BEGINNING ALGEBRA
COURSE SYLLABUS

Course Number:_____ **Course Name:**_____ **Beginning Algebra**_____ **Term/Year:**_____

Prerequisite:_____ **Instructor:**_____ **Office:**_____
            or by placement   **Phone:**_____

COURSE DESCRIPTION
This course represents further development in algebraic and function concepts above pre-algebra and below intermediate algebra. The course includes: a brief review of number and equation properties, data analysis, inteveral notation, and scientific notation; a study of function representation, behaviors of the linear, quadratic, exponential, absolute value, and square root functions. It also includes a deeper analysis of: arithmetic operations on polynomial functions, factoring, linear, exponential, & quadratic functions, equation solving, and direct variation. These concepts/skills are taught using a function approach.

GOALS AND/OR OBJECTIVES
This course is designed to improve the student's understanding and memory/recall of the algebra taught. We will develop the mathematical tools needed so that students can solve problems.This course will better prepare students for higher level mathematical study and at the same time, provide mathematics that is required for entry-level work.

TEXTBOOK: SPECIAL COURSE REQUIREMENTS
Foundations for College Algebra 3e, Laughbaum, Red Bank Publishing, © 2013. The Texas Instruments graphing calculator, the TI-83/84 is required. (or the TI nspire) *Explorations, Concept Quizzes, Investigations, and Modeling Projects for Foundations for College Mathematics 3e*, Laughbaum, Red Bank Publishing, © 2014.

INSTRUCTIONAL METHODS
Lecture/demonstration, teaching activities/homework, and summative modeling projects.

METHODS OF ASSESSMENT
A series of tests, quizzes, explorations, investigations, and modeling projects totaling *approximately* 800-900 points.
Quizzes and explorations/investigations are given unannounced.

Grades are assigned by the following scale:

A =	100 - 90%	10 - 15 concept quizzes	10 points each
B =	89 - 80%	10 - 15 explorations	10 points each
C =	79 - 70%	3 modeling projects	25 points each
D =	69 - 60%	3 – 5 investigations	10 points each
E =	59 - 0%	3 midterms	100 points each
		final exam	200 points

………………………………...

UNITS OF INSTRUCTION

Chapter 1	1.1 - 1.4	Chapter 11	11.1
Chapter 2	2.1 - 2.4	Chapter 6	6.1 - 6.4
Chapter 3	3.1 - 3.5	Chapter 7	7.1 - 7.4
Chapter 4	4.1 - 4.6	Chapter 10	10.1 - 10.5
Chapter 5	5.1 – 5.4	*Units of instruction are subject to change at the discretion of the instructor.*	

ATTENDANCE POLICY AND OTHER
Attendance is expected and is an integral part of learning mathematics. **Failure to attend regurlarly will result in less than optimum learning.** Students are responsible for all in-class announcements regarding changes in the **syllabus, class policy, and test dates**. *Students are also required to read all chapters and sections listed above*. It is the college policy to provide reasonable accommodations to students. If you would like to request such accommodations because of a physical, mental, or learning disability, please contact me within the first two weeks of class.

INSTRUCTOR'S OFFICE HOURS

Beginning Algebra Dailey Schedule
5-Hour, 10-Week Quarter

Note: Explorations, Concept Quizes, and Investigations are usually given to students at the end of class and collected at the beginning of the next class; Modeling Projects are due in a week. All activities can/should be assigned as group activities outside of class, but some students prefer to not participate in groups. "Developing the Pre-Frontal Lobes" exercises may be assigned as in-class group activities. All assignments assume students have access to a graphing calculator. Something else to consider is to assign reading the pages dealing with brain function early in the course.

Week 1:
PowerPoint Presentation: The neuroscience of understanding and long-term memory **(first class meeting)**

1.1 Properties of Numbers, Equality, and Inequality
Textbook Homework: 1 – 35
Activity Assignment: Exploration or Concept Quiz, and/or Investigation

1.2 Data Analysis
Textbook Homework: 1 – 14
Activity Assignment: Explorations Weighted Average and/or Visual Averages

1.3 Describing Sets of Numbers with Interval Notation
Textbook Homework: -4 – 40
Activity Assignment: Exploration or Concept Quiz and/or Investigation

1.4 Notation for Big and Little Numbers
Textbook Homework: -4 – 39
Activity Assignment: Explorations 1 & 2 and maybe the Concept Quiz or Investigation

Week 2:
2.1 Data Relationships Represented Numerically and Graphically
Textbook Homework: -4 – 31
Activity Assignment: Exploration

2.2 Data Relationships Represented Symbolically
Textbook Homework: -4 – 10 and 13 – 56
Activity Assignment: Exploration 1 and/or Concept Quiz 2, the Investigation may be a good option

2.3 Geometric Behaviors of Data Relationships **(2 days)**
Textbook Homework: -4 – 20
Activity Assignment: Exploration 1 or Exploration 3 and Exploration 4 or Exploration 7 and Exploration/Concept Quiz and Investigation 1. One day should be nothing by activities

2.4 Functions Represented Graphically
Textbook Homework: -4 – 20
Activity Assignment: Concept Quiz and/or Investigation

Week 3:
Chapters 1 & 2 Summary
Chapters 1 & 2 Test

3.1 An Introduction to the Analysis of the Linear Function $dx + e$
Textbook Homework: -4 – 28
Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz and/or Investigation

3.2 An Introduction to the Analysis of the Quadratic Function $d(x + e)^2 + f$
Textbook Homework: -4 – 25
Activity Assignment: Exploration 1 or 3 and/or Concept Quiz and/or Investigation

3.3 An Introduction to the Analysis of the Absolute Value Function $d|x + e| + f$
Textbook Homework: -4 – 24
Activity Assignment: Exploration 1 or 2 and Concept Quiz and/or Investigation

Week 4:

3.4 An Introduction to the Analysis of the Square Root Function $d\sqrt{x+e}+f$
   Textbook Homework: -4 – 21
   Activity Assignment: Exploration 1 and Exploration 2 and/or Concept Quiz

3.5 An Introduction to the Analysis of the Exponential Function $d \cdot 2^{x+e}+f$
   Textbook Homework: -4 – 22
   Activity Assignment: Exploration and/or Concept Quiz 1 and/or 2, AND Modeling Projects 1, 2, or 3

4.1 Definition of a Function, Again
   Textbook Homework: -4 – 6 and 7 – 37 odd
   Activity Assignment: Exploration 1 and/or Concept Quiz and/or Investigation

4.2 Addition and Subtraction of Polynomial Functions
   Textbook Homework: -4 – 24
   Activity Assignment: Exploration 1 and/or 2 and/or 3 and/or Concept Quiz and/or Investigation

4.3 Multiplication of Polynomial Functions
   Textbook Homework: -4 – 6 and 7 – 43 odd
   Activity Assignment: Exploration 1 and/or 2 and/or 3 and/or Concept Quiz and/or Investigation

Week 5:

4.4 Factoring: Common Factors, Grouping, and Difference of Squares
   Textbook Homework: -4 – 28
   Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz

4.5 Factoring the Trinomial
   Textbook Homework: -4 – 20
   Activity Assignment: Exploration 1 and/or 2 and/or 3 and/or Concept Quiz and Investigation

4.6 Function Operations from a Graphical Perspective
   Textbook Homework: -4 – 20
   Activity Assignment: Exploration 1 or 2 and Concept Quiz and/or Investigation AND Modeling Project 1 or 2
   Chapters 3 & 4 Summary
   Chapters 3 & 4 Test

Week 6:

5.1 Rate of Change, Initial Condition, and the Zero -- Slope and Intercepts of the Linear Function
   Textbook Homework: -4 – 6 and 7 – 41 odd
   Activity Assignment: Exploration and/or Concept Quiz 1 and/or 2 and Investigation

5.2 Slope-Intercept Method of Graphing
   Textbook Homework: -4 – 6, and 7 – 17 odd
   Activity Assignment: Concept Quiz

5.3 Point-Slope Form: $y = m(x - x_1) + y_1$ **(may need 2 days)**
   Textbook Homework: -4 – 29
   Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz and/or Investigation

11.1 The Distance and Midpoint Formulas
   Textbook Homework: -4 – 20
   Activity Assignment: Exploration and/or Concept Quiz and Investigation

5.4 The Linear Function as a Mathematical Model
   Textbook Homework: -4 – 14
   Activity Assignment: Exploration and/or Concept Quiz or Investigation 1 or 2 and Modeling Project 1, 2, or 3

Week 7:

6.1 Solving Equations Containing the Linear Function
   Textbook Homework: -4 – 6, 7 – 29 odd
   Activity Assignment: Exploration 1, 2, and/or 3 and/or Concept Quiz

6.2 Solving Inequalities Containing the Linear Function
   Textbook Homework: -4 – 6, 7 – 23 odd
   Activity Assignment: Exploration and/or Concept Quiz and/or Investigation

6.3 Solving Inequalities and Equations Containing the Absolute Value Function **(may need 2 days)**
   Textbook Homework: -4 – 9, 10 – 29 odd
   Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz 1 and/or 2, also consider the Investigation

6.4   Formulas and Direct Variation
       Textbook Homework: -4 – 6, 7 – 29 odd
       Activity Assignment: Concept Quiz and/or Investigation
       Chapters 5 & 6 Summary

Week 8:
       Chapters 5 & 6 Test
7.1   The Exponential Function **(day-1)**
       Textbook Homework: -4 – 17
       Activity Assignment: Explorations 1, 2 and 3 (to prime for day 2)
7.1   The Exponential Function **(day-2)**
       Textbook Homework: 18 – 48
       Activity Assignment: Concept Quiz 1, 2, 3, and/or 4, Investigation
7.2   Simplifying Symbols in Exponential Functions
       Textbook Homework: -4 – 6, 7 – 27 odd
       Activity Assignment: Exploration 1, 2, and/or 3 and/or Concept Quiz 1 or 2 and/or Investigation
7.3   Equations and Inequalities Containing the Exponential Function
       Textbook Homework: -4 - 25
       Activity Assignment: Exploration and/or Concept Quiz and/or Investigation

Week 9:
7.4   The Exponential Function as a Mathematical Model
       Textbook Homework: -4 – 25
       Activity Assignment: Exploration 1 and/or 2 and/or Investigation and Modeling Project 1, 2, 3, 4, or 5
10.1   The Quadratic Function
       Textbook Homework: -4 – 6, 7 – 51 odd
       Activity Assignment: Exploration 1 and/or 2 and Concept Quiz 1, 2, 3, and/or 4
10.2   Solving Quadratic Equations of the Form $(ax + b)(cx + d) = 0$
       Textbook Homework: -4 – 6, 7 – 31 odd
       Activity Assignment: Concept Quiz and/or Investigation
10.3   Solving Quadratic Equations by the Completing-the-Square Method
       Textbook Homework: -4 – 16
       Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz and/or Investigation
10.4   Solving Quadratic Equations with the Quadratic Formula **(day-1)**
       Textbook Homework: -4 – 16
       Activity Assignment: Exploration 1

Week 10:
10.4   Solving Quadratic Equations with the Quadratic Formula **(day-2)**
       Textbook Homework: 18 – 31
       Activity Assignment: Exploration 2 and/or Concept Quiz and/or Investigation
10.5   The Quadratic Function as a Mathematical Model
       Textbook Homework: -4 – 6, 7 – 23 odd
       Activity Assignment: Concept Quiz and/or Investigation and Modeling Project 1, 2, or 3
       Chapters 7 & 10 Summary
       Chapters 7 & 10 Test
       Course Summary

<p style="text-align:center">Beginning Algebra Schedule
3-Hour, 15-Week Semester</p>

Note: Explorations, Concept Quizzes, and Investigations are usually given to students at the end of class and collected at the beginning of the next class; Modeling Projects are due in a week. All activities can/should be assigned as group activities outside of class, but some students prefer to not participate in groups. "Developing the Pre-Frontal Lobes" exercises may be assigned as in-class group activities. All assignments assume students have access to a graphing calculator. Something else to consider is to assign reading the pages dealing with brain function early in the course.

Week 1:

PowerPoint Presentation: The neuroscience of understanding and long-term memory **(first day of class)**

1.1   Properties of Numbers, Equality, and Inequality
Textbook Homework: 1 – 35
Activity Assignment: Exploration or Concept Quiz and/or Investigation

1.2   Data Analysis
Textbook Homework: 1 – 14
Activity Assignment: Weighted Average or Visual Averages Exploration

Week 2:

1.3   Describing Sets of Numbers with Interval Notation
Textbook Homework: -4 – 40
Activity Assignment: Exploration or Concept Quiz and/or Investigation

1.4   Notation for Big and Little Numbers
Textbook Homework: -4 – 39
Activity Assignment: Explorations 1 & 2 and maybe the Concept Quiz or Investigation

2.1   Data Relationships Represented Numerically and Graphically
Textbook Homework: -4 – 31
Activity Assignment: Exploration

Week 3:

2.2   Data Relationships Represented Symbolically
Textbook Homework: -4 – 10 and 13 – 56
Activity Assignment: Exploration 1 and/or Concept Quiz 2, the Investigation may be a good option

2.3   Geometric Behaviors of Data Relationships **(2 days)**
Textbook Homework: -4 – 20
Activity Assignment: Exploration 1 or Exploration 3 and Exploration 4 or Exploration 7 and Exploration/Concept Quiz and Investigation 1. One day should be nothing by activities

Week 4:

2.4   Functions Represented Graphically
Textbook Homework: -4 – 20
Activity Assignment: Concept Quiz and/or Investigation

3.1   An Introduction to the Analysis of the Linear Function $dx + e$
Textbook Homework: -4 – 28
Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz and/or Investigation

3.2   An Introduction to the Analysis of the Quadratic Function $d(x + e)^2 + f$
Textbook Homework: -4 – 25
Activity Assignment: Exploration 1 or 3 and/or Concept Quiz and/or Investigation

Week 5:

3.3   An Introduction to the Analysis of the Absolute Value Function $d|x + e| + f$
Textbook Homework: -4 – 24
Activity Assignment: Exploration 1 or 2 and Concept Quiz and/or Investigation

3.4   An Introduction to the Analysis of the Square Root Function $d\sqrt{x + e} + f$

Textbook Homework: -4 – 21
Activity Assignment: Exploration 1 and Exploration 2 and/or Concept Quiz

3.5   An Introduction to the Analysis of the Exponential Function $d \cdot 2^{x+e} + f$
Textbook Homework: -4 – 22
Activity Assignment: Exploration and/or Concept Quiz 1 and/or 2, AND Modeling Projects 1, 2, or 3

Week 6:
Chapters 1, 2, & 3 Summary
Chapters 1, 2, & 3 Test

4.1   Definition of a Function, Again
Textbook Homework: -4 – 6 and 7 – 37 odd
Activity Assignment: Exploration 1 and/or Concept Quiz and/or Investigation

Week 7:
4.2   Addition and Subtraction of Polynomial Functions
Textbook Homework: -4 – 24
Activity Assignment: Exploration 1 and/or 2 and/or 3 and/or Concept Quiz and/or Investigation

4.3   Multiplication of Polynomial Functions
Textbook Homework: -4 – 6 and 7 – 43 odd
Activity Assignment: Exploration 1 and/or 2 and/or 3 and/or Concept Quiz and/or Investigation

4.4   Factoring: Common Factors, Grouping, and Difference of Squares
Textbook Homework: -4 – 28
Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz

Week 8:
4.5   Factoring the Trinomial
Textbook Homework: -4 – 20
Activity Assignment: Exploration 1 and/or 2 and/or 3 and/or Concept Quiz and Investigation and Modeling Project 1 or 2

5.1   Rate of Change, Initial Condition, and the Zero -- Slope and Intercepts of the Linear Function
Textbook Homework: -4 – 6 and 7 – 41 odd
Activity Assignment: Exploration and/or Concept Quiz 1 and/or 2 and Investigation

5.2   Slope-Intercept Method of Graphing
Textbook Homework: -4 – 6, and 7 – 17 odd
Activity Assignment: Concept Quiz

Week 9:
5.3   Point-Slope Form: $y = m(x - x_1) + y_1$ **(may need 2 days)**
Textbook Homework: -4 – 29
Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz and/or Investigation

11.1   The Distance and Midpoint Formulas
Textbook Homework: -4 – 20
Activity Assignment: Exploration and/or Concept Quiz and Investigation

5.4   The Linear Function as a Mathematical Model
Textbook Homework: -4 – 14
Activity Assignment: Exploration and/or Concept Quiz or Investigation 1 or 2 and Modeling Project 1, 2, or 3

Week 10:
6.1   Solving Equations Containing the Linear Function
Textbook Homework: -4 – 6, 7 – 29 odd
Activity Assignment: Exploration 1, 2, and/or 3 and/or Concept Quiz

6.2   Solving Inequalities Containing the Linear Function
Textbook Homework: -4 – 6, 7 – 23 odd
Activity Assignment: Exploration and/or Concept Quiz and/or Investigation

6.3   Solving Inequalities and Equations Containing the Absolute Value Function **(may need 2 days)**
Textbook Homework: -4 – 9, 10 – 29 odd
Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz 1 and/or 2, also consider the Investigation

Week 11:

6.4   Formulas and Direct Variation
         Textbook Homework: -4 – 6, 7 – 29 odd
         Activity Assignment: Concept Quiz and/or Investigation
         Chapters 4, 5 & 6 Summary
         Chapters 4, 5 & 6 Test

Week 12:

7.1   The Exponential Function **(day-1)**
         Textbook Homework: -4 – 17
         Activity Assignment: Explorations 1, 2 and 3 (to prime for day 2)
7.1   The Exponential Function **(day-2)**
         Textbook Homework: 18 – 48
         Activity Assignment: Concept Quiz 1, 2, 3, and/or 4, Investigation
7.2   Simplifying Symbols in Exponential Functions
         Textbook Homework: -4 – 6, 7 – 27 odd
         Activity Assignment: Exploration 1, 2, and/or 3 and/or Concept Quiz 1 or 2 and/or Investigation

Week 13:

7.3   Equations and Inequalities Containing the Exponential Function
         Textbook Homework: -4 - 25
         Activity Assignment: Exploration and/or Concept Quiz and/or Investigation
7.4   The Exponential Function as a Mathematical Model
         Textbook Homework: -4 – 25
         Activity Assignment: Exploration 1 and/or 2 and/or Investigation and Modeling Project 1, 2, 3, 4, or 5
10.1   The Quadratic Function
         Textbook Homework: -4 – 6, 7 – 51 odd
         Activity Assignment: Exploration 1 and/or 2 and Concept Quiz 1, 2, 3, and/or 4

Week 14:

10.2   Solving Quadratic Equations of the Form $(ax + b)(cx + d) = 0$
         Textbook Homework: -4 – 6, 7 – 31 odd
         Activity Assignment: Concept Quiz and/or Investigation
10.3   Solving Quadratic Equations by the Completing-the-Square Method
         Textbook Homework: -4 – 16
         Activity Assignment: Exploration 1 and/or 2 and/or Concept Quiz and/or Investigation
10.4   Solving Quadratic Equations with the Quadratic Formula **(day-1)**
         Textbook Homework: -4 – 16
         Activity Assignment: Exploration 1

Week 15:

10.4   Solving Quadratic Equations with the Quadratic Formula **(day-2)**
         Textbook Homework: 18 – 31
         Activity Assignment: Exploration 2 and/or Concept Quiz and/or Investigation
10.5   The Quadratic Function as a Mathematical Model
         Textbook Homework: -4 – 6, 7 – 23 odd
         Activity Assignment: Concept Quiz and/or Investigation and Modeling Project 1, 2, or 3
         Chapters 7 & 10 Summary
         Course Summary

Week 16:

         Chapters 7 & 10 Test, & Final Exam