Quantitative Literacy

56-1728-01, Spring 2011

Department of Science & Mathematics
Columbia College Chicago
600 S. Michigan Ave.
Chicago, IL 60605

course title	College Math	**instructor**	Dr. Christopher Shaw
document date	Spring 2011	**office**	623 S. Wabash, 500-M
course number	56-1728	**phone**	312-369-7732
section number	01	**email**	`cshaw@colum.edu`
credits	3.0	**website**	`http://schris.com`
designation	MA	**department phone**	312-369-7368
meeting day and time	Tue/Thu. 10:30–11:50	**department fax**	312-369-8075
meeting room	623 S. Wabash room 213B	**office hours**	Wed. 9:30–11:30; Thu. 4–5

required text *Using & Understanding Mathematics – A Quantitative Reasoning Approach (Fifth Edition*, Bennett & Briggs, Pearson, ISBN 0-321-65279-7

prerequisites Compass score of 50 or higher or College Mathematics (C or better)

course fees The fee for this course is $40.00, which covers the cost of a TI-83Plus graphing calculator, as well as photocopying an equipment used in the classroom.

course description Quantitative Literacy surveys the ways that mathematics is used in the real world. The goal of this course is to develop the reasoning capacity, critical thinking skills, and statistical literacy needed to make sense of issues that routinely appear in the media. The skills and concepts developed in this course will help students manage their personal finances, interpret polling and other statistical data, and critically assess the validity of claims made with quantitative information.

course rationale In today's world, we are inundated with quantitative data – economic reports, statistical data on societal trends, results of political polls, and news on medical and scientific advances. As our society grows more technologically complex, the ability to interpret and analyze quantitative information has become an increasingly essential skill for citizenship. This course provides the foundation for students to make sense of quantitative information.

General education mathematics objective
Students will appreciate the beauty and power of mathematics and gain a proficiency in mathematical reasoning that will allow allow them to acquire, process, and present quantitative and qualitative information.

Learning outcomes Upon completing this course, students will be able to:

- Use percentages correctly, an understand how they can be abused
- Use units correctly to solve problems and check answers
- Gain perspective on very large and very small numbers
- Be familiar with statistical graphs, their uses and abuses

- Interpret polls and surveys, including the margin of error
- Critically assess statistical studies
- Have a basic understanding of correlation
- Understand basics of consumer mathematics: mortgages, annuities, and compound interest.

General education requirement
This course bears general education credit (MA – Mathematics). By taking this course you will complete thre semester hours of mathematics credits required for graduation from Columbia College.

Grading

Evaluation		Scale	
Homework	15%	94–100%	A
Quizzes	20%	90–93%	A-
Exams	30%	87–89%	B+
Final exam	30%	83–86%	B
Class work/participation	5%	80–82%	B-
		77–79%	C+
		70–76%	C
		63–69%	C-
		56–62%	D
		Less than 56%	F

Attendance policy
Students are expected to attend all classes; absences will have an adverse effect on the learning process and on your course grade. Assignments must be submitted on time, whether you attend class or not. Similarly, you are responsible for all announcements made in class and all material distributed in class whether or not you attend. Lateness can affect your attendance record. If you come to class after attendance is taken, it is your responsibility to inform the instructor of your presence after class.

Important rules
Please read and make a note of these points.

- Homework is assigned and collected regularly. No late homework will be accepted. However, your lowest homework score will be dropped.
- You must be present for the quizzes and exams (no makeup exams, unless there is a documented emergency). Your lowest quiz score will be dropped. The final exam is comprehensive and will cover all material discussed in the course.
- You are expected to participate in problem-solving and in discussions in class. At times, problems are done in small groups and you are asked to present your solutions to the class. Absences can adversely affect the participation/class work portion of your grade.

Academic integrity
Students at Columbia College enjoy significant freedom of artistic expression and are encouraged to stretch their scholarly and artistic boundaries. However, the college prohibits all forms of academic dishonesty. For present purposes, "academic dishonesty" is understood as the appropriation and representation of another's work as one's own, whether such appropriation includes all or part of the other's work or whether it comprises all or part of what is represented as one's own work (plagiarism). Appropriate citation avoids this form of dishonesty. In addition, "academic dishonesty" includes cheating in any form, the falsification of academic documents, or the falsification of works or references for use in class or other academic circumstances. When such dishonesty is discovered, the consequences to the student can be severe. (Taken from the Columbia College Chicago Student Handbook.)

Services for students with disabilities

Columbia College Chicago seeks to maintain a supportive academic environment for students with disabilities. Students who self-identify as having a disability should present their documentation to the Services for Students with Disabilities (SSD) office. After the documentation has been reviewed by the SSD office, a Columbia College accommodation letter will be provided to the student. Students are encouraged to present their Columbia accommodation letters to each instructor at the beginning of the semester so that accommodations can be arranged in a timely manner by the College, the department, or the faculty member, as appropriate. Accommodations will begin at the time the letter is presented. Students with disabilities who do not have accommodation letters should visit the office of Services for Students with Disabilities, Room 304 of the 623 S. Wabash building (312-369-8296).

Learning Studio

The Learning Studio, located at 618 S. Michigan Avenue, first floor, is a relaxed, open, and personal environment. Tutors can help you with a wide range of subjects at all levels. The environment of the learning studio is non-judgmental when working with a tutor. Using the Learning Studio is a good idea for working in a number of disciplines, including Accounting, Math, Science, and with writing assignments. You can make an appointment through Oasis (using the "Make Appointments" tab) or call the Learning Studio at 312-369-8130. Please visit the website at www.colum.edu/learningstudio. It's super helpful and free!

Tentative class schedule

Week One	1/24–1/28	Problem-solving with standardized units. Sections: 2A, 2B.
January 29: last day to add a class		
Week Two	1/31–2/4	Conversions with units raised to a power; **Quiz 1**; Percentages: Using percentages to describe change and for comparisons. Sections: 2B, 3A.
February 5: last day to drop a class		
Week Three	2/7–2/11	Percentage points; Solving problems involving percentages; Scientific notation; Putting numbers in perspective through comparisons. Sections: 3A, 3B.
Week Four	2/14–2/18	Absolute vs. relative error; Random vs. Systematic error; Consumer price index and adjusting for inflation. Sections: 3C, 3D. **Quiz 2**; Review.
Week Five	2/21–2/25	**Exam 1**; Simple vs. compound interest; Continuous compounding. Sections: 4A, 4B.
Week Six	2/28–3/4	Savings plans and investments; Mortgages and annuities. Sections: 4C, 4D.
Week Seven	3/7–3/11	**Quiz 3**; Income taxes. Section: 4E.
Week Eight	3/14–3/18	Statistics: population vs. sample; Sources of Data: Experiments, observational studies, surveys, census; Common sampling methods, effects of sample size; Detecting bias and confounding factors; Opinion polls and margin of error; Graphical display of data: Bar graphs, pie charts, line graphs, histograms. Sections: 5A, 5B, 5C.
March 19: last day to withdraw from a class		
Spring break: 3/21–3/25; no class		
Week Nine	3/28–4/1	Graphs in the media, how graphs can deceive; Correlation and linear regression. Sections: 5D, 5E, and linear regression handout.
Week Ten	4/4–4/8	**Exam 2**. Numerical summaries of data: mean, median, mode. Section: 6A.
Week Eleven	4/11–4/15	The five number summary, box plots, standard deviation; Normal distributions. Sections: 6B, 6C.
Week Twelve	4/18–4/22	Fundamentals of probability. Sections: 7A, 7B. **Quiz 4**
Week Thirteen	4/25–4/29	Fundamentals of probability, continued; Expected value. Sections: 7B, 7C.
Week Fourteen	5/2–5/6	Expected value, continued; The law of large numbers. Section: 7C.
Week Fifteen	5/9–5/13	Review. **Final exam**.

Disclaimer statement

This syllabus may be amended as the course proceeds. You will be notified of any changes.