



Fairfield Ludlowe High School - Fairfield Warde High School

MODERN MATHEMATICS

Insert Teacher Name

Insert Room Number

Full Year

Insert Period

Insert Email Address

COURSE DESCRIPTION

Modern Mathematics is a rigorous fourth-year launch course that differs from the courses that precede it in that the mathematics is focused on discrete topics instead of continuous functions. This post-Algebra II course is heavily based in modeling with mathematics and includes topics like elections and weighted voting, graph theory, game theory, and apportionment. Students engage in problem-based learning where problems are ill defined and may have varying outcomes. In this course, reasoning and modeling are primary drivers of instruction. The **Elective GPA weighting scale applies.**

COURSE ENDURING UNDERSTANDINGS

Students should:

- A quantity can be represented numerically in various ways.
- Problem solving depends upon choosing wise ways.
- There are multiple algorithms for finding a solution.
- Distinguish between the best voting methods for various situations.
- Determine how voting results may vary depending on voting methodology.
- Determine if sharing is fair or not.
- Apply the Euler Circuit algorithm to solve optimization problems
- Determine if a graph has a Hamilton path or Circuit and find one if either exists
- Calculate the optimal solutions to graphs and charts that have Hamilton circuits using one of the following algorithms: Brute-Force, Nearest Neighbor, Repetitive Nearest Neighbor, and Cheapest Link.
- Draw a fractal given an initiator & generator
- Use and solve problems with the Fibonacci sequence and other recursive sequences.

UNITS OF STUDY

- The Mathematics of Elections and Power (The Paradoxes of Democracy & Weighted Voting)
- The Mathematics of Sharing: Fair Division Games
- The Mathematics of Apportionment: Making the Rounds
- The Mathematics of Paths and Touring (Euler Paths and Circuits, Traveling Salesman Problems, & The Cost of Being Connected)
- The Mathematics of Scheduling: Chasing the Critical Path
- Fractals
- Fibonacci Numbers and the Golden Ratio

COURSE POLICIES AND REQUIREMENTS

GRADING (see FPS BOE [Policy 6146.1AR](#))

Cumulative/In-Progress Grade:

- 10% of the grade will be based on formative assessments, homework completion, and behavior.
- 90% will be based on summative assessments, of which there will be a minimum of eight, with no fewer than 2 per quarter, for this full-year course; these may include Unit Tests, Mid-Unit Tests, Projects, Performance tasks, Summative Quizzes, etc.

End-of-the-Year Grade:

- 90% of the overall course grade will reflect the student's mastery of course content and skills during the school year through the Cumulative/In-Progress Grade.
- 10% of the End-of-the-Year course grade will be based on the Final Assessment. Senior Exemption Policy does not apply to semester courses.

Grade Reporting

- All grades will be communicated through Infinite Campus.
- Summative assessment results will be reported back to the student within ten school days from the date of submission or the due date, whichever is later.
- Formative assessment results will be reported back to the student within five school days from the date of submission or the due date, whichever is later and prior to any subsequent assessment..

Guidelines for Late Work:

- Late work will be accepted for both summative and formative tasks within a defined timeline agreed upon between the student and the teacher for excused absences.
- The total points may be reduced as a penalty for late work for unexcused absences. Students will earn a zero (0) if the assignment is not submitted or is submitted after the deadline for late work.

Reassessments:

- Any extenuating circumstances may be discussed with administration to allow alternative reassessment opportunities with administrative approval.
- Reassessment opportunities are defined as twice per year (with a maximum of one per quarter) for assignments that students met the original required deadlines and do not violate the academic integrity policy. Reassessment does not apply to midyear assessments or final assessments.
- Gradebook impact of Reassessment: original and reassessment scores will be averaged in the gradebook.

MATERIALS

(Insert Course Materials Here, ie. Textbook, Binder, Calculator, Highlighters)

EXPECTATIONS OF STUDENTS

(Insert Course Expectations Here)

EXTRA HELP

(Insert Course Expectations Here)

(Insert Additional Information Here)