



Course Syllabus

Course #: MTH 2310 Course Name: College Algebra

Division: Arts & Sciences

Class Days: Class Time:
Location: Classroom: Laboratory:
Credit Hours: 3 Contact Hours: 3 Lab Hours: 0 Lecture Hours: 3

Instructor: Office Location:
Phone: Email Address:
Office Hours:
Division Office/Location: A202 Division Fax: 419.355.1248
Full-time Contact Person: Jon Dunlap Phone(s): 419.559.2303

Course Description:

This course covers real and complex numbers, linear and quadratic equations, inequalities, graphs and functions, zeros of polynomials, exponents and radicals, exponential and logarithmic functions, and applications. Graphing calculator required.

Prerequisite(s): Grade of "C" or better in MTH 1310 or Placement Testing

Corequisite(s): None

Entry Level Skills and Knowledge:

Intermediate mathematics and algebra skills.

Required Texts, Supplies and Equipment:

College Algebra and Trigonometry, Third Edition by Margaret Lial, John Hornsby, and David Schneider. Published by Addison Wesley.

Hand-held Calculator: TI-83+ or TI-84+ required

Grading:

Terra Community College Syllabus
Course Syllabus for MTH 2310 - 2 or 3 days/week
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The final course grade will be determined as follows:

| | |
|---|-----|
| Daily Grades (quizzes, homework, class participation, etc.) | 25% |
| Tests | 50% |
| Comprehensive Final Exam | 25% |

Grading scale is as follows:

90 – 100 = A

80 – 89 = B

70 – 79 = C

60 – 69 = D

0 – 59 = F

Learning Outcomes:

General Education

Evaluate arguments in a logical fashion.

Technical Education

Course Outcomes:

Upon completion of this course, students should be able to perform these competencies:

1. Distinguish between the classifications of numbers and understand the relationships between them.
2. Use set theory to explain mathematical relationships.
3. Simplify polynomial, rational, exponential, and radical expressions.
4. Work with complex numbers.
5. Solve radical and absolute value equations and inequalities.
6. Graph on a two-dimensional coordinate system.
7. State the domain and range of a given function.
8. Evaluate, graph, and find the inverse of functions.
9. Evaluate logarithms and solve exponential and logarithmic equations.

Assessment of Student Learning:

This course may include a project that is one of several that will be used by faculty to assess student academic performance in the program. A panel of faculty will review all (projects or whatever assessment activity you are doing), then assess and summarize the academic performance of students at this point in the program. The results of this assessment will be shared among the department faculty, used to identify needed changes or improvements, and submitted to the Student Academic Assessment Committee as part of the college's overall student academic assessment effort.

Assessment Project and Measurement in course (if any):
TBA

Plan of Work:

| Session | Date | Activities |
|--|------|------------|
| See topical outline attached at back of this syllabus. | | |

Course Requirements:

This course requires, prior to the first class meeting, that you study for an exam on prerequisite material (Exam 0). You should acquire a textbook and begin working on preparatory exercises (listed at the beginning of the homework set below) at least one week before the term begins. No class time will be allotted for review in advance of this exam, which will be given during the course's second class meeting. The exam will be graded and your score will count toward your course grade.

There will be an assignment given each class period. This should be completed by the next class meeting and will be discussed at that time.

Policies

Department Policies: The schedule of tests will be followed as closely as possible. Not all of the course work is in the text. It is important to be in class and to take notes. Students are expected to read the text before class discussion.

Tests must be taken on the scheduled day. Failure to do so will result in a ten percent (10%) penalty. Make-up tests must be taken within one (1) week of the date that the test is given in class.

It is expected that the student will participate by having assignments completed on time, answering questions in class, asking pertinent questions, being on time, and having a cooperative attitude.

Final Exam Policy: The final exam is comprehensive. All students, regardless of grade average, must take the comprehensive final exam for this course.

Course Withdrawing: If for any reason you need to withdraw from this course, be certain that you do so according to College procedure. It is your responsibility to know and follow this procedure. If you simply stop coming to class, without officially withdrawing from the course, your grade is an automatic "F." Please follow official College procedure for withdrawing from this or any course.

College Academic Policies are located in the College Catalog. A copy of the current catalog may be picked up in any of the division offices or admissions. The list of college policies is also available online at <https://www.terra.edu/register/Collegecat/policies.asp>.

Support Services: The College offers a number of support services to assist in your success in this course and all courses. Among these services are the Writing & Math Center in B105, the Office of Learning Support Services, which coordinates the campus disability services and tutoring programs, the computer labs, and the computers in the atriums.

Any student who feels he/she may need an accommodation based on the documentation of a disability should contact the Office of Learning Support Services privately to discuss his/her specific issues. Please contact the OLSS at (419) 334-8400 X 208 or visit 100 Roy Klay Hall (Building A) to coordinate reasonable accommodations.

If you have a documented disability and are receiving academic accommodations through the Office of Learning Support Services, please schedule a meeting with your instructor in a timely manner so that we may discuss how these services will be arranged.

Tutoring services are available to students beginning the second week of every quarter. Students requesting tutoring services should obtain a tutor request form from the OLSS in 100 Roy Klay Hall (Building A) or online at the Terra website. Please note that instructor verification and acceptance of the Student Learner Agreement is necessary for all tutoring requests. All requests should be submitted to 100 Roy Klay Hall (Building A).

MTH 2310 Preparation for TEST 0:

You should acquire a textbook and begin working on these preparatory exercises at least one week before the term begins.

| Session | Course Content | Reading Assignment | Activity |
|---------|---------------------------------------|--------------------|---|
| | R.1 Real Numbers and Their Properties | pp. 1 – 11 | p. 11 – 1-23 odd, 25-45 every other odd (25, 29, 33, etc.), 55-60 |
| | R.2 Order and Absolute Value | pp. 16 – 21 | p. 22 – 19-37 odd |
| | R.3 Polynomials | pp. 24 – 32 | p. 32 – 29-43 odd, 45-61 every other odd, 63-71 every other odd, 73-79 odd |
| | R.4 Factoring Polynomials | pp. 37 – 43 | p. 43 – 1-13 every other odd, 15-21 odd, 23-39 every other odd, 45-61 other odd, 71-75 odd, 77-93 every other odd |
| | R.5 Rational Expressions | pp. 46 – 52 | p. 52 – 1-5 odd, 11-35 every other odd, 39, 41, 45-57 every other odd, 59-67 every other odd |
| | R.6 Rational Exponents | pp. 55 – 62 | p. 62 – 15-35 odd, 37-69 every other odd, 73, 77 |
| | R.7 Radical Expressions | pp. 65 – 72 | p. 73 – 21-57 every other odd, 59-79 every other odd, 83-89 odd |

MTH 2310 Topical Outline (MW or TR):

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|----|--|---------------|---|
| 1 | Course Introduction | | |
| | 1.1 Linear Equations | pp. 85 – 90 | p. 90 – 1-7 odd, 9-25 odd, 39-47 odd, 61-67 odd |
| | 1.3 Complex Numbers | pp. 107 – 113 | p. 113 – 17-41 every other odd, 43-49 odd, 51-79 every other odd, 83-93 odd |
| 2 | TEST 0 (Review Chapter) | | |
| 3 | 1.4 Quadratic Equations | pp. 115 – 123 | p. 123 – 13-41 odd, 45-61 odd |
| | 1.6 Other Types of Equations | pp. 136 – 143 | p. 144 – 1-77 every other odd |
| 4 | 1.6 Other Types of Equations (continued) | pp. 136 – 143 | p. 144 – 1-77 every other odd |
| 5 | 1.7 Inequalities | pp. 146 – 155 | p. 156 – 1-9 odd, 13-33, 39-51 odd, 69-85 every other odd |
| 6 | 1.8 Absolute Value Equations and Inequalities | pp. 160 – 163 | p. 164 – 1-23 odd, 27-55 odd |
| 7 | TEST I (Chapter One) | | |
| 8 | 2.1 Graphs of Equations | pp. 182 – 192 | p. 192 – 9-27 odd, 45-53 odd, 57-63 odd, 71, 73 |
| 9 | 2.2 Functions | pp. 197 – 209 | p. 209 – 11, 13, 17-37 odd, 41-51 odd, 69-81 odd |
| 10 | 2.3 Linear Functions | pp. 214 – 220 | p. 221 – 1-31 odd, 35-41 odd |
| 11 | 2.4 Equations of Lines | pp. 227 – 235 | p. 236 – 1-21 odd, 27-43 odd |
| 12 | 2.5 Graphs of Basic Functions | pp. 242 – 248 | p. 249 – 7-16 all, 17-37 odd, 45 |
| 13 | 2.6 Graphing Techniques | pp. 253 – 263 | p. 264 – 1, 3, 15-45 odd |
| 14 | 2.7 Function Operations and Composition | pp. 268 – 275 | p. 276 – 1-13 odd, 33-53 odd, 57-63 odd, 69-77 odd |
| 15 | TEST II (Chapter Two) | | |
| 16 | 3.1 Quadratic Functions and Models | pp. 293 – 303 | p. 303 – 1, 3, 9-25 odd, 27-30 all |
| 17 | 3.2 Synthetic Division | pp. 313 – 318 | p. 319 – 1-37 odd |
| 18 | 3.3 Zeros of Polynomial Functions | pp. 320 – 329 | p. 329 – 1-47 odd |
| 19 | 3.4 Graphs of Polynomial Functions | pp. 331 – 342 | p. 342 – 1-47 odd |
| 20 | 3.4 Graphs of Polynomial Functions (continued) | pp. 331 – 342 | p. 342 – 1-47 odd |
| | 3.5 Rational Functions | pp. 350 – 362 | p. 362 – 17-27 odd, 37-45 odd, 51-67 odd |
| 21 | 3.5 Rational Functions (continued) | pp. 350 – 362 | p. 362 – 17-27 odd, 37-45 odd, 51-67 odd |
| 22 | TEST III (Chapter Three) | | |
| 23 | 4.1 Inverse Functions | pp. 389 – 398 | p. 398 – 3-23 odd, 45-61 odd |
| 24 | 4.2 Exponential Functions | pp. 402 – 414 | p. 414 – 1-31 odd, 43-61 odd |
| 25 | 4.3 Logarithmic Functions | pp. 418 – 427 | p. 427 – 1-29 odd, 57-71 odd |
| 26 | 4.4 Evaluating Logarithms; Change-of-Base | pp. 431 – 438 | p. 438 – 1-21 odd, 35-41 odd |
| 27 | 4.5 Exponential and Logarithmic Equations | pp. 443 – 448 | p. 448 – 1-41 odd |
| 28 | 4.6 Exponential Growth and Decay | pp. 452 – 458 | p. 458 – 1-33 odd |
| 29 | Course Review | | |
| 30 | COMPREHENSIVE FINAL EXAM | | |

MTH 2310 Topical Outline (MWF):

| | | | |
|----|---|---------------|---|
| 1 | Course Introduction | | |
| | 1.1 Linear Equations | pp. 85 – 90 | p. 90 – 1-7 odd, 9-25 odd, 39-47 odd, 61-67 odd |
| 2 | TEST 0 (Review Chapter) | | |
| 3 | 1.3 Complex Numbers | pp. 107 – 113 | p. 113 – 17-41 every other odd, 43-49 odd, 51-79 every other odd, 83-93 odd |
| 4 | 1.4 Quadratic Equations | pp. 115 – 123 | p. 123 – 13-41 odd, 45-61 odd |
| 5 | 1.6 Other Types of Equations | pp. 136 – 143 | p. 144 – 1-77 every other odd |
| 6 | 1.6 Other Types of Equations (continued) | pp. 136 – 143 | p. 144 – 1-77 every other odd |
| 7 | 1.7 Inequalities | pp. 146 – 155 | p. 156 – 1-9 odd, 13-33, 39-51 odd, 69-85 every other odd |
| 8 | 1.7 Inequalities (continued) | pp. 146 – 155 | p. 156 – 1-9 odd, 13-33, 39-51 odd, 69-85 every other odd |
| 9 | 1.8 Absolute Value Equations and Inequalities | pp. 160 – 163 | p. 164 – 1-23 odd, 27-55 odd |
| 10 | TEST I (Chapter One) | | |
| 11 | 2.1 Graphs of Equations | pp. 182 – 192 | p. 192 – 9-27 odd, 45-53 odd, 57-63 odd, 71, 73 |
| 12 | 2.1 Graphs of Equations (continued) | pp. 182 – 192 | p. 192 – 9-27 odd, 45-53 odd, 57-63 odd, 71, 73 |
| | 2.2 Functions | pp. 197 – 209 | p. 209 – 11, 13, 17-37 odd, 41-51 odd, 69-81 odd |
| 13 | 2.2 Functions (continued) | pp. 197 – 209 | p. 209 – 11, 13, 17-37 odd, 41-51 odd, 69-81 odd |
| 14 | 2.3 Linear Functions | pp. 214 – 220 | p. 221 – 1-31 odd, 35-41 odd |
| 15 | 2.3 Linear Functions (continued) | pp. 214 – 220 | p. 221 – 1-31 odd, 35-41 odd |
| | 2.4 Equations of Lines | pp. 227 – 235 | p. 236 – 1-21 odd, 27-43 odd |
| 16 | 2.4 Equations of Lines (continued) | pp. 227 – 235 | p. 236 – 1-21 odd, 27-43 odd |
| 17 | 2.5 Graphs of Basic Functions | pp. 242 – 248 | p. 249 – 7-16 all, 17-37 odd, 45 |
| 18 | 2.5 Graphs of Basic Functions (continued) | pp. 242 – 248 | p. 249 – 7-16 all, 17-37 odd, 45 |
| | 2.6 Graphing Techniques | pp. 253 – 263 | p. 264 – 1, 3, 15-45 odd |
| 19 | 2.6 Graphing Techniques (continued) | pp. 253 – 263 | p. 264 – 1, 3, 15-45 odd |
| | 2.7 Function Operations and Composition | pp. 268 – 275 | p. 276 – 1-13 odd, 33-53 odd, 57-63 odd, 69-77 odd |
| 20 | 2.7 Function Operations and Composition (continued) | pp. 268 – 275 | p. 276 – 1-13 odd, 33-53 odd, 57-63 odd, 69-77 odd |
| 21 | TEST II (Chapter Two) | | |
| 22 | 3.1 Quadratic Functions and Models | pp. 293 – 303 | p. 303 – 1, 3, 9-25 odd, 27-30 all |
| 23 | 3.1 Quadratic Functions and Models (continued) | pp. 293 – 303 | p. 303 – 1, 3, 9-25 odd, 27-30 all |
| | 3.2 Synthetic Division | pp. 313 – 318 | p. 319 – 1-37 odd |
| 24 | 3.2 Synthetic Division (continued) | pp. 313 – 318 | p. 319 – 1-37 odd |
| 25 | 3.3 Zeros of Polynomial Functions | pp. 320 – 329 | p. 329 – 1-47 odd |

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| 26 | 3.3 Zeros of Polynomial Functions (continued) | pp. 320 – 329 | p. 329 – 1-47 odd |
| 27 | 3.4 Graphs of Polynomial Functions | pp. 331 – 342 | p. 342 – 1-47 odd |
| 28 | 3.4 Graphs of Polynomial Functions (continued) | pp. 331 – 342 | p. 342 – 1-47 odd |
| 29 | 3.5 Rational Functions | pp. 350 – 362 | p. 362 – 17-27 odd, 37-45 odd, 51-67 odd |
| 30 | 3.5 Rational Functions (continued) | pp. 350 – 362 | p. 362 – 17-27 odd, 37-45 odd, 51-67 odd |
| 31 | TEST III (Chapter Three) | | |
| 32 | 4.1 Inverse Functions | pp. 389 – 398 | p. 398 – 3-23 odd, 45-61 odd |
| 33 | 4.1 Inverse Functions (continued) | pp. 389 – 398 | p. 398 – 3-23 odd, 45-61 odd |
| 34 | 4.2 Exponential Functions | pp. 402 – 414 | p. 414 – 1-31 odd, 43-61 odd |
| 35 | 4.2 Exponential Functions (continued) | pp. 402 – 414 | p. 414 – 1-31 odd, 43-61 odd |
| | 4.3 Logarithmic Functions | pp. 418 – 427 | p. 427 – 1-29 odd, 57-71 odd |
| 36 | 4.3 Logarithmic Functions (continued) | pp. 418 – 427 | p. 427 – 1-29 odd, 57-71 odd |
| 37 | 4.4 Evaluating Logarithms; Change-of-Base | pp. 431 – 438 | p. 438 – 1-21 odd, 35-41 odd |
| 38 | 4.4 Evaluating Logarithms; Change-of-Base (continued) | pp. 431 – 438 | p. 438 – 1-21 odd, 35-41 odd |
| | 4.5 Exponential and Logarithmic Equations | pp. 443 – 448 | p. 448 – 1-41 odd |
| 39 | 4.5 Exponential and Logarithmic Equations (continued) | pp. 443 – 448 | p. 448 – 1-41 odd |
| 40 | 4.5 Exponential and Logarithmic Equations (continued) | pp. 443 – 448 | p. 448 – 1-41 odd |
| | 4.6 Exponential Growth and Decay | pp. 452 – 458 | p. 458 – 1-33 odd |
| 41 | 4.6 Exponential Growth and Decay (continued) | pp. 452 – 458 | p. 458 – 1-33 odd |
| 42 | Course Review | | |
| 43 | Course Review | | |
| 44 | COMPREHENSIVE FINAL EXAM | | |