



Quantitative Reasoning and Technological Literacy II

Spring 2017 Quarter

LSP-121 Section 301

Instructor: Sal J. Barry

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Class Meeting Times: Mondays, 9:40 AM to 11:10 AM

Wednesdays, 9:40 AM to 11:10 AM

Classroom Location: Student Center (STDCT)

2250 N. Sheffield Ave. Room 364

Office & Office Hours:

Mon & Wed – 11:10 AM – 11:55 AM in Student Center room 364 (our classroom)

Mon & Wed - 2:30 PM – 3:30 PM in Student Center room 364 (our classroom)

Thursday - 4:45 – 5:45 PM in CDM Building room 801 (Loop Campus classroom)

Important Dates

Last date to add (or swap classes) for this quarter: **March 31**

Last date to drop this class (or any Winter 2016-2017 class) with tuition refund: **April 7**

Last date to withdraw from this class (or any Winter 2016-2017 class): **May 12**

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a major change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and communicated via email.

Course Description

This course provides more advanced mathematical and computational methods in the analysis and interpretation of quantitative information. Topics include databases, descriptive statistics, measures of association and their interpretation, elementary probability theory, and an introduction to algorithms and computer programming. The course is taught in a hands-on laboratory environment where students are introduced to advanced computer tools for data analysis, including databases and a professional statistical software package.

Objectives of this Course

This Quantitative Reasoning and Technological Literacy course is designed to help you to become a more confident, critical, and capable user of quantitative information of all kinds. In particular, it will help you to

- continue to critique quantitative arguments, whether given numerically, graphically, or in written form
- become acquainted with data analysis software as used to prepare and analyze basic descriptive statistics
- apply probability concepts appropriately
- manipulate data via the creation and use of relational databases
- understand the basic concepts of algorithm creation and computer programming

Prerequisites

- Passing grade in LSP 120 or (MAT 147 or above), or
- Successful completion of the LSP 120 Proficiency Exam

If you feel that you already know the material presented in this course...

There is a placement exam you can take to exempt yourself from this class. You must take this exam within the first week of classes to waive the course this quarter. If you pass this exam, you will be waived from taking this course. Consult the Quantitative Reasoning Center website <http://qrc.depaul.edu> for more details.

Textbook

There is no required textbook for this class. All assigned readings will be posted on D2L.

Course Organization

The course material will be presented in three segments:

- Statistics/Probability
- Databases
- Algorithms/Computer Programming

Learning Outcomes for LSP 121 (QRTL)

1. Statistics: Students will be able to make and interpret frequency distributions; summarize data with measures of central tendency and dispersion; measure and interpret the association between variables; recognize the difference between correlation and causation; solve applied problems involving the normal distribution and z-scores.
2. Professional Statistical Package: Students will be able to import data from a spreadsheet or database into a statistics package; use graphical tools in a statistical package to make specialized statistics plots such as box plots and normal probability plots; calculate descriptive summary statistics using a statistical package.
3. Probability and Chance: Students will be able to recognize that seemingly improbable coincidences are not uncommon; evaluate risk from available evidence; and calculate basic, common probabilities.
4. Database tools: Students will be able to enter data into a pre-existing database; import data from a text file or spreadsheet file into a database; filter records based on a single parameter and on multiple parameters; sort records with multiple sort keys; formulate and conduct queries; generate a report from a database; recognize the difference between a flat file and a relational database; create a relational database using two or more tables; construct a query for a relational database using joins; design and implement forms for data entry.
5. Algorithms and reasoning: Students will be able to use sequential, logical thinking; develop algorithms to solve problems; use Boolean conditionals and repetition structures to create simple computer programs.
6. Programming tools: Students will be able to construct the concept of algorithm through experimentation and reflection on everyday activities; articulate an accurate definition of an algorithm; recognize algorithms fitting the definition; construct the notion of a control structure and a repetition structure; acquire the ability to trace simple program listings using control and repetition structures; use control and repetition structures to write simple computer programs to affect a task.

How These Learning Outcomes Will Be Met

Topics will be presented via lectures and in-class demonstrations. Associated hands-on student activities will reinforce concepts and introduce techniques required to complete assignments. Team assignments serve as an introduction to concepts and techniques, as well as collaboration to achieve a group solution to assigned problems. Individual assignments continue the lessons of the team assignments with additional reinforcement of concepts and techniques.

1. Statistics: Team Assignment 101 is devoted entirely to basic descriptive statistics; Team Assignment 102 covers descriptive statistics and analysis of single variables, normal distributions, and two-variable situations (cross-tabulation, correlation); Individual Assignment 1 covers descriptive statistics and analysis of single variables, two-variables, normal distributions, and deceptive statistics.
2. Professional statistical package: Team Assignment 102 is completed using the statistical package SPSS and requires the student to use it to solve multiple tasks; Individual Assignment 1 continues the use of SPSS

3. Probability: Team Assignment 103 covers an introduction to probability with a short section on risk. Individual Assignment 2 reinforces these concepts.

4. Database tools: Team Assignment 104 introduces Access databases with table/query/form and report creation. Individual Assignment 3 reinforces those lessons and includes database design with normalization.

5. Algorithms and reasoning: Team Assignment 105 requires that the team develop an algorithm to perform a task featuring repetition/loop logic. Individual Assignment 4 reinforces the concept of algorithm preparation.

6. Programming tools: Individual Assignment 4 introduces the concepts of sequential statements, if statements, loop statements, and function call statements and requires the students to use these to solve a variety of programming problems.

Writing Expectations (these assignments overlap with those given in LSP 120)

Five computer activities each of which has a final product in the form of a Word document with five to ten short paragraph responses. Five class assignments with approximately 10 short paragraph responses.

How These Writing Expectations Will Be Met

All team and individual assignments require the students to answer questions using appropriate communication techniques, including short paragraph answers.

Electronic Resources Students Must Have

Students will need the following electronic resources:

- A place to store your work (Flash drive, “cloud” account). If you bring a flash drive to class, please make sure that it is labeled with your name and email address, inside and outside.
- Access to the software (personal or from DePaul Lab) we will be using at the desktop
 - MS-Access (2013)
 - MS-Word (2013)
 - MS-Excel (2013)
 - SPSS (available at DePaul labs and via remote access)
 - File-compression software (e.g. WinZip)
 - PDF reader software (e.g. Adobe Reader)

Grading Policy

Grades will be based on the numbers of points you earn during the quarter. Approximately 1000 points will be available from a variety of sources. You must take all three exams in order to pass this class.

Grading Scale - Based on 1000 Possible Points

Grade Mapped to Points Earned:

- A 930 and above
- A- 929-900
- B+ 899-870
- B 869-830
- B- 829-800
- C+ 799-770
- C 769-730
- C- 729-700
- D+ 699-670
- D 669-600
- F 599 and below

Sources of Points (approximate)

- 55% Exams
- 20% Individual Homework Assignments
- 15% Team Assignments and evaluation of participation by team members
- 10% Class Attendance and Contribution

An expanded description of each Source of Points:**Exams**

There will be three exams. The first two will be given during class time. The third will be given during the final exam time scheduled for this class by DePaul University, specifically **Wednesday, June 7 from 8:30 am to 10:45 am**. You must complete the third exam during that time

Each of the three exams will cover a different class segment – Statistics/Probability, Databases, or Algorithms/Computer Programming. Exams are not cumulative.

There are no makeup exams in this course. If you cannot take an exam due to illness or family emergency, you must inform me before the exam by email.

Students must complete all three exams.

Individual Assignments

During many weeks, there will be an assignment to be completed by each student outside of class. The purpose of these assignments is to give individual outside-of-class practice on the skills we are learning and to explore some ideas more thoughtfully and deeply. These assignments also provide the opportunity to complete work similar to exam problems. The assignments will be available on D2L in the Dropbox section.

Individual assignments must be done individually. Students who submit work not completed by themselves alone will be subject to plagiarism penalties.

Assignment due dates are stated on D2L as part of the information about the Dropbox. Any student who submits an assignment after the due date will be assessed a penalty.

Late submissions of individual assignments will lose 20% of the points for that assignment per day (or any portion of a day).

Team Assignments

Each student in this class will be a member of a team. Each student will be assigned to a team on the first day of class.

Team assignments will be part of the work completed by all students. These team assignments will be available on D2L in the Dropbox section.

Each team assignment submission must include a list of the names of the team members who contributed to the assignment.

All team members who contribute to the submitted team assignment, as reported on the contributor list submitted as part of the assignment, will receive the same number of points for that team assignment. Team members not included in the contributor list will receive 0 points for the assignment.

All class members will be expected to contribute to team assignments. At the end of the quarter, team members will be asked to evaluate the contributions of their teammates as a part of the grading process.

It is up to the team to agree upon how to complete team assignments...and it is each person's responsibility to complete work as agreed upon by the team.

It may be tempting to divide the work of the team assignment so that each team member completes only a portion of the assignment and the resulting portions are assembled for submission. That is not a good strategy. Each team member should complete the entire team assignment. There are several options for working together on team assignments. Team members may wish to work jointly on a single submission during class “team time”. They may also decide that each person will complete the entire assignment independently and collaborate/review each other’s work to determine the answers that should be submitted for evaluation.

No late team assignments will be accepted.

Class Attendance and Contribution

Class attendance is important. You will receive points for each class session you attend.

You will not receive points for class session attendance if you are absent for any reason. There are no “excused” absences.

During each class session, a sign-in sheet will be circulated in class. The measure of attendance is whether you have signed the attendance sign-in sheet.

It is your responsibility to make sure that you personally sign the attendance sign-in sheet each day you attend class.

Students will be expected to prepare for class by completing assigned readings and reviewing class materials, such as lecture slides.

Desire To Learn (D2L)

The Desire To Learn website <http://d2l.depaul.edu> is a secure site for course management. It contains all class materials. You must use your CampusConnect ID to login to D2L.

We will be using the Home, Content, Discussions, Dropbox, Grades, Classlist, and More | Checklist components of D2L.

See the “How we will use D2L” handout (printed version to be distributed in class during the first session and also found in the D2L | Content | Basics – Throughout the Quarter) for descriptions of these components.

See the “D2L Intro” handout (printed version to be distributed in class during the first session and also found in the D2L | Content | Basics – Throughout the Quarter) for screenshots of these components.

File Formats for Assignment Submission

It is each student’s responsibility to make sure that work they have submitted to D2L can be accessed/ read by the instructor.

Document Files

Submitted document files must be compatible with MS-Word 2016. (This is the version of Word that Sal is using on his computer.)

If you use a different word processing software product, such as Pages for Mac, you will need to save your submission file as an MS-Word file and submit that MS-Word file to D2L.

Do not submit PDF files. Sometimes, charts from SPSS pasted into Word get “messed up” when the Word Document is converted into a PDF.

Other Files

Other file formats (Excel, Access, Zip) will be required for some assignment submissions. The required file format will be specified in the instructions for each assignment.

Your Email Address

Email is the primary means of communication between faculty and students enrolled in this course outside of class time. Students should be sure the email address listed under “demographic information” at <http://campusconnect.depaul.edu> is correct and is one they check frequently.

Email to your Professor

When you email me, please include the class name (LSP-121) and your name in the subject line of the email. This will help me to quickly spot your email.

My goal for e-mail response to student questions sent via e-mail is 24 hours. In many cases, a response will be sent much more quickly.

If you send emails at off-hours (after 9pm on Monday-Friday, or on Saturday or Sunday), I might not get back to you until the next weekday.

It is to your advantage...

...to pay attention in class and avoid distractions.

Class presentations and demonstrations for hands-on work are fast-paced. If you use personal electronic devices during class presentations, you may miss important concepts and process steps.

Turn off your cell phone, iPod and other mp3 players during lectures and in-class demonstrations.

You may use electronic devices such as personal computers and tablets during class, if that use is for LSP-121 class purposes. For example, taking class notes would be permitted.

Use classroom computers for LSP-121-related activities only.

Do not access social networking sites, play games, text, work on other classes, check email, surf the Web, etc. during class presentations and demonstrations.

Respect all class members. Limit your classroom entries and exits while a lecture is in progress.

Do not carry on non-class conversations during class presentations and demonstrations.

Quantitative Reasoning Center

The Quantitative Reasoning Center (QRC) provides invaluable support to LSP-121 students. Check for location and hours of QRC LSP121 tutors at the QRC website <http://qrc.depaul.edu>

Academic Integrity Policy

This course will be subject to the Academic Integrity Policy described at <http://academicintegrity.depaul.edu/>

Violations of academic integrity, particularly plagiarism, are not tolerated. Plagiarism is defined by the university as:

“..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:

- a. 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.*
- b. Copying of any source in whole or part with only minor changes in wording or syntax, even with acknowledgement.*
- c. 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.*
- d. The paraphrasing of another's work or ideas without proper acknowledgement.*

Plagiarism, like other forms of academic dishonesty, is always a serious matter. If an instructor finds that a student has plagiarized, the appropriate penalty is at the instructor's discretion. Actions taken by the instructor do not preclude the college or the university from taking further punitive action including dismissal from the university" (DePaul Student Handbook).

University policies on academic integrity will be strictly adhered to. Consult the DePaul University Student website for further details.

If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

I will use the *TurnItIn* software available via DePaul University, to review written work as part of the evaluation process. This software detects evidence of plagiarism of submitted work.

Some examples of cheating specific to this class:

Sign-In Sheet

Any student who signs the class attendance sign-in sheet for another student not in attendance during that class session will be subject to cheating/plagiarism penalties.

Individual Assignments

Any student who submits an Individual Assignment by another student or prepared jointly with another student will be subject to cheating/plagiarism penalties.

Extra Credit Assignments

Any student who submits an Extra Credit Assignment prepared by another student or prepared jointly with another student will be subject to cheating/plagiarism penalties.

Incomplete

Grades of Incomplete are given only in cases of medical emergency or other highly unusual emergency situations. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the College of Computing and Digital Media. Please note that University guidelines require that you must be earning a passing grade at the time you request an incomplete grade. You should have completed most of the course, with at most one or two major forms of evaluation missing. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request. Incompletes revert to an F if they are not resolved within one quarter.

Resources for Students with Disabilities

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 discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you contact the Center for Students with Disabilities (CSD) at:

Student Center, LPC, Suite 370
Phone number: (773) 325.1677
Fax: (773) 325.3720
TTY: (773) 325.7296

Course and Instructor Evaluation

Course and instructor evaluations are critical for maintaining and improving course quality. To make evaluations as meaningful as possible, we need 100% student participation. The evaluation process begins late in the quarter and will be completed on DePaul's Campus Connection website Campus Connect | Current Courses | Begin online evaluations. Students will be asked to give answers to structured questions, as well as providing additional comments where appropriate.

At-a-Glance Due Dates for Spring 2017**Assignment Due Dates for Spring 2017**

Materials for all assignments are found on D2L in the Dropbox section.

<u>Assignment #</u>	<u>Topic</u>	<u>Due Date</u>
Team 100	Basics - Team Organization	Monday, April 3
Individual 0	Basics - Student Survey	Monday, April 3

<u>Assignment #</u>	<u>Topic</u>	<u>Due Date</u>
Team 101	Statistics - Excel	Wednesday, April 5
Individual 1	Statistics - SPSS	Monday, April 10
Team 102	Statistics - SPSS	Wednesday, April 12
Individual 2	Probability	Wednesday, April 19
Team 103	Probability	Wednesday, April 19

<u>Assignment #</u>	<u>Topic</u>	<u>Due Date</u>
Team 104	Database	Wednesday, May 3
Individual 3	Database	Wednesday, May 10

<u>Assignment #</u>	<u>Topic</u>	<u>Due Date</u>
Team 105	Algorithms	Wednesday, May 29
Individual 4	Algorithms & Com. Prog.	Wednesday, May 31

<u>Assignment #</u>	<u>Topic</u>	<u>Due Date</u>
Individual 5	Reflection Essay	Monday, June 5
Individual 6	Team Member Evaluation	Monday, June 5

Reading Due Dates for Spring 2017

All assigned readings are available on D2L. You do not have to submit anything to D2L to confirm that you have completed the reading. "Just do it!" as Shia LaBeouf would say.

<u>Basics</u>	<u>Due Date</u>
Read the Class Syllabus	Wednesday, March 29
Texting vs Your GPA	Wednesday, March 29

<u>Statistics</u>	<u>Due Date</u>
ST1 – Intro to Statistics	Wednesday, April 5
ST2 – Descriptive Statistics	Wednesday, April 5
ST3 – The Normal Distribution	Wednesday, April 5
ST4 – Statistics that Deceive	Monday, April 10

<u>Probability</u>	<u>Due Date</u>
PR1 – Probability Basics	Monday, April 17

<u>Databases</u>	<u>Due Date</u>
DB1 – Database Concepts 1	Monday, May 1
DB2 – Hierarchy	Monday, May 1
DB 3 – Database Components	Monday, May 1

DB4 – Database Concepts II	Monday, May 8
DB5 – Database Design Basics (skim)	Monday, May 8
DB6 – Intro to Database Systems (skim)	Monday, May 8
DB7 – How to Complete a Database Problem	Monday, May 8

<u>Algorithms & Computer Programming</u>	<u>Due Date</u>
CP1 – Is Coding the New Literacy?	Monday, May 22
CP2 – Excel VBA Primer pgs.1-8	Wednesday, May 24
Skim the rest of CP2 (pgs. 9-51)	Mar 6 Monday, May 26

Exam Dates for Spring 2017

Exam #	Topic	Exam Date
Exam 1	Statistics & Probability	Monday, April 24
Exam 2	Databases	Wednesday, May 17
Exam 3	Algorithms & Computer Programming	Wednesday, June 7 (8:30 AM to 10:45 AM)

Full Schedule for the Spring 2017 Quarter

Week #	Class #	Date	Lecture / Class Topic
1	1	Monday, March 27	Review Syllabus Review D2L Form Teams Course Basics <ul style="list-style-type: none"> • Intro • Working with Digital Files • Required Software New Reading <ul style="list-style-type: none"> • Thoroughly read the syllabus (due March 29) • “Texting vs. Your GPA” (due March 29) New Homework <ul style="list-style-type: none"> • Individual Assignment 0 (due April 3) • Team Assignment 100 (due April 3)
	2	Wednesday, March 29	Intro to Statistics Descriptive Statistics Single Variable Concepts Statistical Functions in Excel New Reading <ul style="list-style-type: none"> • ST1 – Intro to Statistics (due April 5) • ST2 – Descriptive Statistics (due April 5) • ST3 – The Normal Distribution (due April 5) New Homework <ul style="list-style-type: none"> • Team Assignment 101 (due April 5)

2	3	Monday, April 3	Single Variable Statistics Single Variable Frequency Distribution SPSS Basics SPSS for Single Variables Virtual Lab with SPSS Getting what you want from SPSS – Single Variable View and Extract Zip Files New Homework: <ul style="list-style-type: none"> Individual Assignment 1 (due April 10) Homework due today at 11:59 PM <ul style="list-style-type: none"> Individual Assignment 0 Team Assignment 100
	4	Wednesday, April 5	Two Variable Statistics Intro to Two Variable Concepts SPSS Basics for Two Variables – Loading Data SPSS Analysis for Two Variables Getting what you want from SPSS – Two Variables New Homework <ul style="list-style-type: none"> Team Assignment 102 (due April 12) Homework due today at 11:59 PM <ul style="list-style-type: none"> Team Assignment 101
3	5	Monday, April 10	Statistics that Deceive Time to work on Assignments (Team 102 or Individual 1) Homework due today at 11:59 PM <ul style="list-style-type: none"> Individual Assignment 1
	6	Wednesday, April 12	Intro to Probability New Reading <ul style="list-style-type: none"> PR1 – Probability Basics (due April 17) New Homework <ul style="list-style-type: none"> Team Assignment 103 (due April 19) Individual Assignment 2 (due April 19) Homework due today at 11:59 PM <ul style="list-style-type: none"> Team Assignment 102
4	7	Monday, April 17	Type I / Type II Errors Time to work on Assignments (Team 103 or Individual 2)
	8	Wednesday, April 19	Exam Preparation Homework due today at 11:59 PM <ul style="list-style-type: none"> Team Assignment 103 Individual Assignment 2
5	9	Monday, April 24	Exam #1: Statistics & Probability

	10	Wednesday, April 26	Intro to Databases MS Access – Where Can I Find It? Working with Objects New Reading <ul style="list-style-type: none"> • DB1 – Database Concepts 1 (due May 1) • DB2 – Hierarchy (due May 1) • DB 3 – Database Components (due May 1) • Read PowerPoints: D2.1, D2.1.1, D2.2, D2.3, D2.4, B6 (last one under “Basics”) (due May 1) New Homework <ul style="list-style-type: none"> • Team Assignment 104 (due May 3)
6	11	Monday, May 1	Databases, continued New Reading <ul style="list-style-type: none"> • Read PowerPoints: D5, D6, D7, D10 (due May 3) • Read DB4 – Database Concepts II (due May 8) • Skim DB5 – Database Design Basics (due May 8) • Skim DB6 – Intro to Database Systems (due May 8) • Read DB7 – How to Complete a Database Problem (due May 8) New Homework <ul style="list-style-type: none"> • Individual Assignment 3 (due May 10)
	12	Wednesday, May 3	Creating a Relational Database Design Creating a Relational Database Design w/Access Objects for Relational Database Design Lookups Creating Zip Files Homework due today at 11:59 PM <ul style="list-style-type: none"> • Team Assignment 104
7	13	Monday, May 8	Relational Design Examples
	14	Wednesday, May 10	Many-to-Many Relationships Homework due today at 11:59 PM <ul style="list-style-type: none"> • Individual Assignment 3
8	15	Monday, May 15	Review for Exam #2
	16	Wednesday, May 17	Exam #2: Databases New Reading <ul style="list-style-type: none"> • CP1 – Is Coding the New Literacy (due May 22)
9	17	Monday, May 22	Intro to Computer Programming & Algorithms Computational Thinking Computer Basics and Algorithms Computer Programming with VBA

			New Reading <ul style="list-style-type: none"> • CP2 – Excel VBA Primer pgs.1-8 (due May 24) • Read these PowerPoints: CP4, CP5 (due May 24) New Homework <ul style="list-style-type: none"> • Team Assignment 105 (due May 29) • Individual Assignment 4 (due May 31)
	18	Wednesday, May 24	Computer Programming with VBA (continued) Setting Up Excel Reading a Macro Code Macros Based on a Model Decisions and Loops Macro Models New Homework <ul style="list-style-type: none"> • Individual Assignment 5 (due June 5) • Individual Assignment 6 (due June 5) New Reading <ul style="list-style-type: none"> • Skim the rest of CP2 (pgs. 9-51) (due May 29)
10	19	Monday, May 29	MEMORIAL DAY – UNIVERSITY IS CLOSED NO CLASS TODAY Homework due today at 11:59 PM <ul style="list-style-type: none"> • Team Assignment 105
	20	Wednesday, May 31	Review for Exam #3 Homework due today at 11:59 PM <ul style="list-style-type: none"> • Individual Assignment 4
11	n/a	Monday, June 5	NO CLASS TODAY Homework due today at 11:59 PM <ul style="list-style-type: none"> • Individual Assignment 5 • Individual Assignment 6
	Final	Wednesday, June 7 8:30 am - 10:45 am	Exam #3: Algorithms & Computer Programming *** NOTE SPECIAL CLASS MEETING TIME ***