

Marshall University
Syllabus
MTH 132 Section 106 (CRN 3158)

Course Title/Number	Precalculus MTH 132 Sec 106
Semester/Year	Fall 2017
Days/Time	Online
Location	MUOnline and Hawkes Learning Systems
Instructor	Dr. John Drost
Office	Smith Hall 742C
Phone	(304) 696-3043
E-Mail	drost@marshall.edu
Office/Hours	M, W, F 2 – 3 and by appointment
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802 Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

Course Description: From Catalog

132	Precalculus with Science Applications. 5 hrs. Functions used in calculus including polynomial, rational, exponential, logarithmic, and trigonometric. Systems of equations and inequalities, conic sections, polar parametric equations, sequences and series. Binomial Theorem. (PR: Math ACT 24 or above, or C or better in MTH 127 or C or better in MTH 130)
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MTH 132 Student Learning Outcomes	How students will practice each outcome in MTH 132	How student achievement of each outcome will be assessed in MTH 132
Students will employ quantitative methods to solve problems drawn from basic algebra and geometry.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapters 1 and 2	Students will take online certifications and examinations.
Students will demonstrate the ability to work with functions symbolically, visually, and numerically.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 3	Students will take online certifications and examinations.
Students will analyze, evaluate, and graphically represent quadratic functions, polynomial functions,	Students will read the section in the text, view online videos, practice online exercises, and complete certifications.	Students will take online certifications and examinations.

rational functions, radical functions, exponential functions, and logarithmic functions.	Chapter 5	
Students will demonstrate the ability to work with equations and inequalities symbolically, visually, and numerically.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapters 1, 2, 4, and 5	Students will take online certifications and examinations.
Students will analyze, compare, and evaluate the six basic trigonometric functions and their inverses.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 7	Students will take online certifications and examinations.
Students will apply the Law of Sines and/or the Law of Cosines to determine missing data in triangles.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 8	Students will take online certifications and examinations.
Students will employ vectors to solve real-world problems.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 8	Students will take online certifications and examinations.
Students will demonstrate an ability to represent certain equations in polar form or parametrically.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 8	Students will take online certifications and examinations.
Students will demonstrate an ability to analyze systems of linear equations using matrices and their operations to solve real-world problems.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 10	Students will take online certifications and examinations.
Students will analyze and compare conic sections and their rotations.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 9	Students will take online certifications and examinations.
Students will evaluate arithmetic and geometric series for convergence and employ counting techniques to analyze probabilities.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 11	Students will take online certifications and examinations.
Students will use the Principle of Mathematical Induction to prove mathematical statements.	Students will read the section in the text, view online videos, practice online exercises, and complete certifications. Chapter 11	Students will take online certifications and examinations.

Required Texts, Additional Reading, and Other Materials

1. Precalculus, 2nd Edition, by Paul Sisson
2. Hawkes Learning Systems Access Card
3. Graphing calculator

Course Requirements / Due Dates

1. Unit 1 Certifications and Exam due by 11:59 p.m. on September 8th.
2. Unit 2 Certifications and Exams due by 11:59 p.m. on September 29th.
3. Unit 3 Certifications and Exams due by 11:59 p.m. on October 20th.
4. Unit 4 Certifications and Exams due by 11:59 p.m. on November 10th.
5. Unit 5 Certifications and Exams due by 11:59 p.m. on December 8th.
6. Final Examination due by 11:59 p.m. on December 13th.

Grading Policy

Each Unit Examination (five exams) will be worth 15% of the semester grade. Certifications will be worth 10% of the semester grade. The comprehensive final exam will be worth 15% of the semester grade.

90.00 – 100 = A
80.00 – 89.99 = B
70.00 – 79.99 = C
60.00 – 69.99 = D
Below 60.00 = F

Attendance Policy

Students are required to meet all deadlines.

Course Schedule

Unit	Sections	Topics	Exercise Pages	Certification (✓)
1	1.2	Exponents and radicals	34-38	
	1.6	Linear Inequalities	79-80	
	2.5	Linear Inequalities	186-188	
	3.1	Relations and functions	220-224	
	3.2	Linear and quadratic functions	235-239	
	3.3	Other common functions	248-250	
	3.4	Variation	256-259	

	3.5	Transformation of functions	271-273	
	3.6	Combining functions	282-286	
	3.7	Inverses of functions	294-297	
	Exam 1	Due by September 8		
2	4.1	Polynomials equations and graphs	322-326	
	4.2	Polynomial division and division algorithm	337-339	
	4.3	Real zeros of polynomials	348-350	
	4.4	Fundamental Theorem of Algebra	359-362	
	4.5	Rational functions and rational inequalities	376-379	
	5.1	Exponential functions and their graphs	402-403	
	5.2	Applications of exponential functions	412-416	
	5.3	Logarithmic functions and their graphs	425-427	
	5.4	Properties and applications of logarithms	437-440	
	5.5	Exponential and logarithmic equations	447-449	
	Exam 2	Due by September 29		
3	6.1	Radian and degree measure of angles	471-476	
	6.2	Trigonometric functions of acute angles	487-491	
	6.3	Trigonometric functions of any angle	503-505	
	6.4	Graphs of trigonometric functions	521-523	
	6.5	Inverse trigonometric functions	533-536	
	7.1	Trigonometric identities and equations	561-562	
	7.2	Sum and difference identities	572-575	
	7.3	Product-Sum identities	584-586	
	7.4	Trigonometric equations	594-596	
	Exam 3	Due by October 20		
4	8.1	The Law of Sines and the Law of Cosines	620-625	
	8.2	Polar coordinates and polar equations	637-639	
	8.3	Parametric equations	649-651	
	8.4	Trigonometric form of complex numbers	662-664	
	8.5	Vectors in the Cartesian plane	674-676	

	8.6	The dot product and its uses	685-687	
	2.6	Introduction to circles	193-195	
	9.1	The ellipse	715-719	
	9.2	The parabola	726-729	
	9.3	The hyperbola	739-742	
	Exam 4	Due by November 10		
5	10.1	Solving systems of equations	791-794	
	10.2	Matrix notation and Gaussian elimination	805-809	
	10.4	The algebra of matrices	831-832	
	10.5	Inverses of matrices	841-843	
	11.1	Sequences and series	903-905	
	11.2	Arithmetic sequences and series	912-914	
	11.3	Geometric sequences and series	924-927	
	11.4	Mathematical induction	932-938	
	Exam 5	Due by December 8		
	Final Exam	Due December 13		

For each section I suggest that you:

- **Begin by reading the text for each new section.** The content in Hawkes Learning Systems is not meant to replace the text, but to supplement it.
- **Go to Hawkes Learning Systems to Learn → Practice → Certify.** Each lesson contains definitions and rules, worked problems, and video clips of selected problems.
- **To certify, please practice the new skills, then attempt to certify.** These you may do with your books, notes, and other resources. I am happy to discuss how to solve the problems if you need help.
- **Note:** the score that goes into the grade book for certifying is 100%. The score that goes into the grade book for exams is the exact grade that you have earned.
- **If you are having trouble, please contact me through Marshall's e-mail (drost@marshall.edu).** I would be happy to explain to you how to do any of the problems. If you understand the concept being presented, you may be able to skip some of the problems. Only you can be the judge of the work you will have to put in to master the material, but remember that “practice makes perfect.”

Upon finishing each unit you will need to take a unit examination and a comprehensive final examination will conclude the course.