SHAWNEE STATE UNIVERSITY
COURSE SYLLABUS

Mathematics 1200
College Algebra

Instructor "[Type your name here]" Phone "[Type your phone number here]"
Office "[Type your office location here]" E-mail "[Type your e-mail address here]"
Office Hours "[Type your office hours here]" Dept. "[Type your department here]"

Credit Hours: 3 Credit Hours

Class Location and Meeting Times: "[Type location and meeting times here.]"

Materials Needed:
Graphing calculator: Students are required to have and be able to use a graphing calculator; a version of the TI-83 or the TI-84 is preferred.

Catalog Description: A study of polynomial, rational, power, exponential, and logarithmic functions, including representing these algebraically, graphically, numerically, and verbally. Solving equations involving these functions as well as modeling with these functions will be covered.
Prerequisite: Placement or MATH 1020 (MATH 130 under quarters)

Purpose of course: This course is a potential terminal GEP mathematics course for students who do not plan to take calculus. It will support students in associate degree programs in Health Sciences as well as those in the proposed Associate of Technical Study.

Graphing calculator: Students are required to have and be able to use a graphing calculator; a version of the TI-83 or the TI-84 is preferred.

Goals and Objectives: The goals of this course are as follows:
- The teaching and learning of the mathematical concepts from the areas of elementary functions and graphs.
- The teaching and learning of skills to both formulate an equation as well as produce a solution to an equation.
- The understanding of the problem solving process of transforming an application into a mathematical description and then interpreting of the result.
- To have the students communicate their mathematical thinking they used during problem solving.
The objectives of this course are as follows:
Students who complete this course should be able to

- Represent functions* verbally, numerically, graphically, and algebraically.
- View a function as a set of ordered pairs or a correspondence between two sets.
- Find the domain and range of functions*.
- Perform translations and dilations of functions*.
- Perform operations (addition, subtraction, multiplication, division, composition) with functions*.
- Use functions* to model a variety of situations.
- Solve equations, including application problems.
- Solve systems of linear equations and application problems.
- Solve linear inequalities, including application problems.
- Find inverses of functions* and relate the graph of a function to the graph of its inverse.
- Analyze the graph of a function* to answer questions about the function (such as intercepts, domain, range, intervals where the function is increasing or decreasing, possible algebraic definitions, etc.)
- Be able to explain the solution of a problem to others.
- Use of graphing calculators appropriately to solve problems involving the course content

* This course should consider the following types of functions:
  - polynomial
  - rational
  - root/radical/power
  - exponential and logarithmic

**Student Expectations**

**Attendance Policy:** You are expected to attend class. This means that if you miss class, it is your responsibility to find out what you missed. No make-up exams will be given except under extraordinary circumstances. Except for cases specifically addressed by University policy, the instructor shall be the sole judge of whether your circumstances are "extraordinary".

**Cell Phone Policy:** Out of respect for me and your classmates make sure your cell phone does not ring aloud during class and is used outside of the classroom.

**University Disability Statement**
For students who have a specific physical, psychiatric, or learning disability and require accommodations, please let me know early in the quarter so that your learning needs may be appropriately met. By law, it is your responsibility to provide documentation of your disability to the Office of Disability Services, located in the Student Success Center, Massie Hall, (Ph) 351-3594, PRIOR to receiving services.

**Evaluation:**
Evaluation is determined by each individual instructor. For an example, see below:

Your grade will be based upon the following weighted average:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam(s)</td>
<td>35%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>35%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>25%</td>
</tr>
<tr>
<td>Group Work/Class Participation</td>
<td>5%</td>
</tr>
</tbody>
</table>

**Instructional Delivery Method:**

Onsite

**Course Outline**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Required Reading</th>
<th>Time Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of Basic Skills</td>
<td>Chapter 0</td>
<td></td>
</tr>
<tr>
<td>The Basic Ideas of Algebra</td>
<td>Chapter 1</td>
<td>0.5 week</td>
</tr>
</tbody>
</table>

**Function, Expressions, and Equations:**

- What is Function?
- Functions and Expressions
- Functions and Equations
- Functions and Change; Functions and Modeling

| Chapter 2                    | 1 week           |

**Linear Functions and Equations:**

- Linear Functions
- Expression For Linear Functions
- Linear Equations
- More on Equations of Lines
- Modeling with Linear Functions
- Systems of Linear Equations

| Chapter 3                    | 1.5 weeks        |

**Powers:**

- Power Functions
- Expressions for Power Functions
- Equations Involving Power Functions
- Modeling with Power Functions

| Chapter 4                    | 1.5 weeks        |

**More on Functions:**

- Domain and Range
- Composing and Decomposing Functions
- Shifting and Scaling
- Inverse Functions

| Chapter 5                    | 1.5 weeks        |

**Quadratic Functions, Expressions, and Equations:**

- Quadratic Functions
- Working with Quadratic Functions
- Quadratic Equations
- Solving Quadratic Equations by Factoring

| Chapter 6                    | 1 week           |

**Exponential Functions:**

- What is an Exponential Function?
- Interpreting the Base
- Interpreting the Exponent
- Exponential Equations
- Modeling with

| Chapter 7                    | 2 weeks          |
### Exponential Functions

<table>
<thead>
<tr>
<th>Logarithms: Introduction to Logarithms; Solving Equations Using Logarithms; Applications of Logarithms to Modeling</th>
<th>Chapter 8</th>
<th>1 week</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Polynomials: Polynomials; The Form of a Polynomial; Polynomial Equations; Long-run Behavior of Polynomials</th>
<th>Chapter 9</th>
<th>1.5 weeks</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Rational Functions: Rational Functions; Long-run Behavior of Rational Functions</th>
<th>Chapter 10</th>
<th>1.5 weeks</th>
</tr>
</thead>
</table>

Note: the outline above is only an approximation. Some topics will take a bit longer, and the pace of our progress will be adjusted according to the needs and interests of the individuals in the class. Such adjustments, in addition to the scheduling of exams and time allocated for the use of technology (such as the use of graphing calculators) and small group activities and projects will take up the two weeks of the 15 week semester not accounted for in the outline above.