**MAT 101 College Algebra Syllabus Spring 2018**

**Instructor Information: See separate individual instructor handout for specifics.**

**Course Description:** This course teaches functions, graphs of linear equations and inequalities, and nonlinear equations including exponential and logarithmic equations. This course is an introduction to the functions most commonly used to model mathematical behavior as well as the fundamental concepts necessary to use these functions. 3 credit hours.

Prerequisite(s): Math ACT ≥ 20 or a grade of C or better in MAT 099

OR Corequisite: MAT 101L- Required for MAT 101 students with Math ACT < 20 and no grade of C or better in MAT 099 but available for all students to take if student needs additional assistance.

**Learning Objectives:** Students will demonstrate the ability to work with real world situations involving fundamental math concepts.

**Learning Outcomes:**

* Students will model and solve problems involving linear equations, construct linear function graphs, and then apply their knowledge to interpret data for real world applications.
* Students will model and solve problems involving exponential functions, construct exponential function graphs, and then apply the knowledge to interpret data for real world applications.
* Students will model and solve problems involving quadratic functions, construct quadratic function graphs, and then apply their knowledge to interpret data for real world applications.
* Students will model and solve problems involving linear inequalities and apply the knowledge to solve real world applications problems involving inequalities.
* Students will be able to find zeros and their multiplicities of polynomial functions and use the information to construct graphs of polynomial functions.
* Students will be able to manipulate logarithmic expressions, as well as solve logarithmic and exponential equations by using properties of logarithms.
* Students will be able to identify if a graph is that of a function, if the graph is that of a one-to-one function, and, if it is a one-to-one function, be able to determine a formula for its inverse. Students should also be able to determine the domain and range of any graph or function including those with function transformations.

**Course Format:**

* Combining emporium style instruction with independent study, classes will meet for a traditional lecture or problem-solving session one time a week and in the lab with the instructor for the other class meetings.
* During the lecture the instructor will review concepts and work problems focusing on areas where students typically struggle. Group work and active learning will be used in conjunction with the lecture format.

|  |  |
| --- | --- |
| **Important Dates:**  Last day to drop/add course:  Tuesday, January 23rd, 2018  Temporary access codes expire:  Tuesday, January 30th, 2018  Last day to withdraw from course w/ W:  Thursday, April 5th, 2018 | **Math Zone Information:**  **Director:** Emileigh Sones  Email: emileigh.sones@usm.edu  Office Phone: 601.266.5831  **Coordinator:** Corwin Stanford  Email: corwin.stanford@usm.edu  Office Phone: 601.266.5768 |
| **Contact Information:**  Phone: 601.266.5824  Website: [www.usm.edu/mathzone](http://www.usm.edu/mathzone)  Email: mathzone@usm.edu | **Hours of Operation:**  Monday-Thursday: 9am-8pm  Friday: 9am-5pm  Sunday 12:30pm-4:30pm |

* During the time in the lab, the course management system MyMathLab, accessed through Canvas, will be used to complete video lectures, homework, quizzes, and tests while the instructor and lab assistants provide one-on-one assistance.

**Materials Needed:**

* Non-graphing calculator: TI-30XS Multiview or TI-30X Pro is recommended.
* MyMathLab Access Code: ISBN 9780321199911 (available in bookstore).
* Binder with loose leaf notebook paper

|  |
| --- |
| **Grading Scale:**  **90% - 100% A**  **80% – 89% B**  **70% – 79% C**  **60% - 69% D**  **0% - 59% F** |

**Course Grades:**

**Evaluation Methods**

**Attendance, Professionalism, & Participation Expectations:**

You are expected to be on time, attend the class for the entire duration, and contribute to every class session in a professional manner. Attendance and participation will be based on class and lab attendance as well as participation in all group work and class discussions. Leaving early or arriving late for class or lab is unacceptable and will result in a reduction in your attendance grade. Be prepared for class with proper supplies and assigned homework completed. Use language and actions appropriate for a professional setting. Use computer for class work and not other sites/social media, etc. Use school equipment, time, and resources in a professional manner. If a student must miss class, it is that student’s responsibility to consult a classmate for notes, assignments, and announcements prior to the next class meeting.

|  |  |
| --- | --- |
| Due Before Class:  **Pre-Homework**   * Unlimited attempts * Can save your progress * Useful Tools: * Help me solve this | Due After Class:  **Post-Homework**   * Unlimited attempts * Can save your progress * Useful Tools: * Help me solve this   **Quiz**   * 3 Attempts * Time, (30 minutes) * May use notes or book * No help from tutors or others |
| During Class:  **Lecture/Review**   * Review and/or begin new material * Complete active learning activities |

**Pre-Homework and Post-Homework:** Before each lecture, the Pre-Homework is due. The Pre-Homework contains videos and problems to prepare you for the classroom lecture. The Post-Homework contains videos and problems to expand your knowledge of the content covered in the lecture. Test reviews are also counted as homework assignments and are required.

**Quizzes:** Quizzes are content quizzes to review the material. They are Password protected and must be taken in the Math Zone. No use of cell phones, websites, or assistance is allowed. You may use your notes only. You are allowed three attempts and the highest score is kept.

**Tests and Final Exam:** Tests and Final Exams are also administered in MyMathLab in the Math Zone. No assistance is provided in MyMathLab and there is no use of outside materials, websites, notes, cell phones, etc., on the test. All testing policies and procedures must be strictly followed.

**Testing Information**

**General Information:**

All tests are password protected and must be taken in the Math Zone. Tests must be taken **during the class lab time** as posted on the course schedule unless other arrangements are made. Each test has an accompanying practice test which can be taken as many times as desired. A review is also available as a required homework assignment to help you prepare. After you take your test and submit it, you should review it. After you leave the testing area, it will not be available for review in your MyMathLab account. If you have any problems or concerns while reviewing, please inform the test proctor and they will assist you. Students wanting to review their test after closing out of the test review page should contact their instructor to review their tests one-on-one.

\***A score of zero is given when a testing policy has been violated.**

**\*There will be no retake opportunities for any test or the final exam.**

**70F on Practice Test Required.**

**What to Bring: Leave Behind:**

Student ID Graphing Calculators

*A student ID is required for testing* Calculator Lids

Scientific Calculator Electronic Devices (no phones or smart watches)

*Any non-graphing calculator* Notes or Other Papers

Pen or Pencil Bags or Personal Items

\*You do not need to bring scratch paper. Hats

We will provide that for you. Headphones

**Testing Policies:**

* You may not visit any website other than MyMathLab through Canvas.
* Once you begin your test, you may not leave the testing area.
* No prohibited items may be brought into the testing area.

**Rescheduling a Test:**

In the event of documentable absences, please contact your instructor. The instructor may require you to fill out a Petition for Alternative Test Date (available at the Math Zone desk) and submit to the Math Zone Director (MZ 103C). In addition, documentation must be provided to the Office of Student Ombudsman Services (R.C. Cook University Union - Room 221), indicating that the absence is documented and excused. These steps should be completed within two school days of the absence. Incomplete, late, or failure to complete petitions will not be accepted.

**Scheduled Absences:**

**Take a test for a scheduled absence** *before* **the due date.**

Homework assignments, quizzes, and classes that are missed due to verifiable circumstances can be made-up or waived in the case of attendance, provided you can submit valid documentation. If homework assignments are not completed on time for any other reason, those problems can still be completed for 50% credit until the date of the test, however, quizzes will remain unavailable. You must notify your instructor BEFORE the scheduled absence in order for your instructor to provide accommodations.

**Math Zone Policies:**

Violating the rules listed below may result in one or more of the following: loss of lab attendance credit, being asked to leave the Zone, and/or a zero on an assignment(s) and/or XF in the course.

**1.** Only students in eligible MZ courses may enter the Zone. Friends, private tutors, etc., must find other premises.

**2.** When in the Math Zone, you are expected to be respectful of others.

**3.** Food and tobacco products are not allowed in the lab. Drinks should be in sealed containers.

**4.** Talking/Facetiming on cell phones is not permitted while working in the lab.

**5.** You are expected to be actively working on mathematics while in the Zone. You may not visit other websites or work on assignments for other classes.

**6.** You are expected to complete quizzes and tests on your own without outside help. Students receiving visible outside assistance for another person while taking a quiz or test will receive a zero and possibly an XF in the course.

**7.** Use of any mathematics solving website or app (ex. Mathway) is strictly prohibited and will result in a zero on the assignment and a possible XF in the course. (See below.)

**Statement on Academic Integrity:**

All students at the University of Southern Mississippi are expected to demonstrate the highest levels of academic integrity in all that they do. Forms of academic dishonesty include (but are not limited to): \* Cheating (to include copying from others’ work)

\* Plagiarism – representing another person’s words or ideas as your own; failure to properly cite the source of your information, argument, or concepts

\* Falsification of documents

\* Disclosing of test or other assignment content to another student

\* Submission of the same paper or other assignment to more than one class without the explicit approval of all faculty members’ involved

\* Unauthorized collaboration with others on work for online courses

Engaging in any of these behaviors or supporting others who do so will result in academic penalties and/or other sanctions. If a faculty member determines that a student has violated our Academic Integrity Policy, sanctions ranging from resubmission of work to course failure may occur, including the possibility of receiving a grade of “XF” for the course, which will be on the student’s transcript with the notation “Failure due to academic misconduct.” For more details, please see the **Academic Integrity Policy:** https://www.usm.edu/institutional-policies/policy-acaf-pro-012

Note that repeated acts of academic misconduct will lead to expulsion from the University.

**Important:** In particular, any instance of cheating on a unit test or final exam in this course will result in a zero and cannot be replaced by a replacement grade. The instructor reserves the right to assign an XF for any student who has been academically dishonest.

**ODA Policy:**

If a student has a disability that qualifies under the American with Disabilities Act and requires accommodations, he/she should contact the Office for Disability Accommodations for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability is covered.

Address:

The University of Southern Mississippi

Office for Disability Accommodations

118 College Drive #8586

Hattiesburg, MS 39406-0001

Individuals with hearing impairments can contact ODA using the Mississippi Relay Service at 1-800-582-2233 or email Suzy Herbert at [Suzanne.Hebert@usm.edu](mailto:Suzanne.Hebert@usm.edu)

**Tips for Success**

**Use your time in class effectively.**

- Sit near the front, avoid distractions, and participate in class.

- Ask questions if you are confused and don't be afraid to respond to questions that are asked.

- Learn the exact definitions of all new terms the first time they appear so that misunderstandings do not prevent you from answering questions.

**Use your time in lab effectively for homework.**

- Take notes while working on homework and watching videos.

- Keep organized: label problems/units in your notebook and keep a section for class handouts.

- If you are a pen and paper person, print out your homework assignments and bring them to the Math Zone with you.

- Indicate troublesome or challenging problems in your notes so you can ask about those.

- Indicate easy problems also.

**Adequately prepare for class and tests.**

- Prepare yourself physically as well as mentally; eat well and get sufficient rest.

- Take your practice test(s) under conditions similar to those of the real test.

- When taking your test, relax and read the problems carefully. Reread the problems, if needed.

- Pay special attention to the fine blue print below the problem.

**Dedicate the necessary time.**

- Use your time in the lab effectively; get help from Zone staff with any problems you may have.

- Get to know your classmates so you can plan study sessions together.

- Establish a consistent schedule for completing homework and studying the material.

- When working problems, model the same step-by-step processes used by your instructor.

**Use resources wisely to help you.**

- If you don't understand problems or concepts, ask the Zone tutors or your instructor.

- Utilize the Media Library in **MyMathLab** and watch the videos! Pause, rewind and rewatch videos, if needed.

- Find ways to learn concepts rather than memorizing every problem.

**Embrace the struggle.**

- Don't overuse the "Help Me Solve This" tools. Attempt problems on your own if possible.

- Focus on the most challenging problems and realize that you may not understand every single problem instantly.

**Other Resources**

Student Success Center

- Offers tutoring through the First Year Initiative (FYI)

- Located in McLemore Hall, Second Floor

- Phone: 601.266.5003

- Website: http://www.usm.edu/success

Learning Enhancement Center

- Helps students devise learning strategies, study skills, and time management skills

- Located in the International Center, Third Floor

- Phone: 601.266.5518; Website: [www.lec.usm.edu](http://www.lec.usm.edu)

|  |  |  |
| --- | --- | --- |
| **MAT 101 Course Outline** | | |
| **Unit** | **Section** | **Topic** |
| 1 | 1.5 | Solving Linear Equations and Applications |
|  | 1.2 | Introduce Function Notation |
| 2 | 1.3 | Graphing Linear Functions, Slope, Applications |
|  | 1.4 | Equations of Lines; Modeling |
| 3 | 3.1 | Complex Numbers |
|  | 3.4 | Radical Equation -omit radicals with factoring |
|  | 3.2 | Quadratics - Square Root Property |
|  | Test 1 |  |
| 4 | R | Factoring |
|  | 3.2 | Quadratic Equations (factors, zeros); Q. Formula |
| 5 | 3.4 | Rational Equations |
|  | 4.3 | Polynomial Division, Remainder Theorem, Factor Theorem |
| 6 | 4.4 | Theorems about Zeros of Polynomials |
|  | Test 2 |  |
| 7 | 4.1 | Leading Term Test |
|  | 3.3 | Graphing Quadratics |
|  | 4.1 | Polynomial Functions and Models |
| 8 | 4.2 | Graphing Polynomial Functions |
| Assign. | Graphing Assignment (Not in MML) | |
|  | Test 3 |  |
| 9 | 1.6 | Linear Inequalities |
|  |  | Domain and Range |
|  | 3.5 | Absolute Value Equations and Inequalities |
|  | 1.2 | Functions - Relation, VLT |
|  | 2.5 | Graphs of Parent Functions |
| 10 |  | Circles; Distance; Midpoint |
|  | 2.4 | Symmetry |
|  | 2.5 | All Transformations |
|  | Test 4 |  |
| 11 | 2.2 | Algebra of Functions |
|  | 2.3 | Function Composition |
| 12 | 5.1 | Inverse Functions |
|  | 5.2 | Exponential Functions and Graphs |
| 13 | 5.3 | Logarithmic Functions and Graphs |
|  | 5.4 | Properties of Logarithmic Functions |
|  | 5.5 | Solving Exp. And Log. Equations |
|  | Test 5 |  |
| 14 | 5.6 | Applications and Models: Growth and Decay |
|  | Final |  |

**\*Note: This syllabus is subject to change during the semester, if needed. Students will be notified via email if changes are made.**