Course Overview: Precalculus

This course is considered to be a prerequisite for success in calculus and college mathematics. Algebraic, graphical, numerical, and verbal analyses are incorporated during investigation of the Precalculus content standards. Content for this course includes an expanded study of polynomial and rational functions, conic sections, trigonometric functions, and logarithmic and exponential functions.

Units and Activities: What will we be learning about and doing in this course?

1. A thorough understanding of inverses of functions solved algebraically and graphically.
2. Exponential functions, logarithmic functions, properties of logarithms, solving exponential and logarithmic equations.
3. Power and radical functions, polynomial functions, remainder and factor theorems, zeros of polynomial functions, rational functions and exploring asymptotes.
4. Right triangle trigonometry, degrees and radians, trigonometric functions on the unit circle, graphing sine, cosine, and tangent functions, law of sines and cosines.
5. Trigonometric identities, verifying trig identities, solving trig equations, sum and difference identities.
6. Analyzing graphs of functions and relations, continuity, end behavior, limits, extrema and average rates of change.
7. Parabolas, ellipses, circles, hyperbolas, and parametric equations.

Standards: What knowledge and skills will I gain by the end of this course?

This course will assess the knowledge and skills students build in key Anchor Standards and Content Standards.

**Anchor Standards:** This course will assess the knowledge and skills students build in key Anchor Standards. A student will have multiple opportunities to show their proficiency in each Anchor Standard. Below, each Anchor Standard for this course is named and described.

**Sense Making,** the ability to adjust to a problem that is given and determine the correct skills to apply to solve the presented problem.

**Reasoning,** the ability to use mathematical reasoning to prove or explain why something is correct or incorrect.

**Modeling,** the ability to show understanding of a given topic in a number of different models.

**Making Use of Structure,** the ability to see and use the underlying structure of concepts.

**Recognizing and Using Patterns,** the ability to determine patterns of functions to develop a strategy to solve a number of problems.
Course Standards: This course builds student knowledge and skill using the mathematical standards. The course standards for Precalculus are: http://www.corestandards.org/Math/
Algebra
Functions
Number and Quantities
Statistics
Probability and Statistics

Assessment of Learning

Assessment Types:
Three types of assessments will be used to determine if you have gained the necessary knowledge and skills of this course: Formative assessments, Summative assessments, and Habits of Work for Learning. Each is briefly described below:

Formative Assessments: Formative = Forming my knowledge and skills. Formative Assessments receive a weight of .1 in the overall grade. Formative assessments are information for teachers, students, and parents on the progress students are making as they practice gaining knowledge and skills found in Anchor Standards. Teachers use the results of these assessments as data to understand individual student learning needs, adjust instructional pathways, and modify lessons to help students better meet course standards. Students use the results of these assessments to determine how they are progressing and to plan steps to ensure their success.

Summative Assessments: Summative = Summation of my knowledge and skills. Summative Assessments can receive three different weights: 1, 1.5, or 2 depending on the size of the assessment, and therefore have the greatest impact on the Overall Course Mastery Grade. Summative assessments are used as a measure of independent student achievement in Anchor Standards. Throughout this course, summative assessments provide benchmark student achievement data. A summative assessment will always have clear scoring criteria for students to understand how they are performing.

Habits of Work for Learning: Habits of Work for Learning (HOWLs) are skills and dispositions that are essential to the learning process but do not provide evidence of what a student knows or can do in relation to content. WUHSMS teachers work to foster Habits of Work for Learning in three categories: preparation, participation, and perseverance.

Assessment Scoring:
Teachers will provide framing for summative assessment scores using proficiency level scoring criteria for grading similar to the example below:

<table>
<thead>
<tr>
<th>Anchor Standard: Computational Modeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Standards: NGSS HS-L2-1 Use mathematical and/or computational representations to support explanations of factors that affect the carrying capacity of ecosystems at different scales. NGSS HS-LS2-4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.</td>
</tr>
<tr>
<td>1.0* 1.3* 1.7* 2.0 2.3 2.7 3.0 3.3 3.7 4.0</td>
</tr>
<tr>
<td>NC* NC* NC* C C+ B- B B+ A- A</td>
</tr>
</tbody>
</table>
### Representation
- **Beginning**: I can identify the components of a system.
- **Approaching**: I can represent the components of a system using numbers or variables.
- **Proficient**: I can show connections between components of a system using a computational model.
- **Distinguished**: I can use mathematics and/or a computational representation to make predictions about how changing one variable or component will affect the system.

*scores in the “Beginning range” are well below proficient and thus they are below passing.*

### Computational Modeling & Analysis
- **Beginning**: I can use a given computational model to explore relationships between components of a system.
- **Approaching**: I can use a given computational model as evidence to support a claim or explanation of a system.
- **Proficient**: I can create and/or revise a computational model and use it as evidence to support a claim or explanation of a system.
- **Distinguished**: I can expand the computational model to illustrate how a change in a system component can impact all other relevant components.

### HOWL Scoring:
HOWLs will be scored at least once per checkpoint, and will be based on the frequency with which students demonstrate each of the habits: preparation, participation, and perseverance.

### How is my Overall Course Grade Determined?
Overall course grades will be reported as letter grades and will be comprised of:
- Formative & Summative Scores: 95%
- HOWLs: 5%

For more information, please see the WUHSMS student handbook.

### Communication:
#### How Do I Know My Grades?
- On Summative Assessments, a teacher will provide both a 4-point grade and a letter grade.
- You can monitor your progress in the following ways:
  - By reading feedback and scoring returned to students on summative assessments
  - By monitoring the scores and Overall Course Mastery Grade in the Parent/Student portal on JumpRope
  - By monitoring the grades sent home quarterly through report cards

### Where Can I Find This Syllabus during the School Year?
- This syllabus will be available on the school website in each subject’s department tab once the school year is up and running.

### How Do I See What’s Due?
- Summative assessment due dates and handouts are posted to the blue “Upcoming Assessment” section of the JumpRope Parent/Student Portal on or before the day they are assigned to students.

### How Do I See What’s Past Due?
- If a student is missing an assessment, it will be listed in the red “Missing Assessment” section of the JumpRope Parent/Student Portal along with any attachments.

### Best Way to Contact Me:
The best way of contacting me would be through email, tpoublon@wcsu.net

Materials:

Three Ring Binder (1.5-2”)
Writing Utensil
Growth Mindset

Schoolwide Procedures:

Please see the Student Handbook for Procedures and Policies related to: Due dates and deadlines, extra credit, retaking assessments, and turnaround time for grade entry.

Personal Mobile Devices: This class will follow the procedures outlined in the student handbook

Classroom Expectations:

The students will collaborate to create a list of classroom expectations. If you would like a copy please email me.

Teacher Contact Information:

Phone: 802-457-1317 Ext. 1002
Email: tpoublon@wcsu.net

I have read this syllabus, and I have contacted the teacher with any questions I have.

Student name (printed): ____________________________

Student Signed: ____________________________ Date: ____________________________

Parent/Guardian name (printed): ____________________________

Parent Signed: ____________________________ Date: ____________________________