PreCalc Honors
Course Compendium

PRE-CALCULUS HONORS Credits: 5 Prerequisite: Algebra 2 Honors OR Algebra 2 CP with a final average of 91 with teacher recommendation Grade: 10, 11, 12

This course is designed for the mathematically talented students who are interested in pursuing mathematics at an advanced level, particularly Advanced Placement Calculus. The course focuses on trigonometry, function analysis, and an introduction to calculus designed to prepare students for success in future advanced mathematics courses. Graphing, problem solving, and analysis are stressed. Graphing calculator use is emphasized. The use of technology is infused to gather, analyze, and communicate mathematical information.

UNITS OF STUDY*

Unit 1- *Introduction to Functional Analysis*
Unit 2- *Analysis of Polynomial Functions*
Unit 3- *Analysis of Rational Functions*
Unit 4- *Analysis of Implicitly Defined Functions*
Unit 5- *Analysis of Exponential and Logarithmic Functions*
Unit 6- *Introduction to Trigonometric Functions*
Unit 7- *Analysis of Trigonometric Functions*
Unit 8- *Parametric, Polar, and Vector Analysis*
Unit 9- *Limits and Continuity*

INTERDISCIPLINARY CONNECTIONS

NJSLS Companion Standards Grades 9-12 (Reading & Writing in Science & Technical Subjects)

RST.9-10.7. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
RST.9-10.8. Determine if the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

21st Century Life and Careers

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP4. Communicate clearly and effectively and with reason.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11. Use technology to enhance productivity.
9.3.ST.2 Use technology to acquire, manipulate, analyze and report data.

**See individual units for Pacing Guide, NJSLS Standards, Transfer Skills, Enduring Understandings, Essential Questions, Learning Objectives, Key Vocabulary, Skills, Resources, & Assessments*

Technology

8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.

8.1.12.A.CS1 Understand and use technology systems.

8.1.12.A.CS2 Select and use applications effectively and productively.

E. Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.

8.2.12.E.1 Demonstrate an understanding of the problem-solving capacity of computers in our world.

MODIFICATIONS / ACCOMMODATIONS

<table>
<tr><th colspan="3">GENERAL CONSIDERATIONS FOR DIVERSE LEARNERS</th></tr>
<tr><th>English Language Learners</th><th>Students Receiving Special Education Services</th><th>Advanced Learners</th></tr>
<tr>
<td>- Personal glossary
- Text-to-speech
- Extended time
- Simplified / verbal instructions
- Frequent breaks

WIDA Can Do Descriptors for Grade 9-12
WIDA Essential Actions Handbook
FABRIC Paradigm
Wall Township ESL Grading Protocol

Use WIDA Can Do Descriptors in coordination with Student Language Portraits (SLPs).</td>
<td>- Small group/One to one
- Additional time
- Review of directions
- Student restates information
- Space for movement or breaks
- Extra visual and verbal cues and prompts
- Preferential seating
- Follow a routine/schedule
- Rest breaks
- Verbal and visual cues regarding directions and staying on task
- Checklists
- Immediate feedback

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

Considerations for Special Education Students 6-12
National Center on Universal Design for Learning - About UDL
UDL Checklist
UDL Key Terms</td>
<td>- Use of high level academic vocabulary/texts
- Problem-based learning
- Pre-assess to condense curriculum
- Interest-based research
- Authentic problem-solving
- Homogeneous grouping opportunities
Knowledge and Skill Standards in Gifted Education for All Teachers
Pre-K-Grade 12 Gifted Programming Standards
Gifted Programming Glossary of Terms

Students with 504 Plan

Teachers are responsible for implementing designated services and strategies identified on a student’s 504 Plan.</td>
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**See individual units for Pacing Guide, NJSLS Standards, Transfer Skills, Enduring Understandings, Essential Questions, Learning Objectives, Key Vocabulary, Skills, Resources, & Assessments*

At Risk Learners / Differentiation Strategies		
Group Investigations Leveled Rubrics Homogeneous Grouping Online Math Practice	Varied Supplemental Activities Tiered Activities/Assignments Mini-Workshops to Reteach or Extend Think-Pair-Share by readiness Use of Collaboration of Various Activities	Jigsaw Flexible Grouping Homework Options Stations/Centers Work Alone/Together

**See individual units for Pacing Guide, NJSLS Standards, Transfer Skills, Enduring Understandings, Essential Questions, Learning Objectives, Key Vocabulary, Skills, Resources, & Assessments*