

MATH 2261

ANALYTIC GEOMETRY & CALCULUS I

Prerequisites and Required Materials

- Pre-requisites: MATH 1112 or MATH 1113, with a C or higher.
- Required Textbook: APEX Calculus, Version 3.0 (available online for **free**). We will also use supplementary workbooks for Algebra and Trigonometry review.
- Optional Calculator: TI-83/84 Plus graphing calculator, or equivalent.
- Required WeBWork Access: **Free** account (see WeBWork handout).
- BlazeView Access: Used for posting course handouts, news announcements, gradebook, calendar, etc.

Note: This section is a designated pilot section for VSU's No-Cost Calculus initiative (Affordable Learning Grant #64, proposal by Shaun Ault and Sudhir Goel). As such, there is no purchase required for a textbook. Textbook will be available online at <http://www.apexcalculus.com/>. If any student wishes to have a hardcopy version, the student must print it.

Course Description

- Introduction to limits, derivatives, integration, the fundamental theorem of calculus, and applications
- Student Learning Outcomes:

In this course the student will learn the methods and applications of differential calculus and the motivation for the integral calculus. Properly using the language and notation of calculus, students will analyze functions and solve applied problems. Upon completion of the course, the intent of the instructor is that the students will be able to:

 1. Compute limits of algebraic and transcendental functions.
 2. State, use, and interpret the definitions of continuity and the derivative in terms of limits.
 3. Formulate derivatives of algebraic and transcendental functions using the power, product, quotient, and chain rules.
 4. Analyze and construct graphs of functions by using and combining calculus and precalculus methods.
 5. Apply the derivative to calculate rates of change and solve applied optimization problems.
 6. Demonstrate how antidifferentiation and Riemann sums relate to the integral calculus.
 7. Use the Fundamental Theorem of Calculus and substitution to compute definite and indefinite integrals.

Schedule

All sections are from APEX Calculus unless otherwise indicated.

Monday	Tuesday	Wednesday	Thursday
8/17: Intro, Algebra Review (Functions)	8/18: Algebra Review (Functions and Graphing)	8/19: Trig Review (Trigonometric Functions)	8/20: Algebra / Trig Review (Transformations)
8/24: Algebra Review / (Exponentials) / Q.1 d	8/25: Algebra / Trig Review (Inverse Functions and Logarithms)	8/26: Recit. / Q.2 (Algebra / Trig)	8/27: 1.1
8/31: 1.2	9/1: 1.3	9/2: Recit. / Q.3 (1.1-3)	9/3: 1.4
9/7: No Classes	9/8: 1.5	9/9: 1.6	9/10: Recit. / Review
9/14: TEST 1 (Ch.1)	9/15: 2.1	9/16: 2.2	9/17: Recit. / Q.4 (2.1-2)
9/21: 2.3	9/22: 2.4	9/23: Recit. / Q.5 (2.3-4)	9/24: 2.5a
9/28: 2.5b	9/29: Recit. / Review	9/30: TEST 2 (2.1-5)	10/1: 2.6
10/5: 2.7	10/6: Recit. / Q.6 (2.6-7)	10/7: 3.1	10/8: 3.2
10/12: No Classes	10/13: No Classes	10/14: Recit. / Q.7 (3.1-2)	10/15: 3.3
10/19: 3.4	10/20: 3.5	10/21: Recit. / Rev.	10/22: TEST 3 (2.6-7, Ch. 3)
10/26: 4.1	10/27: 4.2	10/28: Recit. / Q.8 (4.1-2)	10/29: 4.3a
11/2: 4.3b	11/3: 4.4	11/4: Recit. / Q.9 (4.3-4)	11/5: 6.7
11/9: Recit. / Review	11/10: TEST 4 (Ch. 4, 6.7)	11/11: 5.1a	11/12: 5.1b
11/16: 5.2	11/17: Recit. / Q.10 (5.1-2)	11/18: 5.3a	11/19: 5.3b
11/23: 5.4a	11/24: 5.4b	11/25: No Classes	11/26: No Classes
11/30: Recit. / Q.11 (5.3-4)	12/1: 5.5	12/2: 6.1a	12/3: 6.1b
12/7: Final Review			

Links to No-cost Materials

1. APEX Calculus (version 3.0), by Gregory Hartman et al.

www.apexcalculus.com/downloads/

2. WeBWork library (specific to APEX Calculus). Available from within the (free) WeBWork system (see webwork.maa.org). Also available as a tgz file on OER commons:

<https://www.oercommons.org/authoring/11231-no-cost-calculus-using-apex-and-webwork>

3. Although we had originally planned to offer Algebra and Trigonometry Workbooks, we did not have enough time to finish them. Therefore no link will be provided here.