MTH 110: Quantitative Literacy

Dr. Robert Lowe

Spring, 2020

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Office Hours: MWF 1:00PM – 2:00PM, TR 3:00PM – 4:00PM   Class Hours: MWF 9:00 – 9:50

Office: SSC 214   Class Room: SSC 231

Course Description

In a world of accelerating change, productive citizenship and leadership continue to require greater fluency with quantitative information and reasoning. The goals of courses in the quantitative literacy domain are to promote a way of understanding the world that uses data and the quantitative analysis of data to make interpretations, arguments, and conclusions.

Required Materials

- A Scientific Calculator (Graphing Calculators are fine, but no cell phones/tablets may be used during exams or quizzes!)

- Various internet resources and handouts

- A laptop/chromebook is recommended. All of the software which we will use is accessible through a web browser. Tablet computers can also be used with varying degrees of success.

NOTE: *Math and You* by Ron Larson is specified as a text for this course. We will only be using this in a limited way (if at all). You can access this text online, for free. You do not need to purchase a copy of this book.

Prerequisites/Corequisites

Math 105 or satisfactory performance on the first year/transfer Mathematics Assessment.

Core Curriculum Information

This course meets the Quantitative Literacy domain requirements in the Core Curriculum; passing this course will fulfill a student's general education requirement in that domain. Accordingly,

it addresses a major educational goal of the Core Curriculum, "proficiency in the use of evidence, empirical data, and quantitative analysis", by seeking to develop quantitative literacy.

By completing a Quantitative Literacy course, students will demonstrate the ability to:

1. Interpret quantitative information, arguments, and claims.

2. Formulate logical arguments supported by quantitative evidence.

3. Communicate quantitative information using various mathematical forms (e.g. words, tables, graphs, diagrams, and equations).

4. Solve quantitative problems that arise within the contexts of civic, professional, and personal life.

5. Draw appropriate conclusions based on quantitative analysis.

Course Structure

Methods of Instruction

Classroom instruction will include lecture; discussion; individual, pair, and group problem solving; and peer presentation. Active participation is expected in every class period. In addition to classroom activities, every week will bring a new set of problems and assigned readings. Full participation in homework and reading is expected.

Technology

Technology will be utilized frequently in this class. It is recommended that you bring a calculator to class each day. It will also be helpful for all students with laptops to bring them to class; Excel and/or Google Sheets will be used as needed.

Schedule

This is the tentative schedule for our course. There may be some slight modifications to the following according to the needs of the semester. However, the exam dates are fixed, and will be followed. All exam dates are shown in bold font, and it is absolutely vital to your success in this course that you attend the exam days. The final exam period is set by the registrar. Attendance on the date of the final exam is absolutely mandatory; any student failing to appear on this date will receive a failing grade for the course.

January 2020

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

- **Wed January 8** - Notation, Numbers, & Operations - *Pretest*

- **Fri January 10** - Notation with Large and Small Quantities

- **Mon January 13** - Significance and rounding - *Homework 1 Due*

- **Wed January 15** - Formulae and Functions - *Quiz 1*

- **Fri January 17** - Proportions

- **Mon January 20** - Standardized Proportions & The Number 100 - *Homework 2 Due*

- **Wed January 22** - Proportions of Change - *Quiz 2*

- **Fri January 24** - Proportions and Prices

- **Mon January 27** - Unit Conversions - *Homework 3 Due*

- **Wed January 29** - Review - *Quiz 3*

- **Fri January 31** - Exam 1

February 2020

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

- **Mon February 3** - Inflation and You - Computing CPI

- **Wed February 5** - CPI and Price Conversion - *Quiz 4*

- **Fri February 7** - Financial Mathematics

- **Mon February 10** - Introduction to Spreadsheets & Budgeting - *Homework 4*

- **Wed February 12** - Spreadsheet Tutorials - *In Class Spreadsheet Assignment*

- **Fri February 14** - Spreadsheets & Graphing

- **Mon February 17** - Linear Functions: Identifying and Extraction - *Homework 5 Due*

- **Wed February 19** - Graphing and Projection Using Linear Functions - *Quiz 5*

- **Fri February 21** - Taxes: Income, Sales, and Excise

- **Mon February 24** - Debt & Simple Interest - *Homework 6 Due*

- **Wed February 26** - Review - *Quiz 6*

- **Fri February 28** - Exam 2

March 2020

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

- **Mon March 2** - Exponential Functions

- **Wed March 4** - Project 2 Presentations - *Project 2 Due*

- **Fri March 6** - Project 2 Presentations

- **Mon March 9** - Exponential Growth and Decay - *Homework 7 Due*

- **Wed March 11** - Compound Interest - *Quiz 7*

- **Fri March 13** - Compound Interest and Annuities

- **Mon March 16** Spring Break

- **Wed March 18** Spring Break

- **Fri March 20** Spring Break

- **Mon March 23** - Amortization of Loans - *Homework 8 Due*

- **Wed March 25** - Measuring Likelihood - *Quiz 8*

- **Fri March 27** - Disjoint Probabilities

- **Mon March 30** - Independent Probabilities

April 2020

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

- **Wed April 1** - The Monte Hall Problem & Other Puzzles - *Quiz 9*

- **Fri April 3** - Describing Data: Mean, Median, and Mode

- **Mon April 6** - Distributions of Data: Five Number Summary - *Homework 9 Due*

- **Wed April 8** - Measuring Variance About the Mean - *Quiz 10*

- **Fri April 10** Good Friday - College Closed

- **Mon April 13** - Histograms and Skew - *Homework 10 Due*

- **Wed April 15** - 68, 95, 99.7 Rule

- **Fri April 17** - Exam 3

- **Mon April 20** - Project 3 Debate - *Project 3 Due*

- **Wed April 22** - Review for Final Exam

Grade Calculation

This course is graded using a weighted average among six categories. The assignments within each category are equally weighted and are all graded out of 100 points. Hence your final numeric grade is computed by finding the average of each category, and then multiplying them by the corresponding weight. The weights for each category are as follows:

- Attendance 15%

- Homework 5%

- Quizzes 15%

- Projects 30%

- Regular Exams 15%

- Comprehensive Final 20%

As you complete each assignment, a report of each grade will be given to you. We will not, however, use the Tartan to track your average. Instead, tracking your averages is your responsibility. In fact, you will be periodically asked to compute your own grade as part of your homework assignments. In this way, you will be graded on how well you keep track of your own grade.

Letter grades will be assigned according to the following scale:

A+	96.7–100%	B+	86.7–90%	C+	76.7–80%	D+	66.7–70%	F	less than 60 %
A	93.3–96.7%	B	83.3–86.7%	C	73.3–76.7%	D	63.3–66.7%		
A-	90–93.3%	A-	80–83.3%	C-	70–73.3%	D-	60–63.3%		

Assessments

The standards of assessment in each grading category will be as follows.

Attendance *(15% of the final grade)*

Attendance in this class is mandatory, and attendance is defined as full participation for the entire duration of a class period. Attendance will be taken at the end of every class period. Partial attendance for a class meeting will receive no credit. All homework assignments and project write-ups will be due at the beginning of their respective class period and all quizzes will be given during the first few minutes of their respective class periods. Failure to submit an assignment and/or failure to take a quiz will also result in an absence for the day.

All assignments will be given to students in hard-copy format during class. No electronic documents will be posted, nor will any be emailed to students. If you fail to attend a class meeting, it is your responsibility to obtain a copy of the assignment from either a classmate or from your professor. Absence on the day an assignment is given will neither excuse you from the assignment nor will it result in an extension.

Homework *(5% of the final grade)*

Homework will be assigned each week, and will be due at the beginning of the first class period of the week. Homework must be neatly handwritten and your name must appear on the first page of your assignment. If your homework comprises multiple pages, you must staple them together prior to entering the classroom. Any assignment which does not bear a student's name will be shredded, and you will receive a zero for that assignment (as well as an absence for that day.) Any loose pages, other than the first page of an assignment will also be destroyed.

Homework will be graded as follows. 80% of the homework grade will be based on completion and 20% will be based on a selected problem's correctness. Completed problems consist of the following: A copy of the problem statement, handwritten, all steps required to set up and solve the problem, and then the final answer. Problems which are answered with simply a number will receive no credit. A homework assignment which receives a grade of zero will result in an unexcused class absence for the day on which it is due.

Quizzes *(15% of the final grade)*

Weekly quizzes will be given at the beginning of the second class period of the week. Failure to be present during a quiz will result in an absence for the day and a zero for the quiz. No makeup quizzes will be given except as noted below in the excused absences section. Quizzes will cover the previous week's material and details found in the assigned reading.

Projects *(30% of the final grade)*

There will be three projects assigned during the semester. All three projects will require both application of techniques covered in class and independent research. The first and third projects will result in an essay of no fewer than 1500 words and no more than 5000 words. We will use MLA citations as our citation standard. Your essays will describe your techniques and report your findings. This essay will be graded on content, grammar, and reliability of cited sources. Great care must be exercised to not plagiarize sources, and plagiarism will not be tolerated in any form.

Project essays will be type written, and will be due in hard copy form at the beginning of a class period. Failing to submit your essay will result in an absence for that day and a grade of zero for the project. No electronic submissions will be accepted, and all handwritten submissions will be shredded.

The second project will include a class presentation.

Regular Exams *(15% of the final grade)*

Three exams will be given throughout the semester. Each will cover material up to that point in the course. Exam dates are listed in the course schedule, and failure to attend an exam period (excepting as noted in the excused absences policy), will result in an irrevocable zero for the exam.

Comprehensive Final *(20% of the final grade)*

The comprehensive final exam will be given on the day and time specified by the registrar (which is listed in the course schedule in this syllabus). This exam will cover all of the material for the semester. Except in extreme circumstances, the final exam date shall be immovable. The final exam is mandatory, failure to appear on the day of the final exam will result in a failing grade for the course.

Course Policies

Late Policy

No late work will be accepted under any circumstances (except as mercy and decency may dictate in extremely rare events).

Extra Credit

No extra credit will be given under any circumstances.

Excused Absences

In some cases, absences may be excused. These include:

- School Sanctioned Events (Sports, Concerts, etc.)

- Severe Illness

- Family Emergencies

- Court Appearance / Jury Duty

In the case of a school event, notice must be given at least one week prior to the absence. The notice must include a signed note from the faculty or staff member in charge of the event. This note must be given in physical form, electronic notes will not be accepted. In the case of illness, a doctor's note is required. Note that except in extreme circumstances, doctor's appointments do not qualify as a valid reason to miss a class. Please be respectful of the other students, and schedule appointments during your free time.

Family emergencies will require some form of proof. Where possible, you must give advance notice of missing a class. The exception to this would need to be fairly severe, and hopefully it will not come up. For court appearances and/or jury duty, you must provide a copy of your summons. You may redact any details you wish, save for the actual date and time of your appearance. Court appearances must be cleared at least one week in advance.

Making Up Excused Absences

Should you be in a situation in which you receive an excused absence, this in no way will extend your due dates (excepting extreme emergencies). You must make up any quiz or test at a designated time prior to your excused absence. Also, homework or projects must be submitted prior to the class period in which they are due.

Communication and Extra Help

You are always welcome at office hours for help with any questions you may have about the course. For help at other times during the day, stop by or call my office to see if I'm available. You can also contact me by email, but often I can better help you face to face and may respond with a request that you come to see me. Note that I do not typically respond to email between 5

p.m. and 8 a.m. You may make appointments to see me at other times if your schedule does not permit you to attend my office hours.

Another way to get help is via our GroupMe chat group. Feel free to use this to converse with each other and/or ask me for help in the group. If you have a question about a problem, chances are strong that another student has that same question. If you use the group chat, you will help everyone. (Though please keep in mind that all communications in the group are visible to all members of the group.)

Plagiarism and Cheating

You are expected to do your own work. Never submit work of others, never give unauthorized assistance to others, do not use unauthorized aids during exams and do not ask for help from other faculty members without the approval of your professor. Plagiarism and cheating are serious offenses that will not be tolerated. Explanations regarding these offenses and how they are handled can be found in the MC Student Handbook at
https://www.maryvillecollege.edu/academics/catalog/handbook/section-nine/.
You are expected to have read and understand these policies. Offenses on specific assignments, quizzes, or exams will result in a score of 0 on the relevant assignment, and a letter of censure will be placed in your college file. Repeat offenses will result in further disciplinary action, including the possibility of failing the course.

Students with Disabilities

Any student who feels s/he may need learning or physical accommodation(s) based on the impact of a disability should contact Services for Students with Disabilities to discuss your specific needs. Please contact 981-8124 to coordinate reasonable accommodations for students with documented disabilities. The Disability Services office is located in the Learning Center in the basement of Thaw Hall. Undocumented disabilities will not be accommodated.