

Syllabus MAC 1140 Precalculus Algebra - 3cr. -Petrela with "Blackboard" and MyMathLab Course "petrela20463"

Instructor: D.M. Petrela, Ph.D.

Office Hours/Location: MWF 9-9:50 and 12-12:50 (& by appt.) SE 212A phone 297-3341 (sec't: Beth 297-3340)

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Lectures: MAC 1140: 8 am in AC117, 10 am in ED113, 1 pm in FL427 ; MAC 1114: 11 am in BU308

Prerequisite: MAC1105 College Algebra or equivalent

Objectives: The goal is to prepare the student for more advanced coursework in mathematics by developing an improved knowledge base and suitable study/work habits. Specifically, this course will require the student to complete assignments on time, follow instructions precisely and demonstrate an ability to: manipulate and simplify algebraic expressions; solve simple equations and inequalities (including those involving absolute values); manipulate and simplify expressions involving complex numbers; solve quadratic equations and inequalities; provide analytic and graphical descriptions of linear, quadratic, and higher degree polynomial functions, of rational functions, of simple exponential and logarithmic functions, and of piecewise defined functions; model and solve simple applications of the preceding (e.g. max/min problems, exponential growth and decay problems, etc.); solve systems of linear and simple non-linear equations in two variables - graphically, by elimination, or by substitution; solve systems of linear equations using matrices and/or determinants; and do a partial fraction decomposition of a rational function with known factors.

Textbook and Supplies: Algebra and Trigonometry - by M. Sullivan, Prentice Hall 8th Ed. and access to the MyMathLab (MML) course which can be purchased bundled with the text or with a credit card at www.mymathlab.com. Also needed are scantrons (NCS 4521) and a simple NON-programmable scientific calculator (with e^x or \ln key). The calculator is needed for some problems, but may NOT be used during any quiz, test, or examination unless its use is specifically authorized by the instructor.

Websites: Blackboard (BB) <http://bb.fau.edu> (sign in as to MyFau). Students are expected to check this website for updates - particularly regarding assignments, quizzes, and tests - the day preceding each lecture. A lot of material - instructions on how to use the MyMathLab website, test solutions, grades, etc. will be posted on BB. So will this syllabus and the day by day course outline. MML is used both for homework and for computer graded quizzes. It may be accessed in the math dept. computer lab (SE 271) or on your own PC once you download & install the requisite software (plug ins).

Lectures meet MWF and are the main presentation of the material in the course. They include some in-class quizzes usually focusing on the prior homework BUT also repeating questions handled poorly on prior quizzes or tests. The **OUTLINE/CALENDAR** lists the lecture topics (by their textbook sections) and a minimal set of homework problems the student is expected to do is assigned on MML. Each MML problem set is followed by a MML administered quiz. Each quiz must be completed by a SPECIFIED DUE DATE.

Evaluation: Unlike the MML quizzes, the in-class quizzes and tests are designed so the student has to do them under 'time pressure'. No extra time will be given those who come late or with an unprepared scantron for a quiz or test. In addition to the graded (MyMathLab) and in-class quizzes, there will be four 50 minute unit tests, and a 150 minute final. On Reading Day each student will be given the opportunity to make-up ONE unit test grade.

Each student's grade is based on his/her final exam grade (worth 25%), average of the 4 unit test grades (worth 40%), average of the in-class quiz grades - with worst three dropped-(worth 10%), and the average - with worst three dropped- of the MyMathLab graded quizzes (worth 25%). That is, expressing all grades in percent:

$$\text{GRADE} = 0.1 * (\text{in-class quiz ave}) + 0.25 * (\text{MML quiz ave}) + 0.4 * (\text{unit test ave}) + 0.25 * (\text{final exam grade})$$

This is then translated into a letter grade as per the following:

A for $90 \leq \text{grade} \leq 100$

B⁺ for $85 \leq \text{grade} \leq 89$

B for $80 \leq \text{grade} \leq 84$

C⁺ for $75 \leq \text{grade} \leq 79$

C for $70 \leq \text{grade} \leq 74$

D for $60 \leq \text{grade} \leq 69$

F for $\text{grade} \leq 59$

In general, there is no curving of grades and no way to earn extra credit.

Academic Honesty: Florida Atlantic University expects students to be honest .
CHEATERS, and THOSE WHO HELP THEM, WILL NOT BE TOLERATED.

		MAC1140 Sp08 Outline - Petrela; SUBJECT TO CHANGE. CHECK BLACKBOARD FOR UPDATES	
		updated December 30, 2007	
		MyMathLab (MML) contains the homework problems and computer quizzes (with instructions) for each section. Detailed instructions on how to register for MML are given on Blackboard. In addition, there will be short in-class quizzes and 50 min. tests (listed below) as described in the syllabus.	
DATE			
JANUARY		Section (Sullivan 8th Ed) / Topics	
7	M	R.1, R.2, R.8	Real numbers; Algebra Review; int. exponents; sq roots; nth. roots; rational exponents;
8			
9	W	R.4, R.5	Polynomials; Add/Sub; Mult. Polys; Special Products;
10			Factoring polys; common;grouping;diff. of sq.;perfect sq.; simple quadratics (with integer coefficients).
11	F	R.6, R.7	Poly division; remainder and factor theorems; Rational Expressions; mult./div; add/sub; LCM; mixed quot.
12/13			
14	M	1.1, 1.2	Solving eqns; types; equivalent eqns;linear (1st deg) eqns; Solving quadratics;
15			by factoring;by sq.root; by comp.square; and by quadratic formula
16	W	1.3	Complex nos; add/sub; conjugate; mult/div; powers of "i"; factoring quadratics;quad. formula in 2 steps (find D th.
17			LAST DAY TO DROP (NO W) IS FRI. 1/18
18	F	1.4, 1.5	Radical eqns; eqns of quad. form; factorable eqns; Intervals; inequalities;add.&mult. properties;
19/20			solving combined inequalities
21	M		M.L.K. HOLIDAY
22			
23	W	1.6	Equations/Inequalities involving absolute values; solving using: for $k > 0$,
24			$ kx-ka = k x-a = a-x $ =distance between x and a
25	F	1.7	Applications: interest; mixture; motion; and other constant rate problems.
26/27			
28	M	TEST #1	Test #1 on material through section 1.7
29			
30	W	2.1, 2.2	The x-y plane; distance and midpoint formulas; standard equation of a circle;
31			Graphing equations; finding intercepts; testing for symmetry
FEBRUARY			
1	F	2.3, 2.4, 2.5	Graphing any straight line; equation of any straight line; slope-intercept & other forms;
2/3			parallel & perpendicular lines; variation
4	M	3.1, 3.2, 3.3	Functions; tests; domain; range; graph; combination functions; properties: even/odd, increasing/dec.;
5			average rate of change
6	W	3.4	basic library of functions; piecewise defined functions; $y=mx+b$, $y=x^2$, $y=x^3$,
7			and sq.root, cube root, $1/x$, and $ x $ functions
8	F	3.5	Graphing functions using horizontal and/or vertical transformations (shift, flip, scale)
9/10			
11	M	4.1, 4.3	Linear functions - forms/properties; forms/properties of quadratic fcns; intercepts, symmetry, graphing;
12			max./min problems
13	W	5.1	Polynomial functions; forms; large and small $ x $ behaviour; graphing; general properties
14			;symmetry of quadratics and cubics;
15	F	REVIEW	Review through 4.3
16/17			
18	M	TEST #2	TEST #2 on material through section 5.1
19			
20	W	5.2, 5.3	Rational functions; general properties; proper and improper rational function;
21			asymptotic behaviour and graphs.
22	F	5.2, 5.3	Rational functions - asymptotic behaviour and graphs cont.
23/24			
25	M	5.4	Polynomial and rational inequalities; factoring to find solutions
26			
27	W	5.5, 5.6	Real and complex zeros of a polynomial function; The Fundamental theorem of Algebra
28			LAST DAY FOR "W" GRADE IS FRI. FEB. 29th.
29	F	6.1, 6.2	Composite functions; one-to-one functions; Inverse functions;
			obtaining the inverse function graphically and algebraically

continued		MAC1140 Sp08 Outline - Petrela; SUBJECT TO CHANGE. CHECK BLACKBOARD FOR UPDATES
		updated December 30, 2007
		MyMathLab (MML) contains the homework problems and computer quizzes (with instructions) for each section. Detailed instructions on how to register for MML are given on Blackboard. In addition, there will be short in-class quizzes and 50 min. tests (listed below) as described in the syllabus.
DATE		
MARCH	section	topics
1/2		
3-10	WEEK OF	SPRING RECESS
10	M 6.3	Exponential functions; graphing exponential functions; properties;
11		
12	W 6.3 cont.	domain; range; use of base >1; growth vs. decay; 1-1 property; change of base; the base "e";
13		solving simple exponential eqns.
14	F REVIEW	REVIEW THROUGH 6.3
15/16		
17	M TEST #3	TEST #3 on material through section 6.3
18		
19	W 6.4	The logarithmic function; def. as the inverse of the exponential function; asymptote; domain, range,
20		use of base > 1; graphs
21	F 6.5, 6.6	Properties of logarithms (compared to exponentials); change of base; the base "e";
22/23		solving simple exponential/logarithmic eqns.
24	M 6.5, 6.6	Solving simple exponential/logarithmic eqns. cont.
25		
26	W 6.7, 6.8	Exponential growth/decay problems; simple applications
27		
28	F 6.7, 6.8 cont.	More exponential growth/decay problems; applications
29/30		
31	M 6.7, 6.8 cont.	Logistic growth and decay models; applications
1	APRIL	
2	W 12.1	Solving systems of equations by substitution and/or by elimination; use of matrix notation
3		
4	F 12.2	Using matrix notation and row operations to solve systems of linear equations
5/6		
7	M 12.2	Using matrix notation and row operations to solve systems of linear equations
8		
9	W 12.3	Using determinants to solve systems of linear equations
10		
11	F 12.5	Partial fraction decomposition of proper rational functions having factored denominator polynomials
12/13		
14	M 12.5	Partial fraction decomposition of proper rational functions - cont.
15		
16	W 12.6	Graphical solution of a system of equations
17		
18	F REVIEW	REVIEW THROUGH 12.6
19/20		
21	M	TEST #4 on material through section 12.6
22		
23	W REVIEW FOR FINAL	
24	READING DAY	MAKE-UP TEST
25	F	
27	SUN 6:45pm-9:15pm COMP. FINAL EXAM.	
		but check time and location at:
		http://www.fau.edu/registrar