

Calculus Honors Course Compendium

UNITS OF STUDY*

Unit 1- *Preparation for Calculus*

Unit 2- *Limits*

Unit 3- *Differentiation*

Unit 4- *Implicit Differentiation*

Unit 5- *Applications of Differentiation*

Unit 6- *Indefinite Integrals*

Unit 7- *Definite Integrals*

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.

RST.11-12.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

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-SM.4 Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.

**CALCULUS HONORS Credits: 5 Prerequisite: Pre-Calculus Honors or Pre-Calculus CP with a final average of at least 80 or teacher recommendation
Grade: 11, 12**

Calculus is not only the language for expressing physical laws in precise mathematical terms, but it is also a tool for studying these laws. This course involves a comprehensive study of differential and integral calculus. The concepts of limits and continuity are analyzed as the basis for the study of calculus. A balance is maintained between theory, applications and manipulative techniques.

**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

GENERAL CONSIDERATIONS FOR DIVERSE LEARNERS		
English Language Learners	Students Receiving Special Education Services	Advanced Learners
<ul style="list-style-type: none"> - Personal glossary - Text-to-speech - Extended time - Simplified / verbal instructions - Frequent breaks <p>WIDA Can Do Descriptors for Grade 9-12 WIDA Essential Actions Handbook FABRIC Paradigm Wall Township ESL Grading Protocol</p> <p>Use WIDA Can Do Descriptors in coordination with Student Language Portraits (SLPs).</p>	<ul style="list-style-type: none"> - 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 <p>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.</p> <p>Considerations for Special Education Students 6-12 National Center on Universal Design for Learning - About UDL UDL Checklist UDL Key Terms</p>	<ul style="list-style-type: none"> - Use of high level academic vocabulary/texts - Problem-based learning - Pre-assess to condense curriculum - Interest-based research - Authentic problem-solving - Homogeneous grouping opportunities <p>Knowledge and Skill Standards in Gifted Education for All Teachers Pre-K-Grade 12 Gifted Programming Standards Gifted Programming Glossary of Terms</p>
		Students with 504 Plan
		Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.

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

At Risk Learners / Differentiation Strategies

Games and Tournaments
Group Investigations
Homogeneous Grouping
Online Math Practice

Varied Supplemental Activities
Tiered Activities/Assignments
Choice of Activities
Think-Pair-Share by readiness
Use of Collaboration of Various Activities

Jigsaw
Flexible Grouping
Homework Options
Open-Ended Activities
Stations/Centers
Work Alone/Together