

LSP 121
Quantitative Reasoning and Technological Literacy II
Spring 2014

Instructor: Robyn Moncrief
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Office hours: Tuesday 8:50 – 9:35 AM LP STDCT 330
Thursday 11:15 – 12:00 PM LP STDCT 330

Course: LSP 121 Section 314
Tuesday/Thursday 9:40 to 11:10 AM
LP STDCT 363

Course Description

In this course, students will continue the study of issues in the sciences, social sciences, and management in which quantitative data plays a significant role. This second course in QRTL, however, will emphasize more the role of computer technology. Extensive use will be made of computer tools such as Access, SPSS, programming environments, Word, and Excel.

Required Materials

Please bring a flash disk (thumb drive) to every class. Label with your name and e-mail address in case it becomes misplaced.

Textbook: none

Prerequisites: LSP 120

If you feel you already know the materials presented in this course, there is a placement exam you may take. 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 qrc.depaul.edu website for more details.

Learning Outcomes for LSP 121 (QRTL):

1. Statistics: Students will be able to make and interpret frequency distributions; summarize data with measures of center 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. 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.
3. 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.

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. 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.

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 effect a task.

How These Learning Outcomes Will Be Met:

1. Statistics: Activity 8 is devoted entirely to basic descriptive statistics; Activity 10 discusses correlation; Activity 9 introduces normal distributions. Homework assignments 4-5 reinforce these concepts.

2. Probability: Activity 11 covers an introduction to probability with a short section on risk. Homework assignment 6 reinforces these concepts.

3. Algorithms and reasoning: Activities 13, 14 and 15 introduce the concepts of sequential statements, if statements, loop statements, and function call statements and require the students to use these to solve a variety of problems. Homework assignments 7-9 reinforce these concepts.

4. Database tools: Activities 1, 2, 3, 4, 5, 6 and 7 introduce Access databases, table/query/form/report creation, and normalization. Homework assignments 1-3 reinforce these concepts.

5. Professional statistical package: Activity 8 introduces the statistical package SPSS and requires the student to use it to solve multiple tasks; Activity 10 continues the use of SPSS

6. Programming tools: Activities 13, 14 and 15 introduce the concepts of sequential statements, if statements, loop statements, and function call statements and require the students to use these to solve a variety of problems. Activities 16 and 17 introduce three common application areas of computer algorithms: data compression, encryption/decryption (security), and data error detection and correction. Homework assignments 7-9 reinforce these concepts.

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 short paragraph responses.

Five class assignments with short paragraph responses.

How These Writing Expectations Will Be Met:

All homework assignments and all activities require the students to answer many questions using short paragraph answers.

Grading Scale:

92 - 100	A
90 - 91	A-
88 - 89	B+
82 - 87	B
80 - 81	B-
78 - 79	C+
72 - 77	C
70 - 71	C-
68 - 69	D+
60 - 67	D
0 - 59	F

Objectives of 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
- manipulate data via the creation and use of relational databases
- become acquainted with basic descriptive statistics and probability
- understand the basic concepts of algorithm creation
- continue the manipulation of discrete data via compression, error detection, and encryption

Course Breakdown:

In-class activities	25%
Homework assignments	25%
Midterm exam	25%
Final exam	25%

An expanded description of each follows:

Final Exam – An in-class final exam must be taken in order to receive a grade in the course. If you cannot take the exam due to illness or family emergency, you must inform me in advance by phone or email. In such situations, you will typically receive an incomplete grade in the course, and we will make arrangements for you take the final exam as soon as possible the next term.

Midterm Exam – A midterm examination will be given. There are no makeup exams in this course. If you cannot take an exam due to illness or family emergency, you must inform me in advance by phone or email.

Homework Assignments - Many weeks there will be an assignment to be done outside of class. Their purpose is to give you individual out of class practice on the skills we are learning and to explore some ideas more thoughtfully and deeply. The assignments are posted on the course web page. Homework assignments must be done individually and are due by the due date posted on the assignment. **No late homework accepted.**

In-class Activities - Class attendance and participation are important. Most of the class time will be spent working on exploratory activities that embody a "learn by doing" approach. If you don't complete an activity for a given day (and a new activity is scheduled to be introduced next class period), you have until the end of the next class period from which the activity was handed out to submit the activity for credit. **No activities will be accepted after one week after they are assigned.**

Incomplete and FX Grades

Grades of Incomplete are given only in cases of medical emergency or other highly unusual emergency situations. 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. Incompletes revert to an F if they are not resolved within one quarter. If such a situation should occur, please inform the instructor as soon as possible. A grade of FX is assigned if the student quits coming to class but never officially drops the course.

Class Attendance

While attendance will not be a percentage of your final grade, your attendance will be monitored every class period.

Drop Dates

Last day to drop a class with refund: April 11th

Last day to drop a class with no refund: May 17th

Changes to Syllabus

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

Academic Integrity

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.

Tentative Weekly Schedule

Week 1: Intro to course; introduction to databases; importing a spreadsheet into a database

Week 2: Relational databases and normalization; database queries

Week 3: Database forms; database reports; navigation forms

Week 4: Introduction to descriptive statistics using SPSS; normal distributions

Week 5: Correlation; Introduction to probability and risk

Week 6: Midterm exam; continue probability and risk

Week 7: Number systems and logarithms

Week 8: Introduction to algorithms; Alice

Week 9: VBA coin toss; compression and security

Week 10: Error detection and correction

Week 11: Final exam Tuesday June 10th 8:45 – 11:00 AM

As a courtesy to the other students and the instructor: If you must keep your cell phone on, *please* turn the ringer off and set the phone in front of you, or place cell phone on vibrate mode. *Please* limit your entering and leaving while a lecture is in progress.