Day 1:
Thursday, Jan. 4

Activities:

- Download and/or print syllabus; look it over
- Download and/or print course calendar; look it over
- Watch the Welcome! video
- Register for ALEKS using these directions on UBLearns
- Take the ALEKS preassessment
- Starting thinking about your testing site
- Video and Note Sheets – **Quadratic Functions**
- Participate in whole-class Office Hours, 3:00-3:45 on Zoom

Suggested ALEKS topics:

- Graphing a parabola of the form $y = ax^2$
- Graphing a parabola of the form $y = ax^2 + c$
- Graphing a function of the form $f(x) = ax^2$
- Graphing a function of the form $f(x) = ax^2 + c$
- Finding the zeros of a quadratic function given its equation 
- Writing a quadratic function given its zeros 
- Finding the x-intercept(s) and the vertex of a parabola 
- Rewriting a quadratic function in standard form
- Rewriting a quadratic function to find its vertex and sketch its graph
- Finding the maximum or minimum of a quadratic function 
- Word problem involving the maximum or minimum of a quadratic function 
- Word problem involving optimizing area by using a quadratic function 
- Domain and range from the graph of a quadratic function
- Range of a quadratic function 
- Writing the equation of a quadratic function given its graph
- Solving a quadratic equation by graphing

Day 2:
Friday, Jan. 5

Activities:

- Find/contact testing site (or email instructor that you will be taking the exams on campus)
- Video and Note Sheets – **Polynomial Functions**

Suggested ALEKS topics:

- Finding zeros of a polynomial function written in factored form
- Finding zeros and their multiplicities given a polynomial function written in factored form
- Finding a polynomial of a given degree with given zeros: Real zeros
- Finding x- and y-intercepts given a polynomial function
- Determining the end behavior of the graph of a polynomial function
- Determining end behavior and intercepts to graph a polynomial function
- Matching graphs with polynomial functions
- Inferring properties of a polynomial function from its graph

Day 3:
Saturday, Jan. 6

Activities:

- Video and Note Sheets – **Dividing Polynomial Functions**

Suggested ALEKS topics:

- Dividing a polynomial by a monomial: Univariate
- Dividing a polynomial by a monomial: Multivariate
- Polynomial long division: Problem type 1
- Polynomial long division: Problem type 2
- Polynomial long division: Problem type 3
- Synthetic division
- Using the remainder theorem to evaluate a polynomial
- The Factor Theorem

Day 4:
Sunday, Jan. 7

Activities:

- Download and/or print **Unit 1 Review Sheet**
- Start working on **Unit 1 Review Sheet**
- Video and Note Sheets – **Roots of Poly Functions**

Suggested ALEKS topics:

- Using a given zero to write a polynomial as a product of linear factors: Real zeros
- Finding all possible rational zeros using the rational zeros theorem: Problem type 1
- Finding all possible rational zeros using the rational zeros theorem: Problem type 2
- Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
- Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros

Day 5:
Monday, Jan. 8

Activities:

- Complete and email Testing Center approval form to instructor by 11:59 p.m.!!!
- Continue working on **Unit 1 Review Sheet**
- Video and Note Sheets – **Rational Functions**

Suggested ALEKS topics:

- Domain of a rational function: Excluded values
- Domain of a rational function: Interval notation
- Finding the asymptotes of a rational function: Constant over linear
- Finding the asymptotes of a rational function: Linear over linear
- Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
- Finding the asymptotes of a rational function: Quadratic over linear
- Graphing a rational function: Constant over linear
- Graphing a rational function: Linear over linear
- Transforming the graph of a rational function
- Graphing a rational function: Quadratic over linear
- Graphing rational functions with holes
- Matching graphs with rational functions: Two vertical asymptotes
- Graphing a rational function with more than one vertical asymptote
- Writing the equation of a rational function given its graph

Day 6:
Tuesday, Jan. 9

Activities:

- Complete **Unit 1 Review Sheet** and look at answer key
- Video and Note Sheets – **Limits**
- Participate in whole-class Office Hours, 3:00-3:45 on Zoom

Suggested ALEKS topics:

- Finding the average rate of change of a function
- Finding the average rate of change of a function given its graph
- Word problem involving average rate of change
- Finding a difference quotient for a linear or quadratic function
- Estimating a limit numerically
- Finding limits from a graph
- Finding limits for a piecewise-defined function
- Determining a parameter to make a function continuous
- Infinite limits and graphs
- Limits at infinity and graphs
- Limits at infinity and rational functions
- Infinite limits and rational functions

Day 7:
Wednesday, Jan. 10

Activities:

- Exam #1 – 2:30-3:45 (either on campus, Baldy 110, or at approved testing center)
- Participate in exam review from 12:00-2:00 on campus/via Zoom
- Complete Unit 1 module in ALEKS

Day 8:
Thursday, Jan. 11

Activities:

- Video and Note Sheets – **Graph Exponential Functions**
- Participate in whole-class Office Hours, 3:00-3:45 on Zoom

Suggested ALEKS topics:

- Table for an exponential function
- Graphing an exponential function and its asymptote: $f(x)=b^x$
- Graphing an exponential function and its asymptote: $f(x) = a(b)^x$
- Graphing an exponential function and its asymptote: $f(x)=b^{-x}$ or $f(x)=-b^{ax}$
- Translating the graph of an exponential function
- Finding domain and range from the graph of an exponential function
- The graph, domain, and range of an exponential function
- Transforming the graph of a natural exponential function
- Graphing an exponential function and its asymptote: $f(x) = a(e)^{x-b} + c$

Day 9:
Friday, Jan. 12

Activities:

- Look at Exam 1 grade on UBLearns
- Sign up for individual office hours if you have exam questions
- Video and Note Sheets – **Graph Log Functions**

Suggested ALEKS topics:

- Graphing a logarithmic function: Basic
- The graph, domain, and range of a logarithmic function
- Domain of a logarithmic function: Advanced
- Graphing a logarithmic function: Advanced
- Using a calculator to evaluate exponential expressions involving base e 
- Evaluating an exponential function with base e that models a real-world situation

Day 10:
Saturday, Jan. 13

Activities:

- Video and Note Sheets – **Properties Logs**

Suggested ALEKS topics:

- Using a calculator to evaluate natural and common logarithmic expressions
- Converting between logarithmic and exponential equations
- Converting between natural logarithmic and exponential equations
- Evaluating logarithmic expressions
- Basic properties of logarithms
- Using properties of logarithms to evaluate expressions
- Expanding a logarithmic expression: Problem type 1
- Expanding a logarithmic expression: Problem type 2
- Expanding a logarithmic expression: Problem type 3
- Writing an expression as a single logarithm
- Change of base for logarithms: Problem type 1
- Change of base for logarithms: Problem type 2

Day 11:
Sunday, Jan. 14

Activities:

- Download and/or print **Unit 2 Review Sheet**
- Start working on **Unit 2 Review Sheet**
- Video and Note Sheets – **Solving Exp Equations**

Suggested ALEKS topics:

- Using a calculator to evaluate exponential expressions
- Evaluating an exponential function that models a real-world situation
- Introduction to compound interest
- Calculating and comparing simple interest and compound interest
- Finding the final amount in a word problem on compound interest
- Solving an exponential equation by finding common bases: Linear exponents
- Solving an exponential equation by finding common bases: Linear and quadratic exponents
- Solving an exponential equation by using logarithms: Decimal answers, basic
- Solving an exponential equation by using natural logarithms: Decimal answers
- Solving an exponential equation by using logarithms: Decimal answers, advanced
- Solving an exponential equation by using logarithms: Exact answers in logarithmic form
- Solving an exponential equation by using substitution and quadratic factoring
- Finding the time to reach a limit in a word problem on exponential growth or decay
- Finding the time in a word problem on compound interest
- Finding the time given an exponential function with base e that models a real-world situation
- Finding the final amount in a word problem on continuous compound interest
- Finding the initial amount in a word problem on continuous compound interest

Day 12:
Monday, Jan. 15

Activities:

- Continue working on **Unit 2 Review Sheet**
- Video and Note Sheets – **Solving Log Equations**

Suggested ALEKS topics:

- Solving a multi-step equation involving a single logarithm: Problem type 1
- Solving a multi-step equation involving a single logarithm: Problem type 2
- Solving a multi-step equation involving natural logarithms
- Solving an equation involving logarithms on both sides: Problem type 1
- Solving an equation involving logarithms on both sides: Problem type 2

Day 13:
Tuesday, Jan. 16

Activities:

- Complete **Unit 2 Review Sheet** and look at answer key
- Video and Note Sheets – **Exp Growth Decay**
- Participate in whole-class Office Hours, 3:00-3:45 on Zoom

Suggested ALEKS topics:

- Finding a final amount in a word problem on exponential growth or decay
- Writing an equation that models exponential growth or decay
- Finding the final amount in a word problem on continuous exponential growth or decay 
- Finding the rate or time in a word problem on continuous exponential growth or decay 
- Finding half-life or doubling time 
- Writing and evaluating a function modeling continuous exponential growth or decay given doubling time or half-life 
- Writing and evaluating a function modeling continuous exponential growth or decay given two outputs 

Day 14:
Wednesday, Jan. 17

Activities:

- Exam #2 – 2:30-3:45 (either on campus, Baldy 110, or at approved testing center)
- Participate in exam review from 12:00-2:00 on campus/via Zoom
- Complete Unit 2 module in ALEKS

Day 15:
Thursday, Jan. 18

Activities:

- Video and Note Sheets – **Right Tri Trig**
- Participate in whole-class Office Hours, 3:00-3:45 on Zoom

Suggested ALEKS topics:

- Introduction to the Pythagorean Theorem
- Pythagorean Theorem
- Word problem involving the Pythagorean Theorem
- Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
- Using a calculator to approximate sine, cosine, and tangent values
- Using a calculator to approximate cosecant, secant, and cotangent values
- Special right triangles: Exact answers
- Sine, cosine, and tangent ratios: Numbers for side lengths
- Sine, cosine, and tangent ratios: Variables for side lengths
- Using the Pythagorean Theorem to find a trigonometric ratio
- Finding trigonometric ratios given a right triangle
- Understanding trigonometric ratios through similar right triangles
- Relationship between the sines and cosines of complementary angles
- Using similar right triangles to find trigonometric ratios
- Using a trigonometric ratio to find a side length in a right triangle
- Using trigonometry to find a length in a word problem with one right triangle
- Using a trigonometric ratio to find an angle measure in a right triangle
- Using trigonometry to find angles of elevation or depression in a word problem
- Solving a right triangle
- Using trigonometry to find a length in a word problem with two right triangles

Day 16:
Friday, Jan. 19

Activities:

- Look at Exam 2 grade on UBLearns
- Sign up for individual office hours if you have exam questions
- Video and Note Sheets – **Angles**

Suggested ALEKS topics:

- Converting between degree and radian measure: Problem type 1
- Converting between degree and radian measure: Problem type 2
- Sketching an angle in standard position
- Coterminal angles
- Arc length and central angle measure

Day 17:
Saturday, Jan. 20

Activities:

- Video and Note Sheets – **Reference Angles**

Suggested ALEKS topics:

- Reference angles: Problem type 1
- Reference angles: Problem type 2
- Determining the location of a terminal point given the signs of trigonometric values
- Finding coordinates on the unit circle for special angles
- Finding a point on the unit circle given one coordinate
- Trigonometric functions and special angles: Problem type 1
- Finding trigonometric ratios from a point on the unit circle
- Trigonometric functions and special angles: Problem type 2
- Trigonometric functions and special angles: Problem type 3

Day 18:
Sunday, Jan. 21

Activities:

- Download and/or print **Unit 3 Review Sheet**
- Start working on **Unit 3 Review Sheet**
- Video and Note Sheets – **Graph Trig & Inverse**

Suggested ALEKS topics:

- Finding values of trigonometric functions given information about an angle: Problem type 1
- Finding values of trigonometric functions given information about an angle: Problem type 2
- Finding values of trigonometric functions given information about an angle: Problem type 3
- Finding values of trigonometric functions given information about an angle: Problem type 4

Day 19:
Monday, Jan. 22

Activities:

- Continue working on **Unit 3 Review Sheet**
- **BEFORE** watching the video, please complete the 3 GeoGebra Activities listed on UBLearns (Amplitude, Period, Vertical Shift)
- Video and Note Sheets – **Transformations Trig**

Suggested ALEKS topics:

- Sketching the graph of y= a sin(x) or y= a cos(x)
- Sketching the graph of y= sin(bx) or y= cos(bx)
- Sketching the graph of y= sin(x)+ d or y= cos(x)+ d
- Sketching the graph of y= sin(x+c) or y= cos(x+c)
- Sketching the graph of y= a sin(x+c) or y= a cos(x+c)
- Sketching the graph of y= a sin(bx) or y= a cos(bx)
- Sketching the graph of y= a sin(bx+c) or y= a cos(bx+c)
- Sketching the graph of y= a sin(bx)+ d or y= a cos(bx)+ d
- Amplitude and period of sine and cosine functions
- Amplitude, period, and phase shift of sine and cosine functions
- Writing the equation of a sine or cosine function given its graph: Problem type 1
- Writing the equation of a sine or cosine function given its graph: Problem type 2
- Word problem involving a sine or cosine function: Problem type 1
- Word problem involving a sine or cosine function: Problem type 2
- Domains and ranges of trigonometric functions

Day 20:
Tuesday, Jan. 23

Activities:

- Complete **Unit 3 Review Sheet** and look at answer key
- Video and Note Sheets – **Trig Identities & Equations**
- Participate in whole-class Office Hours, 3:00-3:45 on Zoom

Suggested ALEKS topics:

- Verifying a trigonometric identity
- Proving trigonometric identities: Problem type 1
- Proving trigonometric identities: Problem type 2
- Proving trigonometric identities: Problem type 3
- Sum and difference identities: Problem type 1 
- Sum and difference identities: Problem type 2 
- Sum and difference identities: Problem type 3
- Sum and difference identities: Problem type 4 
- Proving trigonometric identities using sum and difference properties: Problem type 1
- Proving trigonometric identities using sum and difference properties: Problem type 2
- Double-angle identities: Problem type 1 
- Double-angle identities: Problem type 2 
- Finding solutions in an interval for a basic equation involving sine or cosine 
- Solving a basic trigonometric equation using a calculator
- Solving a basic trigonometric equation involving sine or cosine 
- Finding solutions in an interval for a trigonometric equation in factored form 
- Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 1 
- Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 2 
- Finding solutions in an interval for a trigonometric equation using Pythagorean identities: Problem type 1 
- Finding solutions in an interval for a trigonometric equation using Pythagorean identities: Problem type 2 
- Solving a trigonometric equation using sum and difference identities

Day 21:
Wednesday, Jan. 24

Activities:

- Exam #3 – 2:30-3:45 (either on campus, Baldy 110, or at approved testing center)
- Participate in exam review from 12:00-2:00 on campus/via Zoom
- Complete ALEKS pie by 11:59 p.m.