SINCLAIR COMMUNITY COLLEGE
DAYTON, OHIO

DEPARTMENT SYLLABUS FOR COURSE IN

MAT 0100 - ALGEBRA I
(3 CREDIT HOURS)

1.	COURSE DESCRIPTION:	Brief review of pre-algebra concepts including: operations with rational number, translating, evaluating, and simplifying expressions; translating, simplifying, and solving various types of first degree equations, inequalities and applied problems, including geometry, percent proportions, and other formulas; an introduction to coordinate planes, graphing and writing equations of straight lines. Traditional testing (proctored or in Testing Center) is used in all online sections. Note: Courses that begin with a zero are developmental in nature. Credit earned in developmental course will not apply to the overall program hours.
2.	COURSE OBJECTIVES:	To increase the student's algebraic skills and to develop an understanding essential for the student who is planning to study basic technical subjects or more advanced courses in mathematics; to help the student recognize the parallelisms between arithmetic and algebra.
3.	PREREQUISITE:	MAT 0050 or sufficient score on Sinclair Community College Mathematics Placement Test.
4.	ASSESSMENT:	In addition to required exams as specified in the syllabus, instructors are encouraged to include other components in computing final course grades such as homework, quizzes, and/or special projects. However, 80% of the student's course grade must be based on in-class proctored exams.
5.	TEXT:	**Introductory and Intermediate Algebra** Fifth Edition by Robert Blitzer Pearson/Prentice Hall; 2017 **MyMathLab** is a required component of this course.
6.	CALCULATOR:	The required calculator for MAT 0100 is the TI-30XIIS. Any calculator may be used on homework, quizzes, and during class but the TI-30XIIS must be used on tests. (The math department can supply this calculator for tests.) **There is NO CALCULATOR USE on Test 1.**
7.	PREPARED BY:	Algebra I Group Patti Bromer - Chair, Jennifer Evans, Eric Kraus, David Ericson **Effective: Fall Semester 2017**

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CLASS SCHEDULE FOR COURSE IN
MAT 0100 - ALGEBRA I
(3 CREDIT HOURS)

CLASSES MEETING TWO TIMES A WEEK FOR 8 WEEKS

Lecture	Sections	Topics
1	Introduction	Introduction
	1.3	Real Numbers
	1.5	Addition of Real Numbers
	1.6	Subtraction of Real Numbers
2	1.7	Multiplication and Division of Real Numbers
	1.8	Exponents and Order of Operations
3	1.1	Introduction to Algebra: Variables and Mathematical Models
	1.4	Basic Rules of Algebra
4		Catch-up Day
		Review for Exam 1
5		Review for Exam 1
		Exam 1 over 1.1, 1.3-1.8
6		One-Step, Two-Step, and Complex Equations
	2.1	Addition Property of Equality
	2.2	Multiplication property of Equality
	2.3	Solving Linear Equations
7		Fractional Equations
	2.1	Addition Property of Equality
	2.2	Multiplication property of Equality
	2.3	Solving Linear Equations
	2.4	Formulas and Percents
8	2.5	Introduction to Problem Solving
	2.6	Problem Solving in Geometry
9	2.7	Solving Linear Inequalities
10		Catch-up Day
		Review for Exam 2
11		Review for Exam 2
		Exam 2 over 2.1-2.7
12	3.1	Graphing Linear Equations in Two Variables
	3.2	Graphing Linear Equations Using Intercepts
13	3.3	Slope
	3.4	Slope-Intercept Form of the Equation of a Line
14	3.5	Point-Slope Form of the Equation of a Line
15		Catch-up Day
		Review for the Final Exam
16		**Comprehensive Final Exam***

* In face to face sections and online sections: MAT 0100 will have 10 multiple choice questions on the departmental portion of the final exam. The instructor portion of the final exam (which will consist of material from all chapters) will consist of about 20 questions. The instructor portion will count as 2/3 of the final exam score (20% of the course grade) while the departmental portion will count as 1/3 of the final exam score (10% of the course grade.) The final exams in Academy sections will include the 10 multiple choice questions from the department but will also include additional comprehensive questions.

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CLASS SCHEULDE FOR COURSE IN
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(3 CREDIT HOURS)

CLASSES MEETING THREE TIMES A WEEK

Lecture	Sections	Topics
1	Introduction	Introduction
	1.3	Real Numbers
2	1.5	Addition of Real Numbers
	1.6	Subtraction of Real Numbers
3	1.7	Multiplication and Division of Real Numbers
	1.8	Exponents
4	1.8	Order of Operations
5	1.1	Introduction to Algebra: Variables and Mathematical Models
6	1.4	Basic Rules of Algebra
7		Catch-up Day
		Review for Exam 1
8		Review for Exam 1
		Exam 1 over Exam 1 over 1.1, 1.3-1.8
9		One-Step and Two-Step Equations
	2.1	Addition Property of Equality
	2.2	Multiplication property of Equality
	2.3	Solving Linear Equations
10		Complex Equations
	2.1	Addition Property of Equality
	2.2	Multiplication property of Equality
	2.3	Solving Linear Equations
11		Fractional Equations
	2.1	Addition Property of Equality
	2.2	Multiplication property of Equality
	2.3	Solving Linear Equations
12	2.4	Formulas and Percents
13	2.5	Introduction to Problem Solving
	2.6	Problem Solving in Geometry
14	2.5	Introduction to Problem Solving
	2.6	Problem Solving in Geometry
15	2.7	Solving Linear Inequalities
16		Catch-up Day
		Review for Exam 2
17		Review for Exam 2
		Exam 2 over 2.1-2.7
18	3.1	Graphing Linear Equations in Two Variables

MAT 0100 - ALGEBRA I
THREE TIMES A WEEK Sections Class Schedule

19	3.2	Graphing Linear Equations Using Intercepts
20	3.3	Slope
21	3.4	Slope-Intercept Form of the Equation of a Line
22	3.5	Point-Slope Form of the Equation of a Line
24		Catch-up Day Review for the Final Exam
24		**Comprehensive Final Exam***

* In face to face sections and online sections: MAT 0100 will have 10 multiple choice questions on the departmental portion of the final exam. The instructor portion of the final exam (which will consist of material from all Chapters) will consist of about 20 questions. The instructor portion will count as 2/3 of the final exam score (20% of the course grade) while the departmental portion will count as 1/3 of the final exam score (10% of the course grade.) The final exams in Academy sections will include the 10 multiple choice questions from the department but will also include additional comprehensive questions.

TO THE INSTRUCTOR

To ensure consistency, at some minimum level, regarding which formulas students are required to learn in each of its courses, the Mathematics Department has developed the attached list for this course.

Course formulas are those that students are required to learn (and required to demonstrate that they have learned) as the formulas are presented in the course. Requiring students to learn more than those listed is the instructor's option.

Please note that only formulas are listed. Students are also expected to learn definitions, theorems and procedures that will allow them to meet course objectives. If you have questions regarding this matter, please contact your course coordinator.

Please refer to the mathematics department handbook for general policies.

MAT 0100 Formulas/Rules

Chapter 1

- Double Negative Rule $-(-x) = x$

- Multiplying and Dividing Real Numbers

$x \cdot 0 = 0$ $\quad x(-y) = -(xy)$ $\quad (-x)y = -(xy)$ $\quad -x(-y) = xy$

$\frac{0}{a} = 0 \quad for \quad a \neq 0$ $\quad \frac{a}{0}$ *is undefined for* $a \neq 0$

$\frac{0}{0}$ *is indeterminate* $\quad \frac{-x}{y} = \frac{x}{-y} = -\frac{x}{y}$ *and* $\frac{-x}{-y} = \frac{x}{y}$ *for* $y \neq 0$

- Properties of Addition and Multiplication

Commutative Properties	$a+b = b+a$ *and* $ab = ba$
Associative Properties	$(a+b)+c = a+(b+c)$ *and* $(ab)c = a(bc)$
Distributive Properties	$a(b+c) = ab+ac$ *and* $a(b-c) = ab-ac$

Chapter 2

- Sum of the Angles in a Triangle

$A + B + C = 180^0$

- 2-Dimensional Geometric formulas

	Area	Perimeter
Square	$A = s^2$	$P = 4s$
Rectangle	$A = LW$	$P = 2L + 2W$
Triangle	$A = \frac{1}{2}(bh)$	$P = a + b + c$
Circle	$A = \pi r^2$	$C = 2\pi r$

- 3-Dimensional Geometric formulas

	Volume
Cube	$V = s^3$
Rectangular Solid	$V = lwh$

- Algebraic Expressions for Complements and Supplements

Measure of an angle:	x
Measure of the angle's complement:	$90 - x$
Measure of the angle's supplement:	$180 - x$

Chapter 3

- Slope of a Line

$$m = \frac{rise}{run} = \frac{change \quad in \ y}{change \quad in \ x} = \frac{y_2 - y_1}{x_2 - x_1} \quad (x_1 \neq x_2)$$

- Forms of Linear Equations

Point-slope form	$y - y_1 = m(x - x_1)$
Slope-intercept form	$y = mx + b$
General form	$Ax + By = C$
Horizontal line	$y = b$
Vertical line	$x = a$