MATH 126B – T01
College Algebra
Fall Semester 2016

Catalog Data: MATH 126B College Algebra (3-1) Credit 3. (Prerequisites: 2 units of high school algebra, 1 unit of high school geometry and an ACT math score of 23 or higher. Students who have passed Math 93 must register for Math 126A and not Math 126B). Review of the real number system and algebraic expressions, equations, inequalities, graphing, functions, exponential and logarithmic functions, basic matrix operations and properties, systems of equations.

Objective: Upon completion of this course the student should have good algebraic manipulative skills and good graphing techniques.

Outcomes: The student will be able to:
1. Use the laws of exponents, and manipulate and simplify algebraic expressions containing fractional exponents, negative exponents, radicals and fractions.
2. Solve linear, quadratic, polynomial and other equations.
3. Solve linear, quadratic and rational inequalities.
4. Solve word problems.
5. Sketch graphs of linear, quadratic, polynomial, rational, and multi-part functions.
6. Find the composition of functions, the inverse of a function, and the domain and range of a function.
7. Manipulate and solve exponential and logarithmic equations
8. Graph exponential and logarithmic functions
9. Solve systems of equations.

This course satisfies GEC objective 2A and/or GEF Area 3

Instructor: Susan Barton, Ph.D., Professor of Mathematics
Email: Sbarton@mix.wvu.edu
Office/phone: Engineering Lab Building 101F / 304-442-3297
Office Hours: MTWRF 9:00 – 9:50 (MW I'm in the Math Lab from 9:00-9:50)
R 10:00 – 11:00 and 12:00 – 1:00; and MW from 2:00 – 3:00
Class Time: MTWRF 10:00 – 10:50 Elab 203
Method: This is a lecture based course meeting 4 times a week. Homework is turned in online.
Resource: A course calendar etc. may be found at community.wvu.edu/~smb031
Tutoring: You may stop by my office any time, office hours are just the times I promise to be there. You may also make an appointment. **Additional help:** The Math Lab (Elab 107) is open from 8am to 4:30pm for quiet study. A schedule will be posted before the second week of class detailing the hours that tutoring is available. Free tutoring is also available through the Student Success Center (located on the third floor of Vining Library) and Student Support Services (located in Old Main 308/309).

Textbook: Stewart/Redlin/Watson, *Algebra and Trigonometry*, 3rd Edition, Brooks/Cole, Cengage
Learning 2012

Chapters Covered:
Chapter P: sections 1,2,3,4,5,6,7,8,9
Chapter 1:   sections 1,2,3,4,5,6,7,8,9
Chapter 2:   sections 1,2,3,4,5,6,7,8
Chapter 3:   sections 1,2,3,   6,7
Chapter 4:   sections 1,2,3,4,5,6(opt)
Chapter 10:   sections 1,2,   4
Chapter 11:   sections 1(opt)

Topics:
1. Basic Algebra (9 days)
    a) Real numbers and integer exponents
    b) Algebraic expressions
    c) Factoring
    d) Rational expressions
    e) Radicals and rational exponents
    f) Complex numbers
2. Equations and Inequalities (9 days)
    a) Linear equations
    b) Applications of linear equations
    c) Quadratic equations
    d) Other types of equations
    e) Linear inequalities
     f) Quadratic and rational inequalities
    g) Equations and inequalities involving absolute value
3. Graphs and Functions (9 days)
    a) The rectangular coordinate system
    b) Graph of equations (including the circle)
    c) The line
    d) Functions
    e) Graphing techniques
    f) Composite and inverse functions
4. Polynomial and Rational Functions (8 days)
    a) Quadratic functions
    b) Polynomial functions
    c) Rational functions
    d) Remainder and the factor theorems
    e) Zeros of a polynomial and fundamental theorem of algebra
5. Systems of Equations (8 days)
    a) Elimination and substitution
    b) Nonlinear systems
6.   Exponential and Logarithmic functions (9 days)
    a) Exponential Functions
    b) Logarithmic Functions
    c) Properties of Logarithms
    d) Logarithmic and Exponential Equations

Grading and Assessment:

Quizzes/Homework: I will count your best 6 (out of 8?) quizzes. Quizzes will be 25 points apiece and thus count for 150 points (about 15%) of your course grade. Homework will be assigned inside of WebAssign. It will count for 200 points (about 20%). This is the <u>start</u> of your studying, not the end.

WebAssign Login: Mix ID   PASSWORD: (Last 4 digits of your school id)

Participation: One point every day that you attend class AND you do not use your cell phone or other distracting device in class. This is a participation point and may be taken away at the instructor's discretion. The result will be scaled to 50 points (about 5%) of your course grade.

Exams: Four in class hourly tests, each worth 100 points (about 10%) of your course grade.

Final Exam: A comprehensive final exam worth 200 points (about 20%) of the course grade will be given Wednesday Dec 14th from 10:00 – 11:50

NOTE: Only excused absences will enable a student to make up exams. This means that you must have an excuse for the day of the missed exam and every subsequent day until you have made it up. In general quizzes may not be made-up.

Course Grade: Grades are assigned according to the following scale:
A – 90 - 100%   (900 – 1000 points);   B – 80 – 89.9%   (800 – 899 points)
C – 70 - 79.9%   (700 – 799 points) ;   D – 60 - 69.9%   (600 – 699 points);   F - below 60%
Borderline grades may be improved based on performance and grade distribution of the whole class.

Calculator Usage: Graphing calculators will be forbidden on most exams and quizzes.
Computer Usage: WebAssign
Reference: None
Laboratory Projects: None
ABET Category Content: Mathematics - Credit 3 or 100%

Academic Integrity:
The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code http://studentlife.wvu.edu/office_of_student_conduct/student_conduct_code. Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me *before* the assignment is due to discuss the matter.

Disclaimer: The professor reserves the right to make any necessary adjustments and/or modifications to this syllabus. (Especially Below)

TENTATIVE Calendar Math 126B T01

M	T	W	R	F
		17 P.1/P.2		19 P.3
22 P.4	23 P.5	24 P.6		26 P.6/P.7
29 P.7	30 P.8	31 P.9		2 1.1
5	6 1.2	7 1.3		9 1.3
12 REV	13 EXAM	14 1.4		16 1.4/1.5
19 1.5	20 1.6	21 1.6		23 1.6/1.8 Equalities
26 1.7 Linear only	27 1.8 inequalities/1.9	28 2.1		30 2.2 part 1
3 REV	4 EXAM	5 2.2 Part 2		7 2.3
10 2.4	11 2.5	12 2.6		14 2.6
17 2.7	18 2.7/2.8	19 2.8		21 3.1
24 REV	25 EXAM	26 3.2		28 3.2
31 3.3	1 3.6	2 3.6		4 1.7/3.7
7 4.1	8	9 4.1/4.2		11 4.3
14 4.3	15 REV	16 EXAM		18 4.4
21	22	23		25
28 4.5	29 4.5	30 10.1		2 10.2
5 10.4	6 REVIEW			