



Course Syllabus

Course #: MTH 2310 Course Name: College Algebra

Division: Arts & Sciences

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Class Days: Mon/Wed or Tues/Thurs Class Time:
Location: Classroom: Laboratory:
Credit Hours: 3 Contact Hours: 3 Lab Hours: 0 Lecture Hours: 3

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Instructor: Office Location:
Phone: Email Address:
Office Hours:
Division Office/Location: A202 Division Fax: 419.355.1248
Full-time Contact Person: Nina Schyllander Phone(s): 419.559.2307

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Course Description:

This course covers real and complex numbers, review of algebra, 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:

The final course grade will be determined as follows:

Table with 2 columns: Grade Component and Percentage. 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):

**Plan of Work:**

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

**Course Requirements:**

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 Topical Outline:**

Session	Course Content	Reading Assignment	Activity
1	Course Introduction R.1 Real Numbers and Their Properties R.2 Order and Absolute Value R.3 Polynomials	pp. 1 – 11 pp. 16 – 21 pp. 24 – 32	p. 11 – 1-23 odd, 25-45 every other odd (25, 29, 33, etc.), 55-60 p. 22 – 19-37 odd p. 32 – 29-43 odd, 45-61 every other odd, 63-71 every other odd, 73-79 odd
2	R.4 Factoring Polynomials R.5 Rational Expressions	pp. 37 – 43 pp. 46 – 52	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 p. 52 – 1-5 odd, 11-35 every other odd, 39, 41, 45-57 every other odd, 59-67 every other odd
3	R.6 Rational Exponents R.7 Radical Expressions	pp. 55 – 62 pp. 65 – 72	p. 62 – 15-35 odd, 37-69 every other odd, 73, 77 p. 73 – 21-57 every other odd, 59-79 every other odd, 83-89 odd
4	<b>TEST I (Review Chapter)</b>		
5	1.1 Linear Equations 1.3 Complex Numbers	pp. 85 – 90 pp. 107 – 113	p. 90 – 1-7 odd, 9-25 every other odd, 39-47 odd, 61-67 odd p. 113 – 17-41 every other odd, 43-49 odd, 51-79 every other odd, 83-93 odd
6	1.4 Quadratic Equations 1.6 Other Types of Equations	pp. 115 – 123 pp. 136 – 143	p. 123 – 13-41 odd, 45-61 odd p. 144 – 1-77 every other odd
7	1.6 Other Types of Equations (continued) 1.7 Inequalities	pp. 136 – 143 pp. 146 – 155	p. 144 – 1-77 every other odd p. 156 – 1-9 odd, 13-33 every other odd, 39-51 every other odd, 69-85 every other odd
8	1.7 Inequalities (continued)	pp. 146 – 155	p. 156 – 1-9 odd, 13-33 every other odd, 39-51 every other odd, 69-85 every other odd

Session	Course Content	Reading Assignment	Activity
9	1.8 Absolute Value Equations and Inequalities	pp. 160 – 163	p. 164 – 1-23 odd, 27-39 odd, 41-49 every other odd, 51-55 odd
10	<b>TEST II (Chapter One)</b>		
11	2.1 Graphs of Equations	pp. 182 – 192	p. 192 – 9-19 odd, 23, 25, 45-51 odd, 57-63 odd, 71, 73
	2.2 Functions	pp. 197 – 209	p. 209 – 17-37 odd, 41-51 odd, 69-81 odd
12	2.2 Functions (continued)	pp. 197 – 209	p. 209 – 17-37 odd, 41-51 odd, 69-81 odd
	2.3 Linear Functions	pp. 214 – 220	p. 221 – 1-17 every other odd, 19, 23, 29, 31, 35-41 odd
13	2.3 Linear Functions (continued)	pp. 214 – 220	p. 221 – 1-17 every other odd, 19, 23, 29, 31, 35-41 odd
	2.4 Equations of Lines	pp. 227 – 235	p. 236 – 5-21 odd, 27-43 odd
14	2.4 Equations of Lines (continued)	pp. 227 – 235	p. 236 – 5-21 odd, 27-43 odd
	2.5 Graphs of Basic Functions	pp. 242 – 248	p. 249 – 7-16 all, 17-35 odd, 45
15	2.5 Graphs of Basic Functions (continued)	pp. 242 – 248	p. 249 – 7-16 all, 17-35 odd, 45
	2.6 Graphing Techniques	pp. 253 – 263	p. 264 – 1, 3, 19-31 odd, 33-45 every other odd
16	2.6 Graphing Techniques (continued)	pp. 253 – 263	p. 264 – 1, 3, 19-31 odd, 33-45 every other odd
	2.7 Function Operations and Composition	pp. 268 – 275	p. 276 – 1-13 odd, 33-47 odd, 57-63 odd, 69-71 odd
17	<b>TEST III (Chapter Two)</b>		
18	3.1 Quadratic Functions and Models	pp. 293 - 303	p. 303 – 1, 3, 9-25 odd, 27-30 all
19	3.2 Synthetic Division	pp. 313 – 318	p. 319 – 1-37 every other odd
	3.3 Zeros of Polynomial Functions	pp. 320 – 329	p. 329 – 1, 3, 5-25 every other odd, 29-47 odd
20	3.3 Zeros of Polynomial Functions (continued)	pp. 320 – 329	p. 329 – 1, 3, 5-25 every other odd, 29-47 odd
	3.4 Graphs of Polynomial Functions	pp. 331 – 342	p. 342 – 1-5 odd, 9-27 odd, 31-37 odd, 43-47 odd
21	3.4 Graphs of Polynomial Functions (continued)	pp. 331 – 342	p. 342 – 1-5 odd, 9-27 odd, 31-37 odd, 43-47 odd
22	3.5 Rational Functions	pp. 350 – 362	p. 362 – 17-27 odd, 37-45 odd, 51-67 odd
23	<b>TEST IV (Chapter Three)</b>		
24	4.1 Inverse Functions	pp. 389 – 398	p. 398 – 3-23 odd, 49-61 odd
	4.2 Exponential Functions	pp. 402 – 414	p. 414 – 1-9 every other odd, 13-27 odd, 43-61 odd

Session	Course Content	Reading Assignment	Activity
25	4.2 Exponential Functions (continued)	pp. 402 – 414	p. 414 – 1-9 every other odd, 13-27 odd, 43-61 odd
	4.3 Logarithmic Functions	pp. 418 – 427	p. 427 – 3-29 odd, 57-71 odd
26	4.3 Logarithmic Functions (continued)	pp. 418 – 427	p. 427 – 3-29 odd, 57-71 odd
	4.4 Evaluating Logarithms; Change-of-Base	pp. 431 – 438	p. 438 – 1-21 odd, 35-41 odd
27	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
28	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
29	4.6 Exponential Growth and Decay (continued)	pp. 452 – 458	p. 458 – 1-33 odd
	Course Review		
30	<b>COMPREHENSIVE FINAL EXAM</b>		