Navajo Technical University http://www.navajotech.edu

PO Box 849, Crownpoint, NM 87313 Tel: (505) 387-7401

Course Title: Calculus I-Synchronous
Course #: MATH 1510

Credit Hours: 4
Semester: spring
Cap: 15

Faculty: Shasha Han **E-mail**: shan@navajotech.edu
Office: MOD 9 **Office Phone**: 505-387-7381
Office Hours (face-to-face or online): online: Email anytime but will respond within 24 hours
Monday-Thursday, will respond within 48 hours Friday-Sunday
Face to face (by appointment only): T/R 1-3, Friday 8-11.
Preferred Communication (email and/or text; will respond within 24 hours): email

Modality (face-to-face, hybrid, or online): online Synchronous zoom, WebAssign
Class Location and Meeting Times (virtual): Zoom/Blackboard/Webassign T/R 8:00-9:40
Meeting Hours and Online Hours (if hybrid):

Required Materials:
Texts: WebAssign Access Code
(Not Required) Calculus, 11th Edition
       Ron Larson & Bruce Edwards
       ISBN-13: 978-1-337-27535-4
       ISBN-10: 1-337-27535-2
Tools: Scientific Calculator / Graphing Calculator
Laptop and Internet Access: Every student is required to own a laptop and have internet access.
Lab Fee: (access code fee)
Mission, Vision, and Philosophy
Mission: Navajo Technical University honors Diné culture and language, while educating for the future.

Vision: Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.

Philosophy: Through the teachings of Nitsáhákees (thinking), Nahátá (planning), Íína (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.

Course Description

Calculus 1 includes modeling functions, calculating limits of functions, tangents, derivatives and its properties, chain rule, applications of differentiation, basic integration, and the fundamental theorem of Calculus. At times, the learning process relating to the Navajo culture in the areas of

Nitsahakees, Nahatah, Iina, and Sihasin will be covered as well as other cultures (multi-cultural studies).

COURSE OUTCOMES	COURSE MEASUREMENTS
1. Limits a. Use limit notation. b. Compute limits or determine when a limit does not exist. c. Use limits to decide if a function is continuous. d. Use limits to decide if a function is differentiable.	Formative assessment, Summative assessment, Applications Complete reading assignments, homework assignments, exams.
2. Derivatives a. Determine the derivative of a simple function, at a point as well as more generally, using the definition of the derivative. b. Determine the derivatives of algebraic and transcendental functions using the General Power, Product, Quotient, Chain Rules, implicit differentiation and the linearity of the differential operator. c. Describe the meaning of the derivative as a rate of change in a variety of contexts. d. Use derivatives to sketch graphs of functions with details showing critical points and their natures, inflection points, noting monotonicity, and concavity, connecting these to features found algebraically, such as intercepts and asymptotes.	
3. Integrals a. Compute definite integrals using the limit definition and sigma notation. b. Approximate definite integrals using finite sums. c. Compute indefinite integrals by identifying them with antiderivatives. d. Compute definite and indefinite integrals using substitution. e. Describe the meaning of the integral in a variety of contexts.	
4. Applications of calculus a. Solve optimization problems, related rate problems and motion problems involving position, velocity, speed and acceleration using differentiation and integration. b. Compute area bounded by functions and vertical lines. c. Be able to apply theorems of calculus such as the Fundamental Theorem, the Intermediate Value Theorem, the Mean Value Theorem, the Mean Value Theorem of Integration, and the Extreme Value Theorem.	

Connections to Program Assessment (Course-Embedded Measures)
SLO 1: Demonstrate knowledge of math foundations and context.
Topics:

1: Limits and Their Properties

2: Differentiation

3: Applications of Differentiation

4: Integration

Course Activities

Week	Date	Chapters	Assignments
1		Chapter 1	Reading/Homework Assignments
2		Chapter 1	Reading/Homework Assignments
3		Chapter 1	Quiz
4		Chapter 2	Reading/Homework Assignments
5		Chapter 2	Reading/Homework Assignments
6		Chapter 2	Quiz
7		Chapter 2	Reading/Homework Assignments
8		Mid term	Exam
9		Chapter 3	Reading/Homework Assignments
10		Chapter 3	Reading/Homework Assignments
11		Chapter 3	Quiz
12		Chapter 4	Reading/Homework Assignments
13		Chapter 4	Reading/Homework Assignments
14		Chapter 4	Reading/Homework Assignments
15		Chapter 7	Quiz
16		Chapter 7	Reading/Homework Assignments
17		Final	Exam

Spring Semester 2022

Pre-Registration Begins	Oct 25
HOLIDAY - New Year's Day	Dec 31
Faculty Return	Jan 10
New Student Orientation	Jan 13
On-Site Registration	Jan 14
HOLIDAY - Martin Luther King Day	Jan 17
Instruction Begins	Jan 18
Late Registration w/ fee	Jan 19-20
Last Day Add/ Drop Classes w/out W	Jan 21
HOLIDAY - President's Day	Feb 21
Spring Graduation Petitions due	Feb 25
Mid Term Exams	Mar 7-11
Spring Break	Mar 14-18
Last Day to Withdraw With a W	Mar 31
Final Exams	May 9-12
Final Grades due	May 12
SPRING GRADUATION	May 13
Memorial Day	May 30

Grading Plan
Homework: 50%%
Class Participation: 5%
Project(s): 5%
Quizzes: 20%
Mid-term/final: 20%
Portfolio:

A = 100-90%
B = 89-80%
C = 79-70%
D = 69-60%
F = 59% or less

Grading Policy
Students must do their own work. Cheating and plagiarism are strictly forbidden. Cheating includes (but is not limited to) plagiarism, submission of work that is not one's own, submission or use of falsified data, unauthorized access to exams or assignments, use of unauthorized material during an exam, or supplying or communicating unauthorized information for assignments or exams.

Participation
Students are expected to attend and participate in all class activities. Points will be given to students who actively participate in class activities including guest speakers, field trips, laboratories, and all other classroom events. (For online class, students are expected to log in blackboard and WebAssign each week to read and do assigned work on time, for Synchronous class, students are expected to attend assigned zoom classes)

Cell phone and headphone use
Please turn cell phones off **before** coming to class. Cell phone courtesy is essential to quality classroom learning. Headphones must be removed before coming to class. (Not applied to online classes)

Attendance Policy
Students are expected to attend all class sessions. If more than ten minutes late, students will be counted as absent. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of responsibility to complete all course work by required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. **Instructors may drop students from the class after three (3) absences or 3 assignments unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.**
(For Online classes, 3 absences means 3 missing assignments)
Study Time Outside of Class for Face-to-Face Courses
For every credit hour in class, a student is expected to spend two hours outside of class studying course materials.

Study Time for Hybrid or Blended Courses
For a hybrid or blended course of one credit hour, a student is expected to spend three hours per week studying course materials.

Study Time for Online Courses
For an online course of one credit hour, a student is expected to spend four hours per week studying course materials.

Academic Integrity
Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor**. The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited**.

Diné Philosophy of Education
The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Íína and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

At NTU's Zuni Campus, the A:shiwi Philosophy of Education offers essential elements for helping students develop Indigenous and Western understandings. Yam de bena: dap haydoshna: akkya hon detsemak a:wannikwa da: hon de:tsemak a:ts'umme. *Our language and ceremonies allow our people to maintain strength and knowledge.* A:shiwi core values of hon i:yyułashik'yanna:wa (respect), hon delank'oha:willa:wa (kindness and empathy), hon i:yyayumoła:wa (honesty and trustworthiness), and hon kohoł lewuna:wediyahnan, wan hon kela i:tsemanna (think critically) are central to attaining strength and knowledge. They help learners develop positive self-identity, respect, kindness, and critical thinking skills to achieve life goals successfully.

Students with Disabilities
Navajo Technical University is committed to serving all students in a non-discriminatory and accommodating manner. Any student who feels that she or he may need special accommodations should contact the Accommodations Office (http://www.navajotech.edu/student-services#accomodations-services) in accordance with the university's Disability Accommodations Policy (see http://www.navajotech.edu/images/about/policiesDocs/Disability_Exhibit-A_6-26-2018.pdf).

Email Address
Students are required to use NTU's email address for all communications with faculty and staff.

Final Exam Date: 05/10