

MT133Precalculus
DONNELLY COLLEGE

[Enter Semester Year]

[Enter Days, Times]

[Enter Room]

5 Credit Hours

INSTRUCTOR INFORMATION: [to be left blank unless person proposing the course is the one teaching the course]

Name:

Office:

Office hours:

Telephone:

E-mail address:

Web site address:

COURSE DESCRIPTION: This course is a preparation for the study of calculus. This course focuses on the study of functions and their graphs, and solving equations and inequalities. Included in the course are linear, power, polynomial, rational, radical, exponential, logarithmic, and absolute value functions. Also covered are functions and their inverses, theory of higher degree polynomial equations, systems of equations, and matrices. Additional topics included are trigonometric functions and their inverses, formulas and identities, radian and degree measure, arc length, angular velocity, graphing of trigonometric functions and solution of triangles.

PREREQUISITES: *MT 103 Intermediate Algebra Min Grade: C Min Credits: 3.00 or appropriate score on the placement test.*

REQUIRED TEXTBOOK & SUPPLIES: Precalculus by Beecher/Penna/Bittinger (6th Ed) Pearson

PHILOSOPHY OF GENERAL EDUCATION:

Donnelly College has consistently maintained a strong commitment to the liberal arts and sciences as a foundation for a complete education. The faculty strongly believes that the liberal arts and sciences provide the context through which students can engage with the larger questions about students' place in the world and their pursuit of truth. Therefore, the College's general education requirements are designed to ensure that liberal arts and sciences graduates develop a breadth of content knowledge and the skills and abilities which will enable them to become educated participants in a diverse global community.

DONNELLY COLLEGE LEARNING OUTCOMES:

1. **Communication Skills:** Students will communicate effectively in writing and speaking.
2. **Technology and Information Literacy Skills:** Students will demonstrate proficiency in information literacy skills.
3. **Symbolic Problem Solving:** Students will demonstrate competency in qualitative and quantitative problem solving.
4. **Analytical Thinking:** Students will employ reflective thinking to evaluate diverse ideas in the search for truth.
5. **Personal and Interpersonal Skills:** Students will develop an understanding across cultural differences locally, nationally, and internationally.

6. **Academic Inquiry:** Students will engage independently and effectively in lifelong learning.
7. **Values:** Students will demonstrate moral and ethical behavior in keeping with our Catholic identity.

PROGRAM LEARNING OUTCOMES:

Associate of Arts (AA), Liberal Arts or Associate of Sciences (AS):

In addition to the general education learning outcomes – communication skills, technology and information literacy skills, symbolic problem solving, analytical thinking, personal and interpersonal skills, academic inquiry, and values – upon successful completion of the Associate of Arts in Liberal Arts degree, the graduate should be able to demonstrate:

1. Proficiency and creativity in written and verbal communication.
2. Effective use of current technology in support of academic work.
3. Proficient use of qualitative and quantitative methods in problem solving.
4. Critical and Analytic thinking across a range of disciplines.
5. A commitment to ethics and integrity in academic and professional relationships, within the community and the environment.
6. A. The ability to conduct research using sources, strategies, and approaches across disciplines.
B. Use of the scientific method.

STUDENT LEARNING OUTCOMES:

1. Evaluate and solve linear, quadratic, proportional, absolute value, exponential, logarithmic and trigonometric equations and related application problems analytically and graphically.
2. Evaluate and solve linear, polynomial, rational, and absolute value inequalities.
3. Use concepts of symmetry, intercepts, left-and right-hand behavior, asymptotes, and transformations to sketch graphs of linear, quadratic, absolute value, piecewise-defined, square root, cubic, polynomial, rational, exponential, logarithmic trigonometric, and functions, and find inverse of a function.
4. Solve systems of linear equations using graphing, substitution, elimination, and matrices. Also solving systems of linear inequalities by graphing.
5. Compute the six trigonometric functions for angles measured in both degrees and radians.
6. Simplify trigonometric expressions using identities.
7. Solve the right and oblique triangle.

Provide list of Learning Outcome students will meet. The shading space is the criteria being assessed for the semester:

Donnelly College Learning Outcomes	Program Learning Outcomes¹	Student Learning Outcomes²	Application and Assessment³
Students will communicate effectively in writing and speaking.	Students will be able to demonstrate proficiency and creativity in written and verbal communication	1. Student will have the ability to solve linear, quadratic, proportional, absolute value, exponential, logarithmic and trigonometric equations and related application problems analytically an graphically.	Class average of 70% in the related problems on the Final Exam.
Students will demonstrate proficiency in information	Students will be able to demonstrate effective use of	4. Students will have the ability to Solve systems of	

literacy skills.	current technology in support of academic work.	linear equations using graphing, substitution, elimination, and matrices. Also solving systems of linear inequalities by graphing. 6.Simplify trigonometric expressions using identities	
Students will demonstrate competency in qualitative and quantitative problem solving.	Students will be able to demonstrate proficient use of qualitative and quantitative methods in problem solving	3.Student will have the ability to use concepts of symmetry, intercepts, left- and right-hand behavior, asymptotes, and transformations to sketch graphs of linear, quadratic, absolute value, piecewise-defined, square root, cubic, polynomial, rational, exponential, logarithmic trigonometric, and functions, and find inverse of a function	
Students will employ reflective thinking to evaluate diverse ideas in the search for truth.	Students will be able to demonstrate critical and Analytic thinking across a range of disciplines		
Students will develop an understanding across cultural differences locally, nationally, and internationally.	Students will be able to demonstrate commitment to ethics and integrity in academic and professional relationships, within the community and the environment		
Students will engage independently and effectively in lifelong learning.	Students will be able to demonstrate A. The ability to conduct research using sources, strategies, and approaches across disciplines. B. Use of the scientific method.	Student will have the ability to: 1. solve systems of linear equations using graphing, substitution, elimination, and matrices. Also solving systems of linear inequalities by graphing. 5.Compute the six trigonometric functions for angles measured in both degrees and radians Simplify trigonometric expressions using identities. 7.Solve the right and oblique triangle	
Students will demonstrate moral and ethical behavior in keeping with our Catholic identity.			

COURSE REQUIREMENTS:

Homework assignments	15%
Quizzes	5%
Chapter tests:	60%
Cumulative Final Exam	20%

GRADING POLICY:

Tests: There will be Four in class Tests during the semester and a final comprehensive exam. Each test will worth 100 points. The final exam will worth 150 points. The final exam could replace the most damaged score.

Homework: There will regularly assigned online homework during the semester. The due dates will be indicated according to the semester.

Quizzes: There will pop up quizzes in addition to the assigned quizzes on the schedule.

Make-up Exams: You may make up one test. In order to be allowed to make up a test you must call or e-mail me BEFORE the start of the test. You must have a valid reason and give it at this time ("I'm not ready" is NOT a valid reason.) If you do not provide prior notice, you must provide documentation (doctor's note, etc.) as to why you could not take the test. Unless there are extenuating circumstances, all tests must be made up within 48 hours of the scheduled test time. It is up to you to schedule the test.

Since the points distribution are varies, the following rubric will be used to evaluate individual problems on the chapter tests and the final exam.

No credit points awarded	Quarter credit awarded	Half credit awarded	Three quarters credit awarded	Full credit points awarded
Answer is not correct and no work is shown or work shown is not labeled or not readable OR answer is correct but the directions were not followed.	Work is shown (as appropriate), work is neat and readable, answer is not correct but work shown indicates the student had some idea of what was to be done.	Work is shown (as appropriate), work is neat and readable, answer is not correct but work shown indicates minimal computational error(s)	Work is shown (as appropriate), work is neat and readable, answer is correct but has not been simplified as much as possible or answer differs by the sign.	Work is shown (as appropriate), work is neat and readable, answer is correct and has been simplified as much as possible.

The Chapter Exams will be based on the following:

Test 1: Chapter 1 Graph, Linear Functions and Models
Chapter 2 More on Functions.
Chapter 3 Quadratic Functions, Equations and Inequalities.

Test 2: Chapter 4 Polynomial and Rational Functions.

Chapter 5 Exponential and Logarithmic Functions.
Chapter 6 the Trigonometric Functions

Test 3: Chapter 7 Trigonometric Identities, Inverse Functions, and Equations.
Chapter 8 Laws of Sines and Cosines (8.1, 8.2)

Test 4: Chapter 9 Systems of Equations and Matrices (9.1-9.5)
Chapter 10 Analytic Geometry Topics (10.1, 10.2).

GRADING SCALE: Grades will be assigned according to the following scale.

A: 90%-100%
B: 80%-89%
C: 70%-79%
D: 60%-69%
F: Below 60%

CALCULATORS POLICY:

Scientific Calculators usually will be allowed on tests or quizzes. Graphing Calculators will not be used during tests or quizzes unless the instructor specifically allows.

Calculators on your cell phones, iPads, and any Electronic communicating devices may never be used on tests and quizzes.

No student may SHARE a calculator with anyone in class during a test or quiz. If a student forgets his/her calculator, the student may go to the instructor's office BEFORE class and borrow one, or the student must go without.

CELL PHONE POLICY: Cell phones should be turned off (or placed on vibrate) and should be kept in your book bag or on the floor (not on the desk or in your lap) during class.

ACADEMIC INTEGRITY: "...Academic integrity is to be maintained at all times to insure genuine educational growth. Cheating and plagiarism in all forms, therefore, will be subject to disciplinary action. Serious infractions will be reviewed by an ad hoc committee, appointed by the appropriate dean. Appropriate sanctions will be imposed."

PLAGIARISM: Plagiarism – the appropriation or imitation of the language or ideas of another person and presenting them as one's original work – sometimes occurs through carelessness or ignorance. Students who are uncertain about proper documentation of sources should consult their instructors.

ACCOMMODATIONS: In compliance with the Americans with Disabilities Act, Donnelly College will make every attempt to provide equal access for persons with disabilities. Students in need of accommodations must request them in writing from the Vice President of Academic Affairs.

CIVILITY & DECORUM: As noted in its Code of Conduct, Donnelly College is committed to maintaining an overall atmosphere of civility and respect. Civility and decorum both inside and outside the classroom are fundamental foundations of the values at Donnelly College. Classroom discussions and interactions outside the classroom will at all times be focused on the learning process and should always be respectful of both students and faculty. In open discussions of ideas and issues, disagreements should focus on ideas and facts. Name calling and assaults (either in person or on-line) will not be tolerated. Should any problems occur, the instructor should be notified immediately. Those who do not comply with civility and decorum requirements may be subject to a grade reduction and/or other sanctions up to and including dismissal from Donnelly College.

ATTENDANCE POLICY:

WITHDRAWAL FROM COURSES OR FROM SCHOOL: It is the responsibility of the student to withdraw from class. If a student decides to withdraw from a class, ideally, they should see an advisor and the financial aid staff before taking the withdrawal form to the Registrar's office for processing. However, any verifiable contact (e-mail, fax, phone, mail, etc.) with authorized college personnel expressing the student's intent to withdraw from a class will be honored.

If students withdraw before they have earned their financial aid, they will owe Donnelly College a debt for the unearned portion of the financial aid as well as for any unpaid balances (subject to the College's refund policy). Not attending class is not a withdrawal from class.

Donnelly College reserves the right to withdraw a student from class (es) if the student does not meet their financial obligations, including two missing or incomplete payments, or loss of financial aid. Faculty may initiate an administrative withdrawal on the basis of non-attendance. In extreme circumstances (i.e. a disciplinary problem), the Vice President of Academic Affairs may initiate an administrative withdrawal. The student remains responsible for the tuition owed in this instance.

The deadlines for withdrawing from classes are as follows:

14 to 16 weeks	3 weeks before the end of the class
6 to 8 weeks	7 weekdays before the end of class
4 to 5 weeks	4 weekdays before the end of class
Less than 4 weeks	Withdrawals are not allowed

Withdrawal deadline dates will be published in the academic calendar.

TENTATIVE COURSE CALENDAR:

The schedule is subject to change based on the progress or needs of the class

<i>Weeks</i>	<i>Classroom/Laboratory Protocol</i>	<i>Assignments(TBD)</i>
1	1.1	
	1.2	
	1.3	
2	1.4	
	1.5,	
	1.6	
3	2.2	
	2.3	
	2.4	
4	2.5	
	3.1	
	3.2	
5	3.3	
	3.4	
	3.5	
6	4.1	

	4.2	
	4.3	
	4.6	
7	4.4	
	4.5	
	5.1	
8	5.2	
	5.3	
	5.4	
9	5.5	
	5.6	
	6.1	
10	6.2	
	6.3	
	6.4	
11	6.5	
	6.6	
	7.1	
12	7.2	
	7.3	
	7.4	
13	7.5	
	8.1	
	8.2	
	9.2	
14	9.3	
	9.4	
	9.5	
15	10.1	
	10.2	
	Review for the Cumulative Final	
16	Cumulative Final	

Suggested additional questions from the textbook:

Set 1

optional review Chapter R Test p. 56 # 1, 5, 7, 11 - 18, 20, 22 – 27, 28 – 33

1.1 A p. 72 # 1, 3, 9, 17, 23, 33, 43, 45, 53, 55

1.1 B p. 72 # 61, 63, 67, 73 – 93 odds

1.2 p. 86 # 1 – 29 odds, 35 - 69 odds, 73, 81

1.3 p. 103 # 5 – 13 odds, 25, 33, 35, 43, 53, 55, 63, 67

1.4 p. 118 # 1, 13, 19, 27, 31, 39, 47, 49

1.5 p. 133 # 3, 9, 11, 31, 73, 83, 87

1.6 p. 142 # 7, 13, 15, 23, 25

2.1 p. 166 # 1, 3, 15, 33 – 43 odds, 59, 61

2.2 p. 177 # 3, 5, 11, 15, 17, 19, 21, 27, 31, 33, 35, 39, 41, 47, 51, 57, 61

2.3 p. 185 # 1, 7, 9, 15, 21, 27, 31, 33, 35, 37

2.4 p. 206 # 1 – 6, 15 – 27 odds, 33 – 38, 39 – 69 odds, 81 – 91 odds, 97, 99, 103,
107 – 113 odds

2.5 p. 217 #1, 3, 9, 13 – 33 odds, 37

TEST Unit 1 Sections 1.1 – 1.6, 2.1 – 2.5

Review Exercises p. 150 Do as many of the problems from # 1 – 12, 14 – 34, 41 – 59,
61 - 69, 71- 85 as you need to prepare for the test.

Chapter Test p. 154 Do as many of the problems from # 1 – 14, 16 – 27, 29 – 33,
36 – 40 as you need to prepare for the test

Set 2

3.1 p. 239 # 1 - 77 every other odd (1, 5, 9, ..., 77) , 79 - 87 odds

3.2 p. 253 # 1 – 19 odds, 23, 27, 31, 33, 39, 41, 45, 47, 57, 59, 61. 65. 71, 79 – 93 odds, 101 - 113
odds

3.3 p. 267 # 1, 3, 9, 11, 13, 15, 17 – 30 (all), 31, 35, 39, 41 - 49 odds, 53

3.4 p. 278 # 3, 5, 7, 11, 17, 21, 25, 27, 31, 37, 41, 53, 55, 61, 65, 69, 73, 79, 81, 83, 85

3.5 p. 283 # 5, 7, 17, 21, 35, 41, 47, 55, 59, 61

Review Exercises p. 289 Do as many of the problems from # 1 – 56 as you need to prepare for the test.

Chapter Test p. 293 Do as many of the problems from # 1 – 18, 21 – 31 as you need to prepare for the test

Set 3

4.1 p. 306 # 1 – 18 odds, 19 – 22 (all), 23,, 27 – 41 odds, 43 – 46 (all), 51

4.2 p. 318 # 1, 3, 5, 13 - 31 odds, 39, 41

4.3 p. 326 # 1, 5, 7, 9, 11, 15, 17, 23, 25, 31, 33, 35, 39, 41, 51, 53

4.4 p. 337 # 1, 3, 11, 17 – 31 odds, 43, 45, 49 - 55 odds, 59, 65, 83, 91, 99

4.6 p.368 # 21, 25, 29, 33, 35, 41, 43, 47, 49

4.5 p.357 # 1, 3, 5, 7 – 12, 13, 17, 21, 23, 25, 33, 35, 39, 41, 47, 51, 55. 65, 77

4.6 p. 368 # 7 – 15 odds, 23, 53 – 63 odds, 67, 69, 73, 77, 79

Review p. 382 Do as many of the problems you need to be prepared for the test from # 6 – 31, 35 – 38, 39 – 51 (factor only, do not need to multiply out), 52 – 62, 67 – 77, 79 – 81

Practice Test p. 385 Do as many of the problems you need to be prepared for the test from # 1, 2, 3, 5, 6, 7, 10, 11, 12, 13 (only factor), 14, 15, 16 (only factor) 17 – 22, 24 - 30

Set 4

5.1 p. 396 # 1, 5, 7, 11, 13, 15, 19, 25 – 32, 33, 37, 41, 47, 49, 51, 57, 67, 69, 71, 81, 83, 85, 87, 89, 91

5.2 p. 408 # 1, 3, 5 - 10, 11, 17, 27, 29, 33, 37, 51, 55, 59, 61, 63, 65, 72, 73

5.3 p.426 # 9 - 83 odds, 89, 96, 97 (a - d), 101 (a, b, d, f)

5.4 p. 437 # 5, 7, 13, 15, 17, 21, 23, 27, 29, 33, 35, 39, 41, 43, 45, 49, 53 - 75 odds, 94 - 100

5.5 p. 448 # 1 - 23 odds, 27, 31 - 59 odds, 75, 77

5.6 p. 459 # 1, 3(a, c, e,i), 5, 9, 11(a, d, g), 13, 17, 19, 21

Set 5

6.1 p. 487 # 1 – 29 odds, 55, 59 – 67 odds, 71 – 97 odds, 101

6.2 p.498 # 1 – 25 odds, 29, 35 – 39 odds

6.3 p. 516 # 1 – 19 odds, 25 – 29 odds, 33 - 89 odds, 97 – 105 odds

6.4 p. 532 # 1 – 59 odds, 65, 69, 71, 75, 79

6.5 p. 549 # 1, 7 – 33 odds, 43, 47, 53, 63, 64

6.6 p. 566 # 1 – 21 odds, 27, 33 – 44, 61 – 70, 73 – 81 odds

Set 6

7.1 p.594 # 1 – 13 odds, 17 – 33 odds, 37 – 43 odds, 51 - 59 odds, 65, 67, 71, 73 – 76

7.2 p. 603 # 9 – 13 odds (only do $\sin 2\theta$ and $\cos 2\theta$), 15, 23, 29, 31

7.3 p. 611 # 1 – 9 odds, 13, 17 – 23 odds, 29

7.4 p. 623 # 1 – 19 odds, 21, 25, 27, 31 – 59 odds, 63, 65

7.5 p. 636 # 1 – 7, 11, 13 – 17 odds, 21, 23, 27 – 35 odds, 41

Review p. 645 Do as many of the problems you need to be prepared for the test from # 1 - 11,

13 – 18, 23, 25, 26, 28, 34 (only do $\cos 2\theta$, $\sin 2\theta$) – 35, 38, 39, 41, 42, 44, 47 – 57, 61 – 66, 69, 70

Practice Test p. 648 Do as many of the problems you need to be prepared for the test from # 1, 2,

3, 5, 7, 9, 12 – 15, 19 – 23, 25, 26