Math Class Descriptions, 2020-2021

Algebra I, Level 2
<u>Teacher</u>: Kay Hampson
<u>Credit</u>: 1
<u>Meets</u>: Full year, Monday & Thursday (see grid)
<u>Text</u>: *Globe Fearon Pacemaker Algebra* (ISBN10: 0130236381)
      Pacemaker Algebra I student Workbook (ISBN10: 0130236411)
<u>Additional required materials</u>: Calculator (cell phones are not permitted in class)
<u>Homework time expectation</u>: 1-2 hours weekly
<u>Teaching format</u>: lecture, homework, review assignments, tests, and in-class work
<u>Description</u>: This course will cover the basic concepts needed for an Algebra I credit and is geared to students who will not need higher level math for life or college. Students are encouraged to contact Mrs. Hampson by email, phone, or FaceTime with homework questions. Tests are generally taken at home under parental oversight. Although Algebra I can be challenging for many students, the goal is to provide the students with a positive, supportive environment in which to learn.

Algebra I, Level 3
<u>Teacher</u>: Kathy Martin
<u>Level</u>: 3 or 4
<u>Credit</u>: 1
<u>Meets</u>: Full year, Monday & Thursday (see grid)
<u>Prerequisites</u>: A solid understanding of Pre-Algebra concepts. Students must also be able to perform basic math skills including addition, subtraction, multiplication, and division of whole numbers and fractions without the use of a calculator.
<u>Text</u>: *Prentice Hall Classics Edition: Algebra I (Expressions, Equations, & Applications)*, Paul Foerster, ISBN: 0-13-165708-9
<u>Additional required materials</u>: Scientific calculator (cell phones not allowed), ruler, graph paper, 10 sealable envelopes to keep at home for take-home tests, two (2) colored pens or pencils
<u>Homework time expectation</u>: 3-4 hours weekly
<u>Teaching format</u>: Lecture, hands-on development of concepts, in-class problems, homework, tests
<u>Description</u>: Algebra is a necessary tool for success in many fields. Nonetheless, making the change from arithmetic to math which uses variables can be a difficult hurdle for many students. To ease the transition, as much as possible, this class will introduce new concepts using hands-on methods to develop intuitive understanding. Once a "gut-feel" for the concept is established, the concept will be explained with traditional mathematical language. In addition to providing a solid foundation for math and science courses, this course will instill problem solving skills that can be used in everyday applications. Topics introduced in this course comprise much of college entrance exam math sections, and include expressions and equations, axioms and properties, polynomials and radicals, solving and graphing linear equations and inequalities, quadratic

equations, properties of exponents, factoring binomials and trinomials, and rational and radical algebraic expressions.

   NOTE: Some homework will be assigned over breaks.

Algebra 2, Level 3

Teacher: Nicole Hepner

Level: 3 or 4

Credit: 1

Meets: Full year, Monday & Thursday (see grid)

This course requires a minimum of 3 students in order to be held.

Prerequisites: Successful completion of Algebra I. Students must also be able to perform basic
   math skills including addition, subtraction, multiplication, and division of whole numbers
   and fractions without the use of a calculator.

Text: *Algebra & Trigonometry, Classics Edition*; Author: Paul Foerster; Publisher: Pearson Hall
   ISBN 10: 0-13-165710-0 or ISBN 13: 9780131657106

Additional required materials: Scientific calculator for tests (cell phone calculators not allowed),
                              ruler, graph paper, graphing calculator (TI 84 or 83) OR a
                              graphing utility such as free DESMOS app, 10 sealable envelopes
                              for take-home tests

Homework time expectation: 3-4 hours weekly

Description: This course will continue to build on the foundation that is necessary for success in many fields. Students will gain additional problem-solving skills that are useful in life. The concepts introduced in this course will improve college entrance exam math scores and increase the potential for success in college. Topics include linear and quadratic functions and relations, systems of equations, introduction to matrices, complex numbers, exponents and logarithms, and conic sections. Trigonometry *is not covered* in this course. Please note that some homework will be assigned over breaks.

Algebra 2, Level 2

Teacher: Kay Hampson

Level: 2

Credit: 1

Meets: Full year, Monday & Thursday (see grid)

Prerequisite: Successful completion of Algebra I

Required textbook: Holt Algebra 2, copyright 2004. ISBN: 0-03-070044-2

Additional required materials: Access to a home computer and WIFI to use Kahn Academy

Homework time expectation: 1-2 hours weekly

Teaching format: Lecture, homework, review assignments, tests, in-class work

Description: Topics covered include: data and linear representation, numbers and functions, systems of linear equations, matrices, quadratic functions, exponential and logarithmic functions, polynomial functions.. This book is a level 3 book but we will be taking it at a slower pace and only delving into the general parts of each chapter.

Calculus I, Level 5
Teacher: Barb Varnell
Level: 5
Credit: 1
Meets: Fall semester only, Monday & Thursday (see grid)
Prerequisites: Strong mastery of Pre-Calculus concepts
Text: *Calculus*, Stewart, ISBN: 978-0-495-01160-6
    Study and Solutions Guide, ISBN: 978-0495012344
    (you should be able to find these used)
Description: This is a rigorous calculus class. The University of Delaware website states, "Prospective majors in mathematics, engineering, business, computer science, and natural science should complete four years of mathematics, including trigonometry, pre-calculus, and/or calculus." This class will fulfill these requirements and is ideal for those students who are planning on majoring in these areas or those who wish to have a level 5 mathematics course to enrich their transcript. This class uses the same textbook used in UD's Math 241 and 242 Calculus courses.

Calculus II, Level 5
Teacher: Barb Varnell
Level: 5
Credit: 1
Meets: Spring semester only, Monday & Thursday (see grid)
Prerequisites: Calculus I, Level 5 in the fall
Text: *Calculus*, Stewart, ISBN: 978-0-495-01160-6
    Study and Solutions Guide, ISBN: 978-0495012344
    (you should be able to find these used)
Description: This is a rigorous calculus class. The University of Delaware website states, "Prospective majors in mathematics, engineering, business, computer science, and natural science should complete four years of mathematics, including trigonometry, pre-calculus, and/or calculus." This course along with its Calculus I prerequisite will cover most of the concepts in University of Delaware's Math 241 and 242 courses.

Discrete Math/Linear Algebra, Level 5
Teacher: Barb Varnell
Level: 5
Credit: 1
Meets: Full year, Monday & Thursday (see grid)
Prerequisites: Strong mastery of Pre-Calculus concepts (Completion of Level 5 Pre-Calculus)
Text: *Discrete Math with Applications*, Susanna Epp, ISBN 978-0534359454
    Solutions Manual, ISBN 978-0534360283
    Linear Algebra, A Modern Introduction, David Poole, ISBN 978-0538735452
    Solutions Manual, ISBN 978-0538737715
    (You should be able to find these used.)

Description: This course is for students who have completed a Level 5 Pre-Calculus course. It will cover the following topics in Discrete Math: Logic of Compound Statements, Logic of Qualified Statements, Elementary Number Theory & Methods of Proof, Sequences and Mathematical Induction, Set Theory, Counting & Probability, and Functions. In the Linear Algebra portion of the course we will cover Vectors, Linear Equations, Matrices, and Eigenvalues & Eigenvectors.

Geometry, Level 3
Teacher: Kay Hampson
Level: 3
Credit: 1
Meets: Full year, Monday & Thursday (see grid)
Prerequisites: Successful completion of Algebra I
                Ability to solve multi-step equations
Text: *Holt Geometry*
        ISBN: 0030700523
Additional required materials: TI 83 or 84 (This is a calculator that will be used throughout
                                a student's college career and is recommend by Mrs. Hampson)
                                Compass and protractor
Homework time expectation: 2-3 hours weekly
Teaching format: Discussing problems encountered by students, teaching new material- terms
                and process with in class practice, chapter tests
Description: This class will cover geometry terms, postulates and theorems, polygons & triangles, perimeter & area of 2D objects, surface area & volume of 3D objects, similar vs. congruent, circles (circumference, tangents, secants, etc.), trigonometric relationships, translations, reflections, rotations in the Cartesian plane, & proofs. Class will be used to introduce terms as well as postulates and theorems that relate to assigned work. Students will work problems in their notebooks that will assist them at home. The book supplies examples for each type of problems introduced. Geometry uses algebra to solve problems, so students should be able to solve multi-step equations prior to signing up for this course. Proofs, both algebraic and two-column, will be integrated throughout the year. Grades are compiled from completed homework, quizzes, and tests. This course will help your student for SAT geometry and lay a foundation that will be helpful in their academic future.

Geometry, Level 2
Teacher: Kay Hampson
Level: 2
Credit: 1
Meets: Full year, Monday & Thursday (see grid)
Prerequisite: Successful completion of Algebra I
Text: *Globe Fearon Geometry Text & Workbook*
        ISBN-10: 0130238376 (textbook)
        ISBN-13: 978-0130238412 (workbook)

Additional required materials: Compass & protractor
Homework time expectation: 30 minutes daily, according to math skills
Teaching format: Interactive examples, drawings, lecture & discussion, as well as guided sample
                         problems
Description: Does your child struggle with math? This course is designed to be a (relatively) painless way to fulfill the geometry graduation requirement. It covers all the basics of geometry while providing a sound foundation for future geometric concepts or endeavors. We will not be focusing on proofs but will discuss them.

Financial Literacy, Fall semester
Teacher: Gail Friedline
Level: 3
Credit: .5 (Student may also take Spring Semester for a full credit)
Meets: **Fall semester**, Monday & Thursday (see grid)
Text: *Financial Literacy from a Christian Perspective* (e-book from 7sistershomeschool.com)
Additional required materials: Calculator
Homework time expectation: 2-4 hours weekly
Teaching format: Lecture, homework, tests, in-class problems, discussion, project/presentation
Description: This class is offered as a one-semester course for .5 credit. The course will cover chapters 1-5 of the text, Money: The Basics, Setting Financial Goals, Budgeting, Saving & Investing, & Credit. If a student also takes the Spring Semester, the last 4 chapters of the text will be covered.

Financial Literacy, Spring semester
Teacher: Gail Friedline
Level: 3
Credit: .5 (Student may also take Fall Semester for a full credit)
Meets: **Spring semester**, Monday & Thursday (see grid)
Text: *Financial Literacy from a Christian Perspective* (e-book from 7sistershomeschool.com)
Additional required materials: Calculator
Homework time expectation: 2-4 hours weekly
Teaching format: Lecture, homework, tests, in-class problems, discussion, project/presentation
Description: This class is offered as a one-semester course for .5 credit. The course will cover chapters 6-9 of the text, Financial Institutions and the Services They Provide, Insurance, Your Career, and Taxes. If the student takes the Fall semester, they will cover the first 5 chapters of the text.

Pre-Algebra, Level 3
Teacher: Gail Friedline
Credit: 1 (for high school students)
Meet: Full year, Monday & Thursday (see grid)
Text: *Saxon Algebra 1/2, 3rd edition*, textbook and test booklet

Additional required materials: Lined paper, graph paper, ruler, and protractor. **No calculators permitted.**
Homework time expectation: 3-4 hours weekly
Teaching format: Lecture with in-class examples and practice; homework
Description: This is a full pre-algebra course with an introduction to geometry. Topics include: prime numbers and composite numbers, fractions, decimals, order of operations, coordinates, exponents, square roots, ratios, algebraic phrases, probability, the Pythagorean Theorem, and more.

Precalculus, Level 3
Teacher: Nicole Hepner
Level: 3 or 4
Credit: 1
Meets: Full year, Monday & Thursday (see grid)
This course requires a minimum of 3 students in order to be held.
Prerequisites: Successful completion of Algebra II
Text: *Precalculus Mathematics for Calculus Fifth edition*, by Stewart, Redlin and Watson.
    ISBN-13: 978-0534492779 or ISBN-10: 0534492770
Additional required materials: TI 84 or 83 graphing calculator, ruler, graph paper, 10 sealable
                    envelopes for take-home tests
Homework time expectation: 3-4 hours weekly
Description: In addition to laying the foundation for calculus, this course will present math skills that are necessary for success in multiple areas. Topics covered include functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, trigonometric functions, analytic trigonometry, law of sines, law of cosines, polar coordinates and vectors, systems of linear equations, & introduction to matrices.

Precalculus, Level 5
Teacher: Kathy Martin
Level: 5
Credit: 1
Meets: Full year, Monday & Thursday (see grid)
Prerequisites: Algebra II, Geometry, and teacher recommendation
Text:
- *Real Mathematics, Real People 6th edition*, Ron Larson, ISBN-13: 978-1111427634 (Please purchase **this** edition- front cover has reddish background color. There are similar looking editions that are alternative & college versions)
- *Student Study Solutions Manual for Precalculus: Real Mathematics, Real People 6th edition,* Ron Larson, ISBN: 9781111572099

Additional required materials: Scientific calculator capable of doing trigonometric functions
                    (graphing calculator is optional); two (2) colored pens
                    or pencils; graph paper; internet access

<u>Homework time expectation</u>: 4-6 hours weekly (4 daily homework assignments per week- 2 assignments per lecture)

<u>Teaching format</u>: Lecture, homework, in-class problems, tests

<u>Description</u>: In addition to laying the foundation for calculus, this fast-paced course will present math skills that are necessary for success in multiple fields. Topics include functions and their graphs; polynomial and rational functions; exponential and logarithmic functions; trigonometric functions; analytic trigonometry; Law of Sines; Law of Cosines; vectors; matrices; sequences, series and probability; circles; parabolas; ellipses; hyperbolas; parametric equations; and polar coordinates. According to the University of Delaware, prospective majors in mathematics, engineering, business, computer science, and natural sciences should complete four years of mathematics, including trigonometry and precalculus. This class fulfills these requirements and is ideal for those students who are planning on majoring in these areas or for those who wish to have a level 5 mathematics course to enrich their transcript. Be aware that just as much homework is assigned after Thursday's lecture as is assigned after Monday's lecture (i.e., two "days" worth of homework is assigned per lecture).

Statistics, Level 5

<u>Teacher</u>: Barb Varnell

<u>Level</u>: 5

<u>Credit</u>: 1

<u>Meets</u>: Full year, Monday & Thursday (see grid)

<u>Prerequisites</u>: Strong mastery of Algebra II concepts (Pre-Calculus useful, but not required)

<u>Text</u>: *Statistics in Action*, Watkins Scheaffer Cobb, ISBN: 978-1559539098

    Solutions Manual Volume 1, ISBN: 978-1559539104

    Solutions Manual Volume 2, ISBN: 978-1559539111

    How to Lie with Statistics, Darrell Huff, ISBN: 978-0393310726

    (all available used)

<u>Description</u>: This is a rigorous statistics class using a college level textbook. Many college majors require a course in statistics, and more people flunk a statistics course in college than a calculus course. This class will prepare you well for a college statistics course (many of my former students have ended up as statistics tutors for their college class). In addition, it is a great way to enrich your high school transcript, and statistics is one of the most practical math courses you will ever have in high school. The class will focus on the mathematical "why" of statistics, not just the "how". Students will need a strong mastery of Algebra II concepts. Although this is not an official "AP" course, students will be prepared to sit the AP Statistics exam if they so desire.

Statistics and Probability

<u>Teacher</u>: Kay Hampson

<u>Level</u>: 3

<u>Credit</u>: 1

<u>Meets</u>: Full year, Monday & Thursday (see grid)

<u>Prerequisites</u>: Successful completion of Algebra I & Algebra II

Updated 7/16/20

<u>Text</u>: *Elementary Statistics, A Brief Version, fourth edition* by Allan G. Bluman
ISBN: 9780073534961 (used on-line reasonably priced)
<u>Additional required materials</u>: Bound composition book for rules & definitions
Must have a TI83 or 84 calculator
<u>Homework time expectation</u>: 2 hours weekly
<u>Description</u>: Class will cover frequency distributions, several types of graphs, measures of central tendencies, normal distribution, standard deviations, probability and counting rules, writing surveys, bias, z scores. Math is fun!