

UNIVERSITY OF MASSACHUSETTS DARTMOUTH

Course: MTH 140-71 – Quantitative Reasoning – _____

Time: ONLINE

Professor: _____

Email: _____

Phone: (508) 999-8859

Tutoring: STEM Learning Center (Science & Engineering, Room 217, #8716)

1. COURSE DESCRIPTION

MTH 140 is intended as a general education mathematics course for Liberal Arts and Fine Arts majors whose degree program does not require any other courses in mathematics. The course provides an overview of a broad range of higher mathematics to aid students in interpreting and understanding quantitative issues and strengthen students' critical thinking ability and problem-solving skills. Topics include: essential numeracy; trends of charts and graphs; linear, quadratic, exponential and logarithmic functions; basic probability and statistics.

MTH 140 is part of Cluster 1 of UMASS Dartmouth. Cluster 1D specifically focuses on the acquisition of quantitative and mathematical reasoning. This emphasis is placed in the curriculum because mathematics is the foundation of science and technology.

2. LEARNING OUTCOMES

Learning outcomes specific to this course:

1. Apply and convert measurement and units
2. Calculate and approximate ratios and percentages
3. Quantify, interpret, and check quantitative information using numeracy language, scientific (biological, the Earth and physical), and societal context
4. Recognize trends and possible errors from data expressed in tables and graphs, interpret mathematical information numerically, graphically, and symbolically.
5. Determine when some quantity has linear and non-linear (exponential or quadratic) relationship
6. Identify and visualize regression equations for linear, exponential or quadratic data and predict values for particular independent values.
7. Calculate and interpret the descriptive statistics (mean, medians, variance, standard deviation).the z-scores, and the probabilities of the normal distribution.
8. Solve problems using the basic statistical analysis, interpret descriptive and basic inferential summaries of a collection of data verbally and graphically.
9. Develop good communication skills, both written and oral.

Learning outcomes with respect to Cluster 1D – Mathematics:

1. Recognize when to apply mathematical concepts and methods to problems.
2. Manipulate mathematical expressions to solve for particular variables.
3. Draw conclusions from quantitative information and communicate these conclusions verbally and graphically.
4. Implement mathematical models to obtain accurate or approximate solutions using appropriate tools.
5. Apply mathematical techniques to social and scientific problems.

3. COURSE MATERIAL

TEXT: There is no book for this course. **You are required to register for MyMathLab**

Website: www.mymathlab.com

Course I.D#: _____

GRAPHING CALCULATOR: TI-83/TI-84

4. TEACHING PROCEDURES

ONLINE HOMEWORK

A student will begin a chapter by reading the text, watching video lectures and performing homework. There is a wealth of material next to each homework problem to aid the student's learning, including tutorials, videos and links to the text covering the needed material to complete that problem.

A student may attempt a homework problem at least three or four times except the multiple choice questions. A minimum of 75% is required for every homework before you move to the next homework. Of course there is a possibility to get 100% on all your homework assignments if you are willing to put in the effort.

ONLINE TESTS

After two or three homework sections, there will be a corresponding online test that will be taken to test your level of mastery for these chapters. As mentioned above, you must score at least 75% on the homework material. You should try all the homework problems before taking a test. You cannot use your notes or any supplemental material for your online test. All the hard problems are not at the end of the test, but mixed in.

- If you score 70% or better on the online test, then you may continue to the next homework section. However you **may** retake the test for a second time in order to improve your grade. You will have 48 hours to complete the online test.
- If you score less than 70%, then you **must** take the online test for a second time. You can take every online test twice and the highest grade will count.

FINAL EXAM

The final exam will be given online on ____ and it will be cumulative (Chapters 1, 2, 3, 4, 6 and 7). You will have a 3-hour time frame to finish it.

ACADEMIC INTEGRITY POLICY

The Academic Integrity Policy, including plagiarism and cheating, appears in both the undergraduate catalogue and the student handbook. You must visit the following link: <http://www.umassd.edu/studenthandbook/academicregs/ethicalstandards.cfm>

5. EVALUATION POLICY

There will be 4 online tests, 12 online homeworks and a final exam. Every online test will count for 15% of your final grade, every online homework will count for 2% of your final grade and the final exam will count for 16% of your final grade.

Online Tests	60% (4 tests, each test counts 15%)
Final Online Test	16%
Online Homework	24% (12 homeworks, each for 2%)

6. REGISTER FOR MYMATHLAB

To register for MyMathLab you have to go through the following steps:

1. Go to: www.mymathlab.com
2. Click **Student** under **Register**.
3. Enter the **Course ID** and click **Continue**. The Course ID is: _____
4. Sign in or create an account:
 - You already have a Pearson account if you have used one of their online products before. Enter your username and password and click **Sign In**.
 - If you have a Pearson account, but can't remember your sign in information, click **Forgot your username and password**. An email will be sent to you.
 - If you don't have an account, click **Create**. You will create a username and password and add your contact information. Read and accept the license agreement. Click **Create an Account**.
5. Pay for access to your instructor's online course.
 - Use a **credit card** and enter billing and payment information, then review and submit your order.

7. SIGN IN FOR MYMATHLAB

To sign in for MyMathLab, you have to go through the following steps:

1. From the home page (www.mymathlab.com), click **Sign in**.
2. Enter your username and password, and click **Sign in**.
3. Your course is listed in the **MyLab / Mastering New Design** section of the page. Click on _____ will take you to the course content.
4. From the course home page, you will use the course **menu** to navigate.

8. SCHEDULE OF WEEKLY ACTIVITIES

We will start covering the material on _____

Week 1

Syllabus

Introduction to MyMathLab

CHAPTER 1 – The Metric System -

- 1.1 Basic Terms and Conversion within the Metric System
- 1.2 Length, Area and Volume

Online Homework 1 (Chapter 1.1 & 1.2)

Week 2

CHAPTER 1 – The Metric System -

- 1.3 Mass and Temperature
- 1.4 Dimensional Analysis and Conversions to and from the Metric System

Online Homework 2 (Chapter 1.3 & 1.4)

Week 3

CHAPTER 2 – Ratios and Percentages

- 2.2 Percent

Online Homework 3 (Chapter 2.2)

Online Test 1 (Chapters 1 & 2)

Week 4

CHAPTER 3 – Linear and Quadratic Equations -
3.2 Linear Equations in one Variable and Proportions

Week 5

CHAPTER 3 – Linear and Quadratic Equations –
3.5 Quadratic Equations

Online Homework 4 (Chapter 3.2 & 3.5)

Week 6

CHAPTER 4 – Graphs, Linear Systems, Exponential & Logarithmic Functions -
4.2 Linear Functions and their Graphs

Week 7

CHAPTER 4 – Graphs, Linear Systems, Exponential & Logarithmic Functions -
4.4 Quadratic Functions, Graphs and Models

Online Homework 5 (Chapter 4.2 & 4.4)

Online Test 2 (Chapters 3 & 4)

Week 8

CHAPTER 4 – Graphs, Linear Systems, Exponential & Logarithmic Functions -
4.5 Exponential and Logarithmic Functions, Applications and Models

Online Homework 6 (Chapter 4.5)

Week 9

CHAPTER 6 – Probability and Counting Methods -
6.1 The Fundamental Counting Principle
6.2 Permutations
6.3 Combinations

Online Homework 7 (Chapter 6.1, 6.2 & 6.3)

Week 10

CHAPTER 6 – Probability and Counting Methods -
6.4 Fundamentals of Probabilities
6.6 Events involving Not and Or

Online Homework 8 (Chapter 6.4 & 6.6)

Online Test 3 (Chapters 4 (Section 4.5) & 6)

Week 11

CHAPTER 7 – Statistics –
7.2 The Misuses of Statistics
7.3 Frequency Distributions and Statistical Graphs

Online Homework 9 (Chapter 7.2 & 7.3)

CHAPTER 7 – Statistics –
7.4 Measures of Central Tendency
7.5 Measures of Dispersion

Online Homework 10 (Chapter 7.4 & 7.5)

Week 12

CHAPTER 7 – Statistics –
7.6 The Normal Curve

Online Homework 11 (Chapter 7.6)

Week 13

CHAPTER 7 – Statistics –
7.7 Linear Correlation & Regression

Online Homework 12 (Chapter 7.7)

Week 14

Online Test 4 (Chapter 7)

FINAL EXAM will be given on _____