be able to complete a statistical analysis of datasets using Microsoft Excel as the primary tool. We will also devote considerable time to discussing how statistics are used and abused.

### Course Learning Goals

After completing this course, you will be able to:

- Understands the terminology of statistics.
- Can organize data into frequency distributions.
- Can use measures of central tendency and variability to describe frequency distributions.
- Understands the concept of correlation and can use it describe the relationship between two variables.
- Can use sample populations to statistically describe specific tendencies of whole populations.
- Can use statistics to think critically.
- Can use basic statistical functions of Microsoft Excel to solve statistics problems.

### Course Competencies

In this course, you will develop the following competencies:

Competence	Competence Statement and Facets
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<p><b>H3X</b></p>	<p><b>Can use descriptive statistics to analyze the impact of social institutions on human development.</b></p> <ol style="list-style-type: none"> <li>1. Identifies a social institution and describes it's characteristics.</li> <li>2. Articulates statistical criteria for analyzing the impact of this institution on human development.</li> <li>3. Uses descriptive statistics to analyze the impact of this institution.</li> </ol>
<p><b>S2X</b></p>	<p><b>Can use mathematics or statistics to describe the patterns and processes of everyday life.</b></p> <ol style="list-style-type: none"> <li>1. Knows basic mathematical or statistical theory.</li> <li>2. Uses this theory to describe or define patterns or processes in everyday life.</li> </ol>
<p><b>S3X</b></p>	<p><b>Can use statistical data to support at least two different perspectives on a social issue.</b></p> <ol style="list-style-type: none"> <li>1. Uses statistics to describe a local, regional or global social concern</li> <li>2. Identifies how statistics can be used to understand this social concern from at least two different perspectives.</li> </ol>
<p><b>FX</b></p>	<p><b>Can use statistics to describe and analyze a problem or issue related to (insert a topic related to the student's Focus Area).</b></p> <ol style="list-style-type: none"> <li>1. Uses descriptive statistics to describe an issue related to the student's focus area.</li> <li>2. Can gather appropriate data.</li> <li>3. Can use descriptive statistics to analyze collected data.</li> </ol>

### Course Resources

To buy your books, go to <http://www.mbsdirect.net> .  
Hint: type DePaul for name of the school.

[Click here for help buying your books](#)

### Required Reading:

For **ALL** Competences:

*Statistical Reasoning for everyday life* 3rd edition  
w/My Math Lab Student Access Kit (MML SAK)  
Bennett, Briggs & Triola  
Pearson/ Addison Wesley  
ISBN: 0321505735

An electronic version of this book can also be purchased through the Course Compass website: <http://www.coursecompass.com/>

Go to this website and register as a student. You will need a credit card and a Course ID that is provided by the instructor to purchase access to the website that supports the textbook. The book is posted in that website.

**Recommended reading (not required):**

*Stat-Spotting: A field Guide to Identifying Dubious Data*  
Joel Best  
University of California Press  
9780520257467

This book is quoted in the course study guide. His book, *Damned Lies and Statistics* is another good read on uses and abuses of statistics.

*Super Freakonomics*  
Levitt & Dubner  
Harper Collins Publisher  
ISBN 9780060889579

This is a collection of stories on research methodology. Their first book, *Freakonomics*, is also a good read.

**Additional Resources:**

*Statistics for the Utterly Confused*  
Jaisingh  
Mcgraw Hill  
ISBN 0-07-135005-5

This book covers the mathematics covered in this class in more detail than the required text. It is relatively inexpensive. It is recommended for students who want to learn how to work more with a calculator.

**Course Grading Scale**

A = 95 to 100	A- = 91 to 94	B+ = 88 to 90
B = 85 to 87	B- = 81 to 84	C+ = 77 to 80
C = 73 to 76	C- = 69 to 72	D+ = 65 to 68
D = 61 to 64	F = 60 or below	INC

Please note: Grades lower than a C- do not earn credit or competence in the School for New Learning.

**Course Structure**

This course consists of 6 modules. **Module 1** is *one week* and **Modules 2** through **6** are *two weeks*.

To see course due dates, click on the Checklist link on the top navigation bar. This page

contains module-specific checklists and due dates for the work due in the course.

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## Assessment of Learning

Assignment Type	Assessment of Learning
<b>Discussion</b>	Points will be assigned to each assignment. Points will be earned based on a standard rubric for discussion assignments provided below.
<b>Quizzes</b>	Each multiple choice quiz will have 20 questions for 100 points.
<b>Excel Projects</b>	Each project has a set number of points associated with each section of the project. The points are detailed in the instructions and/or the answer form. Feedback will be provided when points are deducted.
<b>Final Project</b>	100 points. This paper is competence based. The Final Project Proposal/Worksheet provides details for development of the project.

## Percentage Distribution of Assessments

Discussions	Quizzes	Excel Projects	Final Project
25% of Final Grade	25% of Final Grade	25% of Final Grade	25% of Final Grade (students must get a C or better to demonstrate competences S3X, H3X and/or FX)

## Grading Policies and Practices

I expect your work to come in on time and I will attempt to return it to you in a timely manner. Your grade will be lowered by 10 percent each week that it is late, starting the day after the assignment is due. For example, if an Excel project is worth 100 points and it is 1 week late, the highest grade you can get is 90; if it is 2 weeks late the highest grade will be 80, and so on.

Discussion assignments cannot be completed after a due date. No participation in a discussion assignment during the scheduled module will result in a 0 score for a assignment. No extensions will be granted.

Pace yourself in this class. There is much to do and I expect that you will be able to stay current with the assignments.

## General Assessment Criteria for All Writing Assignments

Keep in mind that writing assignments are expected to conform to basic college-level standards of mechanics and presentation. This is the rubric I will use to assess your

writing assignments:

An excellent (A) essay will:

- Offer a unique or particularly insightful response to the assignment or competence
- Contain a clear purpose, a compelling introduction, a nuanced thesis or main idea and a thoughtful conclusion
- Recognize and thoughtfully address complexities
- Contain strongly supportive details, a judicious sense of evidence
- Be logically developed and quite well organized
- Use a style and tone appropriate to the purpose and audience
- Smoothly integrate correct citations for any words, facts or ideas from a source using either MLA or APA parenthetical citation
- Show sophisticated sentence variety and paragraph development
- Be virtually free of grammar and usage errors.

A strong (B) essay will:

- Respond to the assignment or competence in depth
- Contain a clear purpose, a strong introduction, a thoughtful thesis or main idea and an effective conclusion
- Recognize and address complexities
- Contain supportive details, a good sense of evidence
- Be logically developed and well-organized
- Use a style and tone appropriate to the purpose and audience
- Include correct citations for any words, facts or ideas from a source using either MLA or APA parenthetical citation
- Offer adequate sentence variety and paragraph development
- Be virtually free of grammar and usage errors
- Lack the verbal skills, organizational strength and insight of an "excellent" essay.

A satisfactory (C) essay will:

- Respond to the assignment or competence, demonstrating solid conceptual understanding
- Contain a clear purpose, thesis or main idea, introduction and conclusion that all work together
- Recognize complexities
- Contain sufficient details and other evidence to support claims
- Display competence in logical development and organization, although essay may exhibit occasional organizational or argumentative weaknesses
- Use a style and tone appropriate to the purpose and audience, although there may be minor lapses in either
- Include generally correct citations for any words, facts or ideas from a source using either MLA or APA parenthetical citation, although there may be minor mistakes in formatting

- Display general control of sentence variety and paragraph development
- May have a few grammar, word usage and mechanical errors, but they do not obscure the reader's understanding of the essay

A weak (D–failing) essay will do one or more of the following:

- Fail to respond to or adequately grasp significant elements of the assignment or competence
- Omit a clear purpose, introduction, thesis or main idea, or conclusion
- Be too general or too specific
- Lack sufficient support for claims
- Contain trivial or frivolous points (or supporting material)
- Have flaws in logic or organization
- Fail to develop an appropriate tone
- Fail to cite sources or have incorrect citations that do not clearly indicate borrowed material
- Contain several flaws in style, grammar, or usage that may lead to confusion in meaning

A poor (F–failing) essay will do any one of the following:

- Fail to respond to the assignment or competence
- Be far too general or far too specific
- Contain a vacuous or trivial argument or analysis
- Have little controlling logic or organization
- Fail to cite sources used in the essay
- Have so many flaws in style, grammar, or usage that reading and comprehension are difficult

(This rubric for writing was taken from the SNL Writing Guide, <http://snl.depaul.edu/writing/index.html>).

Consider visiting the Writing Center to discuss your assignments for this course or any others. You may schedule appointments (30 or 50 minutes) on an as–needed or weekly basis, scheduling up to 3 hours worth of appointments per week. Online services include Feedback–by–Email and IM conferencing (with or without a webcam). All writing center services are free.

Writing Center tutors are specially selected and trained graduate and undergraduate students who can help you at almost any stage of your writing. They will not do your work for you, but they can help you focus and develop your ideas, review your drafts, and polish your writing. They can answer questions about grammar, mechanics, different kinds of writing styles, and documentation formats. They also can answer questions and provide feedback online, through IM/webcam chats and email.

Obviously, the tutors won't necessarily be familiar with every class or subject, but they are able to provide valuable help from the perspective of an interested and careful reader as well as a serious and experienced student-writer.

Schedule your appointments with enough time to think about and use the feedback you'll receive. To schedule a Face-to-Face, Written Feedback by Email, or Online Appointment, visit [www.depaul.edu/writing](http://www.depaul.edu/writing).

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## Discussion Forums

Discussion Forums are an important component of your online experience. This course contains discussion forums related to the topics you are studying each week. For requirements on your participation in the Discussion Forums, please see "Course Expectations" in the syllabus.

A Course Q & A discussion forum has also been established to manage necessary, ongoing social and administrative activities. This is where the management and administrative tasks of the course are conducted, and where you can ask 'process' questions and receive answers throughout the course. Please feel free to answer any question if you feel you know the answer; this sharing of information is valuable to other students.

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## Policies

### Academic Integrity

DePaul University is a learning community that fosters the pursuit of knowledge and the transmission of ideas within a context that emphasizes a sense of responsibility for oneself, for others and for society at large. Violations of academic integrity, in any of their forms, are, therefore, detrimental to the values of DePaul, to the students' own development as responsible members of society, and to the pursuit of knowledge and the transmission of ideas.

Violations include but are not limited to the following categories: cheating; plagiarism; fabrication; falsification or sabotage of research data; destruction or misuse of the university's academic resources; alteration or falsification of academic records; and academic misconduct. Conduct that is punishable under the Academic Integrity Policy could result in additional disciplinary actions by other university officials and possible civil or criminal prosecution. Please refer to your [Student Handbook](#) for further details.

### Plagiarism:

Plagiarism is a major form of academic dishonesty involving the presentation of the work of another as one's own. Plagiarism includes but is not limited to the following:

- The direct copying of any source, such as written and verbal material, computer files, audio disks, video programs or musical scores, whether published or unpublished, in whole or part, without proper acknowledgement that it is someone else's.
- Copying of any source in whole or part with only minor changes in wording or syntax, even with acknowledgement.
- Submitting as one's own work a report, examination paper, computer file, lab report or other assignment that has been prepared by someone else. This includes research papers purchased from any other person or agency.
- Resubmitting one's own previous work from a different course or college, without permission from the current instructor.
- The paraphrasing of another's work or ideas without proper acknowledgement.

Plagiarism, like other forms of academic dishonesty, is always a serious matter. If a

instructor finds that a student has plagiarized, the appropriate penalty is at the instructor's discretion.

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### **For Students Who Need Accommodations Based on the Impact of a Disability**

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussion will remain confidential. To ensure that you receive the most reasonable accommodation based on your needs, contact your instructor as early as possible in the quarter (preferably within the first week or two of the course). Please be sure to contact the following office for support and additional services:

Center for Students with Disabilities (CSD)  
#370, Student Center, LPC, 773.325.1677

### **Description of Pass/Fail Grading Options**

Students have the option of taking all SNL undergraduate courses as Pass/Fail even if a class is initially structured for a letter grade assessment. In these cases a Pass is awarded when competence is demonstrated at a level that would otherwise earn a grade of C- or higher.

In deciding to select Pass/Fail grading students should be aware that competencies assessed in a course as Pass will earn credit hours toward degree completion but *will not* be included in computing grade point averages. Attempted competence demonstration assessed within a class as Fail will not only be recorded as credit hours attempted but *will* also be included in computing a student's grade point average.

For SNL students, competencies awarded for Independent Learning Pursuits and in the Lifelong Learning Domain do not count toward the university's specification that only twenty credit hours may be earned through the Pass/Fail assessment option.

**Please note:** *There are four SNL courses within the BA curriculum that are always assessed on a Pass/Fail basis: Learning Assessment Seminar (course number LL 102; competence L-1), Foundations of Adult Learning (course number LL 250; competences L-2 and L-3), Advanced Project (course number FA 303; competences F-11 and F-12) and Summit Seminar (course number LL 390; competence L-12). These classes may not be taken for a letter grade assessment. Therefore, work that might otherwise be assessed at grades A through C- will earn a Pass in these classes.*

*There are an additional four SNL courses within the Lifelong Learning Area of the BA curriculum for which instructors regularly use a Pass/Fail grading system which may, instead, be taken for a letter grade assessment if this is a student's preference. These classes are: Academic Writing for Adults (course number LL 150; competence L-4), Critical Thinking (course number LL 155; competence L-5), Research Seminar (course number LL 300; competences L-8 and L-9) and Externship (course number LL 302; competences L-10 and L-11). In addition, SNL's undergraduate Writing Workshop (course number LL 140; competence H-3-J) regularly uses Pass/Fail although students may request a letter grade assessment. In these instances SNL offers undergraduate students the opportunity to request a letter grade assessment from their instructor. Students who need a letter grade for tuition reimbursement may wish to consider this option, as well as those who wish to raise their GPA. Students planning to attend graduate school may also prefer letter grades to Pass/Fail assessments.*

If a student wishes to switch the method of assessment, either to or from the Pass/Fail

option, this must be requested from the instructor in writing during the first two weeks of the quarter. The assessment style may not be changed after this period, with no exceptions.

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## **Protection of Human Subjects**

For more information see: <http://research.depaul.edu/>

Demonstrating the acquisition of competencies in this course can involve "interactions"—interviewing and or observing other people—discussing those interviews or observations with other class members and writing them up in one or more final report(s). As such, these activities qualify as "research" with "human subjects" and are subject to University and Federal guidelines. Because it takes place in the context of this course, your research is exempt from approval by the School for New Learning's Local Review Board only under the following conditions:

- The information you collect is EXCLUSIVELY for the purpose of classroom discussion and will NOT be used after the term is over. If there is any possibility that you will EVER use it in further research or for publication, you must obtain approval from the Local Review Board before you begin.
- You assess and ensure that no "harm"—physical, mental, or social—does or could result from either your interviews and/or observations or your discussion and/or reports.
- The privacy and confidentiality of those that you interview or observe must be protected. Unless you receive specific permission, in writing, from the person(s) you interview or observe, please change their names, and make sure that their identity cannot be readily ascertained from the information you provide.
- If you want to use real names and relationships, they must sign an "informed consent" document. For information on creating an "informed consent document" see, for example, <http://www.research.umn.edu/consent>

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## **Course Expectations**

### **Time Management and Attendance**

SNL's online courses are not self-paced and require a regular time commitment EACH week throughout the quarter.

You are required to log in to your course at least four times a week so that you can participate in the ongoing course discussions.

Online courses are no less time consuming than "face to face" courses. You will have to dedicate some time every day or at least every second day to your studies. A typical four credit hour "face to face" course at SNL involves three hours of classroom meeting per week, plus at least three to six hours of study and homework per week.

This course will require at least the same time commitment, but your learning activities will be spread out through the week. If you have any problems with your technology, or if you need to improve your reading or writing skills, it may take even longer.

The instructor should be notified if your life events do not allow you to participate in the course and the online discussions for more than one week. This is particularly important when there are group discussions or you are working as part of a team.

If you find yourself getting behind, please contact the instructor immediately.

### **Your Instructor's Role**

Your instructor's role in this course is that of a discussion facilitator and learning advisor. It is not their responsibility to make sure you log in regularly and submit your assignments. As instructor, s/he will read all postings to the general discussion forums on a daily basis but may not choose to respond to each posting. You will receive feedback to assignments.

The instructor may choose to designate "office hours" when s/he will be online and available and will immediately respond to questions. Depending on the instructor, this response may be by e-mail, instant messenger or telephone. Otherwise, you will generally receive a response to emailed or posted queries within 48 hours.

### **Your Role as a Student**

As an online student, you will be taking a proactive approach to your learning. As the course instructor's role is that of a learning guide, your role is that of the leader in your own learning.

You will be managing your own time so that you can complete the readings, activities and assignments for the course, and you will also be expected to take a more active role in peer learning.

### **Credits**

This course was designed and produced by John Hemmerling and staff at SNL Online of the School for New Learning of DePaul University.

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