NNHS Multivariable Calculus with Linear Algebra Syllabus

Instructional Coordinator: hphelan@naperville203.org

Mission
To educate students to be self-directed learners, collaborative workers, complex thinkers, quality producers, and community contributors

Course Description
This course is intended for those students who have completed Calculus BC. The course extends the ideas and techniques of Calculus to three dimensions. Properties of vectors and graphing in 3-space are studied first, and provide the fundamentals for the remainder of the course. Vector-valued functions and their application to particle motion and curvature are studied in detail. Functions of several variables and related applications are then examined through the use of partial derivatives and multiple integrals. Topics in vector calculus include Green's Theorem, Divergence Theorem, and Stokes Theorem. This course also includes a semester study of Linear Algebra with topics in geometric vectors and vector space, matrices and linear transformations, inner product spaces, eigenvalues and eigenvectors, and determinant function. Emphasis is also placed on formal methods of mathematical proof. A graphing calculator is required. This is a Dual College Credit course, a 4 or 5 on the Advanced Placement BC Exam is required to be eligible for this course.

Course Learning Standards
The learning standards for this course are designated by the College Board:

- Vector valued functions - graphing, analysis, and application.
- Derivatives of multivariable functions and their applications
- Integration of multivariable functions and their applications
- Connections between different multivariable functions (Green's, Divergence, Stoke's)
- Matrix Theory - analysis and interpretation of linear systems of equations
- Determinants - theory, calculation, and related properties
- Linear Transformations - definition, properties, and application
- Vectors spaces, inner product space
- Eigenvalues and Eigenvectors

Grading:
Your course grade will reflect what you have learned, not what you have completed!

Overall Semester grade:
85% of the Course grade,
15% Final Exam

The final semester grade will be rounded to the nearest percentage point.
Course Grade

*Within each unit, summative and formative sections are weighted as follows:*

85% Summative (tests, quizzes, group quizzes), 15% Formative (Daily Work)

Grading Disbursement:
A= 90-100  B= 80-89  C= 70-79  D=60-69  F= <59

Reassessment Policy

**Formative Assignments (labs, class work, activities, homework):** All late work will be completed as dictated by the Student Handbook.

**Summative Assessment Retake Policy (retakes are only on summative work, excluding final exams):**

Students have the option of replacing their lowest quiz score from the unit with their higher test score from the same unit. This request for replacement must be done within 48 hours of receiving their test score.

A cumulative exam will be offered 1st, 2nd, and 3rd quarter. Students have the option of taking the cumulative exam and replacing their lowest test to date (within the semester) with their cumulative exam score.

Communication

- Teachers make every effort to respond to emails and phone calls within 48 hours during the work week.
- The best way to communicate with teachers is through email; however, if you haven’t received a response in 48 hours, please resend the email or call their voicemail. Your email may have gone into the spam folder.

Help

- Make an appointment with your teacher.
- Attend S.O.S (supervised open study) in the Literacy Center M, W & Th from 3:15 to 4:15.
- Drop in for peer tutor during lunch periods or before school through the Literacy Center.

Parents or Guardians

We need your help!

- Parents should actively check Infinite Campus for their student’s grade.
  - The grades on Infinite Campus will be accurate only at Mid-Quarter and Quarter. Prior to those dates, the grade reflected is fluid.
  - Infinite Campus is a communication tool until final grade is posted.
- Please ask your student about their school work
- Check with your individual teacher for classroom procedures, schedules, and daily class news.