

# **LSP 121**

## **Quantitative Reasoning and Technological Literacy II**

**Jeff Grady, MS, MBA**

### **Instructor Information**

Instructor: Jeff Grady  
Office: CDM 430  
Spring 2013-2014  
Section number: 601  
Class# 30017  
MW 1:30PM - 3:00PM  
LEWIS 00105 Loop Campus  
Office Hours: W 3:10PM-4:40PM

### **Getting Started**

Navigate to the main class web page using Desire 2 Learn (D2L) at <https://d2l.depaul.edu>. This is your one-stop-shop for the entire course. Be sure to bookmark it on your browser. Once you have course page bookmarked, you will have easy access to all of the lectures, activities, assignments, etc. for the course. While there may be a slight learning curve the first few times you navigate the site, it should not take long before you develop some comfort with it.

While D2L is not very difficult to use, there is a slight learning curve. Once you have finished reading this syllabus, you can look at a series of explanations and tutorials [can be found here](#). While you are not required to (and may not need to), you may wish watch the '[D2L Content and Dropbox Online Tutorial](#)' video and the videos on dropboxes and discussion groups.

### **Summary of the course**

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.

### **Course Objectives**

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

These course objectives will be developed through course specific learning goals:

- **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.
- **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.
- **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.
- **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.
- **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.
- **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.

## **Learning Domain Description**

LSP121 Quantitative Reasoning and Technological Literacy II is included in the Liberal Studies program as a course with credit in the Scientific Inquiry domain. Courses in the Scientific Inquiry domain are designed to provide students with an opportunity to learn the methods of modern science and its impact on the world around us. Courses are designed to help students develop a more complete perspective about science and the scientific process, including: an understanding of the major principles guiding modern scientific thought; a comprehension of the varying approaches and aspects of science; an appreciation of the connection among the sciences; the fundamental role of mathematics in practicing science; an awareness of the roles and limitations of theories and models in interpreting, understanding, and predicting natural

phenomena; and a realization of how these theories and models change or are supplanted as our knowledge increases.

## **Learning Domain Outcomes**

1. Students will understand the major principles guiding modern scientific thought. Students will demonstrate a mastery of the science content knowledge of their SID courses.
2. Students will know that science, technology, and math serve as mechanisms for inquiry into the nature of the universe. Students will:
  - a. identify questions that can be answered through scientific investigations;
  - b. design and conduct a scientific investigation to test a scientific hypothesis;
  - c. use appropriate tools and techniques together, analyze, and interpret data to support or refute a scientific hypothesis;
  - d. develop descriptions, explanations, predictions, and models using evidence;
  - e. describe relationships between evidence and explanations using critical and logical thinking;
  - f. recognize and analyze alternative explanations and predictions;
  - g. communicate scientific procedures and explanations;
  - h. use mathematics in all aspects of scientific inquiry.
3. Students will understand and appreciate the interrelationships among science, technology and math. Students will:
  - a. use technology and mathematics to identify a problem or design a solution to a problem;
  - b. give examples of how science and technology inform and influence each other.
4. Students will understand and appreciate the role of science in society and in their lives. Students will:
  - a. Provide examples of how science and technology impact our lives, and how social needs and concerns impact our development of technology and scientific investigation;
  - b. develop positive attitudes towards science, technology, and mathematics;
  - c. establish an ongoing experiential/service-learning interest in science, technology, and mathematics.
5. Students will understand the nature of science, technology, and mathematics. Students will:
  - a. provide examples of the abuse of science, including the representation of unfalsifiable claims as science and other forms of pseudoscience;
  - b. explain the strengths and limits of scientific inquiry;
  - c. explain the difference between evidence and inference, and the provisional nature of scientific explanations by providing examples of how our understanding of the workings of the world has changed in the past;
  - d. explain the difference between probability and certainty, and describe what is meant by uncertainty in the context of science, technology, and mathematics.

## 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

## Writing Expectations

Writing is integral for communicating ideas and progress in science, mathematics and technology. The form of writing in these disciplines is different from most other fields and includes, for example, mathematical equations, computer code, figures and graphs, lab reports and journals. Courses in the SI domain must include a writing component where that component takes on the form appropriate for that course (eg, *lab reports*, *technical reports*, etc.)

## Textbooks and printed resources

None. All materials are provided in class or posted in D2L.

## Prerequisites

LSP 120 is required for LSP121. 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](http://qrc.depaul.edu) website for more details.

## Course Resources

### Desire 2 Learn (D2L):

<http://d2l.depaul.edu>

- Checklists for each lesson/module so you know what your “ToDo’s” are and when they are due
- Links to various documents, and assignments via D2L’s Checklists (under ‘More’ menu)
- Dropbox to submit your assignments

- Note: Course “Modules” typically correspond to one week (2 sessions) of class. However overall course pace may be adapted as needs arise (I.E. volume of material in a module).

**Lecture notes:** Notes and files for each lecture will be posted at least one day before lecture (for in-class sections). However, please note that I reserve the right to make updates at any time. I would recommend that you print out the lecture slides (if you choose to) no earlier than the day before lecture. They will typically be in either PDF or Powerpoint format. If you don’t have PowerPoint, you can [download a free viewer here](#).

## Office Hours:

- I am happy to speak with students by phone. If you wish to schedule an appointment, please email me at least 2-3 times that are good for you, and I will email you back with an appointment.
- You are always more than welcome to come to my open office hours as well. You do not need to make an appointment. You can find my in-class office hours online.

## Tutoring

Free – make use of it when needed! See link to the tutoring page under the General Course Resources link on D2L.

## Class Discussion Group

Certain questions have a way of coming up again and again. For this reason, I strongly encourage you to post all questions to the discussion group. This way, questions that I answer (or any of you answer) can be seen by all of your colleagues.

### A few key guidelines when posting to a discussion group:

- **Please make the subject posing CLEAR!**
  - Poor subject: “Question”
  - Better: “Question on problem #2”
  - Ideal: “Question on the phrasing of problem #2”
- **Please post in the appropriate group.** If you have a question about registering for an exam, please post to the ‘General Questions’ forum as opposed to, say, the Module #1 forum.
- **Do not post answers to homework assignment or quiz questions!** Only TWO days after a quiz or assignment is due can answers be discussed.
- Before posting, please be sure and check to see if someone has already posted the same question.
- Before asking a question relating to a homework problem, please make a genuine attempt to solve it on your own first.

## Required software and other resources

You will need to make use of several of the resources listed under General Course Resources. We will discuss specifics such as MS Excel and SPSS as we progress through the course.

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

## Contacting me

E-Mail: [jgrady4@cdm.depaul.edu](mailto:jgrady4@cdm.depaul.edu) Phone: 847-894-4837

I try to check emails regularly throughout the day. Sometimes I can reply to emails within an hour or two, sometimes it takes 24 hours before I get to them. However, I do make every attempt to *answer all emails within 24-48 hours*. In the event that this does not happen, please do feel free to resend the email. I do not ignore emails, so if you do not receive a response from me, you may assume that the email got lost in the pile somewhere or ended up in my spam folder.

When e-mailing me, it is very important that you *include your name and section number* (not just course number) in the subject. For example:

**Subject:** Guillen, 502, question about inline styles

## Assignments

All assignments are submitted via the **D2L dropbox**.  
Be sure to pay close attention to the due **DATE & TIME**.

Assignments will be posted almost every week. Note that the D2L dropbox and quizbox will NOT accept assignments once the due date has passed. For this reason, please be sure that you do not wait until the last 1-2 minutes to submit things. If you run into a technical glitch, or if the clock on your computer is set a little bit behind the D2L clock, you will be locked out. Contact me via email about the situation and email me the late work.

I have to be fair to everyone, and for this reason, I only accept late assignments within the course policy (see below) unless there are extenuating circumstances backed up with documentation.

## Grading

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 – An in-class midterm examination will be given during class. 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 in the course D2L checklists and will be handed out in class. Homework assignments must be done individually and are due by the due date posted for the assignment in D2L. **They will not be accepted after the instructor goes over the answers in class.**

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 two weeks after they are assigned.**

## Class Attendance

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

## Class Policies

- Cell Phone Use: Cell phone use (calls, messaging, texting) during class is not acceptable. Cell phone should be silenced during class.
- Social Media Use: Emailing, using FaceBook, etc. is to be done outside of class.

## Email

Email is the primary means of communication between faculty and students enrolled in this course outside of class time. **Students should be sure their email listed under "demographic information" at <http://campusconnect.depaul.edu> is correct.**

## Academic Integrity Policy

This course will be subject to the academic integrity policy passed by faculty. More information can be found at <http://academicintegrity.depaul.edu/>

## Plagiarism

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of

plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor. While it is acceptable to work together and assist each other on assignments, two students can not submit extremely similar work if it only contains cosmetic changes.

Homework questions should always be worked on individually. It's okay to work with someone so that you can discuss concepts when you are stuck on something. The key is to seek assistance in understanding the concept or figuring out where you may have missed something. If all you've done is gotten help coming up with the answer without being sure that you understand the underlying concept, this means that there is still a gap in your knowledge.

### **Incomplete Grade**

An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. 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. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request. Incompletes are only granted when the **large majority of the course work (typically at least 75%) has already been completed.**

### **Resources for Students with Disabilities**

The Productive Learning Strategies (PLuS) Program at DePaul University is a year-round comprehensive program designed to meet the needs of DePaul University students with specific learning disabilities and/or attention deficit disorders, as well as, associated disorders such as Asperger's Syndrome, Bipolarism, Obsessive-Compulsive Disorders, etc. The PLuS Program serves some 400+ students enrolled in colleges and schools university-wide, undergraduate and graduate, both full-time and part-time. Services include exam proctoring, additional time on exams, meeting with PluS staff, etc. Web page: <http://studentaffairs.depaul.edu/plus/>