MATH 132-01, Calculus and Analytic Geometry II
Fall 2019

Instructor: Dr. Andrew Phillips
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Office: Weir 246
Office hours: MWF 10-11, 1-2 or by appointment
Class time and location: MWF 8:45-9:50 in Weir 102

Text: *Calculus: Early Transcendentals*, 2nd ed, by Briggs, Cochran, and Gillett. You can either buy a hard copy or an ebook. You will need a MyMathLab access code. We will cover Chapters 6-10 in the book.

Course description: The purpose of this course, which is a continuation of MATH 131, is to study the methods of calculus in more detail. Topics include applications of the integral, methods of integration, infinite series, and polar coordinates.

Prerequisites: MATH 131 or the equivalent passed with a grade C- or better.

Place in curriculum: This course is a New Mexico general education and institute requirement.

Student learning outcomes: Upon completion of this course, students should be able to:

1. Integration
   a. Compute indefinite and definite integrals of algebraic and transcendental functions using various techniques of integration including integration by parts, trigonometric substitution, and partial fraction decomposition;
   b. Compute improper integrals using appropriate limit definitions;
   c. Solve problems involving separable differential equations;

2. Sequences and series
   a. Compute the limit of a sequence;
   b. Compute the sum of a basic series using its nth partial sum;
   c. Compute the sum of a geometric or telescoping series;
   d. Determine if a series converges using the appropriate test such as the nth term, integral, p-series, comparison, limit comparison, ratio, root, or alternating series test;
   e. Determine if a series converges absolutely, converges conditionally, or diverges;

3. Properties of power series
   a. Compute the radius and interval of convergence of a power series;
   b. Compute the Taylor polynomials of functions;
   c. Compute basic Taylor series using the definition;
   d. Compute Taylor series using function arithmetic, composition, differentiation, and integration;
   e. Compute limits with Taylor series;
   f. Approximate definite integrals with Taylor series and estimate the error of approximation;
   g. Determine the sum of a convergent series using Taylor series;

4. Applications of integration
   a. Compute volumes and areas of surfaces of solids of revolution;
   b. Compute the length of curves;
   c. Apply integration using alternative coordinated forms and using a parameter.
Homework: There will be written homework assigned every Wednesday and due the following Wednesday in class. Homework assignments and grades will be posted on the Canvas site for this course. No late homework will be accepted for any reason. There will also be assignments posted through MyMathLab. Your lowest homework grade will be dropped. Each written assignment must be submitted with a cover page stapled to the top, only including your name and assignment number.

Exams: There will be four in-class exams and a cumulative final exam. Calculators and online computing programs (such as Wolfram Alpha) are allowed on homework assignments, but calculators may not be used during exams. If you are forced to miss an exam for a legitimate reason, please inform me before the scheduled date if this is at all possible. Unnecessary delay will diminish your chances of being allowed a make-up.

Grading: Your grade will be determined as follows: written homework 10%, MML 10%, four in-class exams 50%, final exam 30%. Attendance and participation may be included, at my discretion, in your final grade.

Academic honesty: New Mexico Tech’s academic honesty policy for undergraduate students is found starting on page 64 of the NMT undergraduate catalog. You are responsible for knowing, understanding, and following this policy.

Sources of help: If you are struggling with the homework or need assistance preparing for an exam, please get help. You can come see me during my office hours or set up an appointment to meet at a special time. Other places for help: the drop in tutoring lab in Weir 220 and the Office of Student Learning in Speare 110 both offer free tutoring.

Reasonable accommodations: New Mexico Tech is committed to protecting the rights of individuals with disabilities. Qualified individuals who require reasonable accommodations are invited to make their needs known to the Office of Counseling and Disability Services (OCDS) as soon as possible. In addition, New Mexico Tech offers mental health and substance abuse counseling through the Office of Counseling and Disability Services. The confidential services are provided free of charge by licensed professionals. To schedule an appointment, please call 575-835-6619.

Title IX reporting: Sexual misconduct, sexual violence, and other forms of sexual misconduct and gender-based discrimination are contrary to the University’s mission and core values, violate university policies, and may also violate state and federal law (Title IX). Faculty members are considered “Responsible Employees” and are required to report incidents of these prohibited behaviors. Any such reports should be directed to Tech’s Title IX Coordinator (Dr. Peter Phaiah, 20D Brown Hall, 575-835-5187, titleixoordinator@nmt.edu ). Please visit Tech’s Title IX Website (www.nmt.edu/titleix) for additional information and resources.