College of the Holy Cross, Spring Semester, 2021
Math 241, Section 01 (Professor Hwang)
Course Information Sheet

Contact Information

Office Hours: M 10:30-11:20, R9:15-11:20, or by appointment
email: `ahwang -at- holycross -dot- edu`
web: `http://mathcs.holycross.edu/~ahwang/teach/241/index.html`

Office hours provide a chance for you to clarify difficult concepts, work through examples, discuss academic issues, discover applications of the course material, or just chat. You are making good use of my time by coming to office hours! Please send email to make an appointment. If a problem arises with the course, see me as soon as possible. The sooner we talk, the easier it is to get you back on track in the course.

Grading

The course grade has four components: Attendance and participation, group worksheets, midterm tests (4), and the final exam.

Attendance and participation Because we are working remotely, it's crucial that you come to class, ask questions, and generally take an active role in your learning. Attendance counts for 20% of your grade, prorated for unexcused absences.

Worksheets There will be collaborative assignments during the term, worth 10% of your course grade in total. These assignments involve more conceptual, open-ended questions than the recommended textbook exercises, and will in part be graded in part on organization, clarity, and neatness of the writing.

Midterms There are four in-class midterm tests, scheduled for Friday, February 19; Friday, March 12; Friday, April 9; and Friday, April 30. In total, the midterms count for 55% of your grade: The best three scores count 15% each, the lowest is worth 10%. If you have a midterm conflict due to an athletic event, illness, or a family emergency, notify me and your Class Dean immediately.

Final Exam The cumulative final exam is worth 15% of the course grade. The College has not yet scheduled the final exam.

Academic Integrity

Like all Holy Cross faculty, I strongly support the College's Policy on Academic Integrity, which is detailed in the catalog. It is **your responsibility** to read and follow this policy. Plagiarism and cheating are violations of my trust in you, and undermine the entire academic enterprise, which is founded on honesty and factual accuracy.

Meeting Schedule

The following is the syllabus for the term. Please see Moodle for a more detailed list of topics. Any substantial variations from this schedule will be announced by email or in class.

M	Feb 1		Introduction
W	Feb 3	Section 1.1	Vectors
R	Feb 4	Section 1.2	Lines and Parametric Equations
F	Feb 5	Section 1.3	The Dot Product, Orthogonal Projection
M	Feb 8	Section 1.4	The Cross Product
W	Feb 10	Section 1.6	Vectors
R	Feb 11	Section 1.6	Matrices
F	Feb 12	Section 1.6	Geometry of Matrix Multiplication
M	Feb 15	Section 1.7	Polar and Cylindrical Coordinates
W	Feb 17	Section 1.7	Spherical Coordinates
R	Feb 18		Review
F	Feb 19		**Midterm 1**
M	Feb 22	Section 2.1	Graphs and Level Sets
W	Feb 24	Section 2.2	Functions and Limits
R	Feb 25	Section 2.2	Continuity
F	Feb 26	Section 2.3	Partial Derivatives
M,W	Mar 1,3	Section 2.3	The Derivative
R	Mar 4	Section 2.4	Higher-order Partials
F,M	Mar 5,8	Section 2.5	The Chain Rule
W	Mar 10	Section 2.6	Directional Derivatives
R	Mar 11		Review
F	Mar 12		**Midterm 2**
M	Mar 15	Section 3.1–3.2	Curves and Arclength
W,R	Mar 17,18	Section 3.3	Vector Fields and Flows
F	Mar 19	Section 3.4	Grad, Curl, and Div
M	Mar 22	Section 4.1	Quadratic Approximation
W,R	Mar 24,25	Section 4.2	Optimization
F	Mar 26	Section 4.2	The Second Derivative Test
M,W	Mar 29,31	Section 4.3	Lagrange Multipliers
W	Apr 7	Section 4.4	Statistics, the Geometry of Data
R	Apr 8		Review
F	Apr 9		**Midterm 3**
M	Apr 12	Section 5.2	Double Integrals
W	Apr 14	Section 5.2	Integrating over General Regions
R	Apr 15	Section 5.3	Changing the Order of Integration
F	Apr 16	Section 5.4	Triple Integrals
M	Apr 19	Section 5.5	Polar and Spherical Integration
W	Apr 21	Section 5.6	Applications to Physics
R	Apr 22	Section 6.1	Scalar Line Integrals
F	Apr 23	Section 6.1	Vector Line Integrals
M	Apr 26	Section 6.2	Green's Theorem
R	Apr 29	Section 6.3	Conservative Fields
F	Apr 30		**Midterm 4**
M	May 3	Section 7.1	Parametrized Surfaces
W	May 5	Section 7.1	Surface Area
R	May 6	Section 7.2	Scalar Surface Integrals
F	May 7	Section 7.4	Differential Forms and Green's Theorem