

MATH 1101
Introduction to Mathematical Modeling
Spring 2012 Syllabus

INSTRUCTOR: Carolyn Nelson
OFFICE HOURS: TTH 2:00pm - 3:30pm;
5 pm - 6:30pm

OFFICE: U-426
PHONE: 678-466-4422
E-MAIL: carolynnelson@clayton.edu

NOTE: Please read this syllabus carefully. ***You are responsible for any information given here as well as any modification or announcements given in class by your instructor.***

Prerequisites: Math 0099 or high school Algebra II and a suitable score on a mathematics placement test.

Learning Outcomes:

After successful completion of the course the student will be able to:

1. Model situations from a variety of settings in mathematical forms by extracting quantitative data from a given situation, translating the data into information in various modes, evaluating the information, abstracting essential information, making logical deductions, and arriving at reasonable conclusions;
2. Manipulate mathematical information, concepts, and thoughts in verbal, numeric, graphical and symbolic form while solving a variety of problems;
3. Solve multiple-step problems through different (inductive, deductive and symbolic) modes of reasoning;
4. Express mathematical information, concepts, and thoughts in verbal, numeric, graphical and symbolic form while solving a variety of problems;
5. Shift among the verbal, numeric, graphical and symbolic modes of considering relationships;
6. Use appropriate technology in the evaluation, analysis, and synthesis of information in problem-solving situations.

Course Description: This course is a study of equations, functions, graphs, modeling, and problem solving. Linear, quadratic, exponential, and logarithmic equations in one variable are applied to a variety of problems, which concern real-world situations. Systems of linear equations in two variables are studied in conjunction with their use in problem solving. The concepts of functions and graphing are studied as essential tools for interpreting functions of one variable. Linear, quadratic, exponential, polynomial and logarithmic functions are emphasized and used to model a variety of real-world situations.

Outcomes:

Communication: Students will gain a knowledge base of basic mathematics in analytical, graphical, and numerical form. Students will communicate their ideas orally in class discussions and in written form on quizzes and examinations.

Critical Thinking: Students will apply their knowledge to solve applied problems presented in class, on quizzes, and on examinations. Students will determine the mathematical question and appropriate concepts with which to draw a conclusion, and then provide evidence of a logical answer.

Course Materials: The following materials are required and should be brought to every class meeting.

Computer (required): A computer is required in Math 1101. Each student in Math 1101 needs access to a notebook computer. Students will use their notebook computers during class sessions and tests. Clayton State University requires that students have ready access throughout the semester to a notebook computer that meets faculty-approved hardware and software requirements for the student's academic program. See <http://itpchoice.clayton.edu> for full details of this policy. It is a student's responsibility to have a working computer. Please keep your instructor updated if you are having computer problems. In most cases, if your computer is not working properly, you will need to see someone in the HUB or contact a software help center.

Math Software (required): The software package that the mathematics faculty will be using in Math 1101 is Graph. Graph is a free package, downloadable from <http://www.padowan.dk/graph/>. Follow the download and installation instructions on the indicated web site.

Textbook and MyMathLab Access (required):

Ronald Harshbarger & Lisa Yocco *College Algebra in Context*, Third edition, Pearson Education, Inc., 2010. New textbooks are shrink-wrapped with a MyMathLab.com access code. MyMathLab is an online course resource, homework tutorial, and testing center. Students are **required** to use MyMathLab.com in this course. Purchasers of used textbooks can purchase a stand alone *MyMathLab Starter Kit* in the CSU bookstore or, with a credit card, buy online at <http://mymathlab.com/buying.html>. The *Starter Kit* includes the **access code** needed to register as a MyMathLab user.

You will be required to use MyMathLab to complete online homework and quizzes, but access will also make available many online resources found at this website. Follow the instructions provided with the access code to set up your computer to access these resources. Be sure to write down the course ID provided by your instructor. This course ID will be provided as soon as it is available. Please do not register for MyMathLab until you have both the student access code and the course ID. Once you have accessed MyMathLab you will need to go through the MyMathLab Installation Wizard in order to install all software plug-ins necessary for the system to operate properly on your machine.

You should bring your computer and textbook to each class meeting.

Thank you for turning off your cell phones during lecture and exams!

Course Content:

Functions, Graphs, and Models; Linear Functions: Functions and Models, Graphs of Functions, Linear Functions, Equations of Lines.
(Sections 1.1 – 1.4)

Linear Models, Equations , and Inequalities: Algebraic and Graphical Solutions of Linear Equations, Fitting Lines to Data Points: Modeling Linear Functions, Systems of Linear Equations in Two Variables, Solutions of Linear Inequalities.
(Sections 2.1-2.4)

Quadratic and Other Nonlinear Functions: Quadratic Functions; Parabolas, Solving Quadratic Equations, Piecewise-Defined Functions and Power Functions, Quadratic and Power Models.
(Sections 3.1-3.4)

Additional Topics with Functions: Transformations of Graphs and Symmetry, Combining Functions; Composite Functions, Inverse Functions.
(Sections 4.1 – 4.3)

Exponential and Logarithmic Functions: Exponential Functions, Logarithmic Functions; Properties of Logarithms, Exponential and Logarithmic Equations, Exponential and Logarithmic Models, Exponential Functions and Investing.
(Sections 5.1 -5.5)

Higher-Degree Polynomial Functions: Higher Degree Polynomial Functions, Modeling with Cubic and Quartic Functions, Solution of Polynomial Equations.
(Sections 6.1-6.3)

University Policies:

See the current online Academic Catalog at <http://publications.clayton.edu/catalog/> for details on the following policies.

No Shows: Any paid student who has failed to attend a class by the deadline posted in the official university calendar for the term will be identified as a “no show.” The “no show” student will be administratively withdrawn from the class, a

grade of W\$ will be posted, and the student will NOT be reinstated. Any appeals on the decision are made to the Dean of the student's major.

Three-Attempts: A student who has withdrawn or earned a less-than-satisfactory grade (viz. F, U, D, WF, or W) a total of three times in a course at CSU will not be allowed to take the course again. Any appeals on the decision must be made to the Dean of the student's major.

Midterm Grades: All students of MATH 1101 will be issued a midterm grade by February 28, 2012. This midterm grade will reflect approximately 33% of the entire course grade. Based on this midterm grade, a student may choose to withdraw from the course and receive a grade of W. Any student who wishes to pursue this option must withdraw no later than March 2, 2012.

Student Conduct: For the health, safety and general well-being of all students, faculty, and staff, students must abide by the policies set forth in both the Clayton State University Handbook (<http://adminservices.clayton.edu/studentaffairs/StudentHandbook/foreword.htm>) and the Basic Undergraduate Student Responsibilities as listed in the current CSU Academic Catalog, <http://publications.clayton.edu/catalog/>.

Academic Integrity: Students are expected to do their own work on all graded material for MATH 1101 including quizzes, tests, and the final exam, as outlined in the Clayton State University Student Code of Conduct, which can be found the Student Handbook. Cheating will not be tolerated in MATH 1101, and any student who engages in suspicious conduct will be confronted and subjected to the disciplinary process. Cheaters will, at a minimum, receive a failing grade on the quiz, test, or exam, which could result in a failing grade in the entire course.

Attendance: Students are expected to attend each class meeting. Students are responsible for knowing about in-class announcements whether they are present or not. Please consult your instructor's class policies for specific attendance requirements for your individual section.

Evaluation

Your grade in MATH 1101 is dependent on the following four criteria.

Online Homework / In-class Assignments and Quizzes: Your homework grade in this category, up to 100 points, will be determined by the average score that you earn on the best twenty out of twenty two MyMathLab homework assignments (Your lowest two MML homework grades will be dropped. This includes scores of zero for incomplete or late assignments). You should make every effort to complete the homework assignments and seek help during office hours with problems you have not been able to solve. Beginning with the second section of each chapter, you must score at least 60% on a particular homework before being allowed to work on the next section's homework. For example, there is no pre-requisite to section 1.1, 2.1, etc. but you must score at least 60% on 1.1 to be allowed to work on homework 1.2 and so on. Reading the sections of the textbook corresponding to the assigned homework exercises is considered part of the homework assignment; you are responsible for material in the assigned reading whether or not it is discussed in the lecture. It will be expected that you read the assigned material in advance of each lecture. MyMathLab homework is not timed and you are allowed unlimited attempts up to the due date. Homework due dates are set as a pacing guide. However, homework can be attempted after the due date

Quizzes: Your quiz grade in this course will be determined by the best ten out of twelve Departmental MyMathLab quizzes worth 10 points each. (Your lowest two quiz grades will be dropped. This includes scores of zero for incomplete or late quizzes.) MyMathLab quizzes have a limited number of attempts and have a time limit. Quizzes must be completed by the due date and time.

Tests: There will be three tests each worth 100 points tentatively scheduled for:

- Test #1: Week of Feb. 14 (covers Sections 1.1 -1.4, 2.1-2.4)
- Test #2: Week of March 20 (covers Sections 3.1 - 3.4, 4.1 – 4.3)
- Test #3: Week of April 24 (covers Sections 5.1 – 5.5)

Make-ups: It is your responsibility to make sure that you have no schedule conflicts and can take the tests at the times designated by your instructor. **There will be no early or makeup tests given.** If you miss a test for *any* reason, your course grade will be computed with a zero for the missed test.

Final Exam: The Departmental Final Examination is comprehensive and is worth 150 points. No student will be excused from taking the Final Examination, and only under unusual circumstances will a student be allowed to take the Final Examination at any time other than the regularly scheduled time. Failure to take the Final Examination will result in the grade of "F" for the course.

Final Course Grade: Your course grade will be determined by the following Grading Scale.

Grade	Percent	Points
A	90% - 100.0%	585 – 650
B	80% - 89.8%	520 – 584
C	70% - 79.8%	455 – 519
D	60% - 69.8%	390 – 454

Assessment	Points
Tests	400
Homework	100
Quizzes	100
Final Exam	150
Total	750

Student Resources

Instructor Office Hours: Your instructor holds regular office hours and is willing to help. If you are unable to make it to your instructor's regular office hours, please contact them by email or phone to see if another time is available.

Center for Academic Success: The Center for Academic Success (CAS) is located in the lower level of the Library Building and is typically open Monday through Thursday from 8:00 a.m. – 8:00 p.m. and on Friday from 8:00 a.m. – 5:00 p.m.

The Center for Academic Success (CAS) provides tutoring for this course. Appointments can be made through TutorTrac at <http://tutoring.clayton.edu> or by contacting the CAS at (678) 466-4070, lower level of the library.

If a student needs more extensive help than an instructor can provide during office hours, the student should investigate the resources available in the CAS. Specifically,

- A student may obtain assistance with mathematics problems from personnel in the CAS for brief periods of time. Appointments should be made in advance.
- A student may obtain assistance from a peer tutor. Appointments must be made in advance.
- A student may use materials in the CAS. Among the available materials are: **VideoTapes, CD's, and Computer Software** which cover various mathematics topics.

For more information and specific details about the Center for Academic Success and on some of these resources, check the Center for Academic Success web page, <http://adminsivices.clayton.edu/caa/>.

Students with Disabilities: Students with disabilities who require reasonable accommodations need to register with Disability Services (DS) in order to obtain their accommodations. The Office of Disability Services is located in the Student Center Building, Rooms 255 – 264, phone 678-466-5445, email disabilityservices@clayton.edu. For more information on services offered check the web site: <http://adminsivices.clayton.edu/disability/>.

Counseling and Career Services

Students may obtain help with education, career, and personal concerns from a staff of counselors. Its services may be of help to students with test anxiety or other problems that limit academic success.

For more information on services offered by Counseling Services and Career Services, check the web pages, <http://adminsivices.clayton.edu/counseling/> and <http://adminsivices.clayton.edu/career/>.

* Remember that MyMathLab is a good resource for video lectures and help with completing homework problems.

Technology

Technology Prerequisite: The computer is used extensively in Math 1101. *You should bring your computer and your textbook to each class meeting* and immediately set up your computer, unless otherwise informed by your instructor. Basic computer skills for using email, the Internet, and file management are necessary to succeed in Math 1101. If you do not have these skills, it is strongly recommended that you attend appropriate workshop(s) provided by the Student Software Support Services (SSSS) located downstairs in the Library. The URL for the SSSS Workshops is <http://thehub.clayton.edu/index.php?nav=calendar> SSSS also provides individual assistance by appointment with the receptionist or walkup basis. Students should make an appointment with the HUB to have software loaded on their computers. Please see the HUB guide about setting up student email at http://thehub.clayton.edu/index.php?nav=hub_guides if you need help with this.

Technology Etiquette: The computer is used extensively in this course. When you come into class you should immediately set up your computer, unless otherwise informed by your instructor. You are not allowed to connect to the Internet. During class do not play computer games, play music on the computer, surf the net, pass e-mail \notes", use computer headphones, or use the computer in any way that is distracting to the instructor or any other student. Set the volume on your computer to a low setting. Outside of class, any e-mail sent to your instructor should state your name and identify the class you are taking. Remember to act professionally when sending e-mail to your instructor. Any unprofessional e-mail sent to an instructor will not be tolerated.

Important Dates for the Spring 2012:

Sat, Jan 7	First day of weekend classes
Mon, Jan 9	First day of weekday classes
Mon, Jan 9 – Thurs, Jan 12	Drop/Add
Thurs, Jan 12	Final Fee Payment Deadline
Mon, Jan 16	Martin Luther King Holiday
Thurs, Jan 19	No-Show Deadline
Tues, Feb 14 – Tues, Feb 28	Mid-term grade Reporting Period
Fri, Mar 2	Last Day to Withdraw and Receive a W
Sat, Mar 3 – Sun, Mar 11	Spring Break
Mon, Apr 30	Classes End
Tues, May 1 – Tues, May 7	Final Exams
Wed, May 9 – 9:00am	Faculty Grade Submission Deadline

See CSU Academic Calendar (<http://adminservices.clayton.edu/calendar/academiccalendar.htm>) for the most recent academic calendar for the Spring 2012 semester.

Disruptive Classroom Behavior¹

Disruptive behavior in the classroom can negatively effect the classroom environment as well as the educational experience for students enrolled in the course. Disruptive behavior is defined as any behaviors that hamper the ability of instructors to teach or students to learn. Common examples of disruptive behaviors include, but are not limited to:

- Eating in class
- Monopolizing classroom discussions
- Failing to respect the rights of other students to express their viewpoints
- Talking when the instructor or others are speaking
- Constant questions or interruptions which interfere with the instructor's presentation
- Overt inattentiveness (e.g., sleeping or reading the paper in class)
- Creating excessive noise
- Entering the class late or leaving early
- Use of pagers or cell phones in the classroom
- Inordinate or inappropriate demands for time or attention
- Poor personal hygiene (e.g., noticeably offensive body odor)
- Refusal to comply with faculty direction

Students exhibiting these types of behaviors can expect a warning from the instructor or dismissal for the lesson in which the behavior occurs. Failure to correct such behaviors can result in dismissal from the course.

More extreme examples of disruptive behavior include, but are not limited to:

- Use of profanity or pejorative language
- Intoxication
- Verbal abuse of instructor or other students (e.g., taunting, badgering, intimidation)
- Harassment of instructor or other students
- Threats to harm oneself or others
- Physical violence

Students exhibiting these more extreme examples of disruptive behavior may be dismissed from the lesson or the entire course.

Students dismissed from a lesson will leave the classroom immediately or may be subject to additional penalties. Dismissed students are responsible for any course material or assignments missed.

Students dismissed from a course have the right to appeal the dismissal to the department head responsible for the course. Appeals beyond the department head may also be pursued. If no appeal is made or the appeal is unsuccessful, the student will receive a grade of WF (withdrawal – failing) regardless of the current grade in the course.

Conditions attributed to physical or psychological disabilities are not considered as a legitimate excuse for disruptive behavior.

¹ The description of disruptive behavior and listings of examples of disruptive behavior are taken from the Web sites of James Mason University, the University of Delaware and Virginia Tech.