COURSE INFORMATION FORM

Publish in college catalog? Yes ☒ No ☐

Course Title (*Maximum of 48 characters*) Calculus I

Department/Course Number MATH& 151 **Effective Quarter** Summer 2016

Administrative Unit Code: GM
Department: Mathematics

Credits 5 Variable No ☒ Yes ☐ _____ - _____

Multiple Versions No ☒ Yes ☐ _____ , _____ , _____ Maximum Class Size 36

Long Course Description (for college catalog): (***NOTE: Maximum of 995 characters)***

(Q, NS) First course in calculus sequence. Limits, continuity, differentiation and antidifferentiation of algebraic and transcendental functions with applications. For majors in engineering, science, mathematics and others requiring more than one quarter of calculus.

Short Course Description (for class schedule): (***NOTE: Maximum of 240 characters)***

First course in calculus sequence. For majors in engineering, science, mathematics and others requiring more than one quarter of calculus.

Prerequisites:
MATH& 142 or MATH& 144 with a grade of C (2.0) or higher OR placement in MATH& 151 or higher via an assessment OR permission of a math instructor.

Co-requisites:

Pass/Fail Option Available? Yes ☐ No ☒

Course Challenge Exam Available? Yes ☒ No ☐

Can course be repeated for additional credit? Yes ☐ No ☒

Number of repeats beyond initial enrollment: One ☐ Two ☐

Course Intent (*check all that apply)*:

☒ DTA Distribution/Skill

Area Quantitative Skills/Natural Science

☒ DTA Elective *(check one only)*
- ☒ University Transfer List (A)
- ☐ Restricted Transfer (B/Gray area)

☐ Not allowable as an elective for DTA

☐ Fills requirement for _____ *(certificate/degree)*

☐ Other _____

Workload Information:

	Contact Hours		Percent of Load
Lecture	50	÷ 150 =	0.333
Laboratory		÷ 200 =	
Science Lab		÷ 180 =	
Field Supervision		÷ 300 =	

Comments

Total 0.333

Student Learning Objectives: *(Attach additional pages as needed)*

Upon successful completion of this course, students will be able to:

1. Evaluate limits graphically and using limit laws.
2. Define and prove the continuity of a function at a point and on an interval.
3. Define, determine by definition, and interpret geometrically and physically the derivative of a function.
4. Apply the rules of differentiation including the chain rule, product rule, quotient rule, and implicit differentiation to find derivatives of transcendental functions and composites.
5. Use derivatives in graphing, related rates, and extreme value problems.
6. Define, interpret, and compute the differential of a function and use it in approximations.
7. Find antiderivatives and apply initial conditions.
8. Apply antidifferentiation to problems in rectilinear motion.
9. Evaluate indeterminate limits using L'Hopital's Rule.

Core Learning Outcomes	Introduced (I) or Assessed (A)?	If assessed, ho w is outcome measured?
CLO #1: Engage and take responsibility as active learners	I ☐ A ☐	
CLO #2: Think critically	I ☐ A ☑	Assessed by evaluating student progress in developing graphical representations, narrative descriptions, and word problems that require critical thinking to complete.
CLO #3: Communicate effectively	I ☐ A ☐	
CLO #4: Participate in diverse environments	I ☐ A ☐	
CLO #5: Utilize information literacy skills	I ☐ A ☐	
CLO #6: Demonstrate computer and technology proficiency	I ☐ A ☐	
CLO #7: Identify elements of a sustainable society	I ☐ A ☐	

Program Specific Outcomes	Introduced (I) or Assessed (A)	If assessed, how is outcome measured?
Interpret and manipulate Mathematical language	I ☐ A ☑	Assessed by evaluating student progress in developing graphical representations, narrative descriptions, and word problems that require Mathematical reasoning to complete.
Create, use and analyze graphs	I ☐ A ☑	Assessed by evaluating student progress in developing narrative descriptions, solving assigned problems and utilizing calculators and/or computer software that require graphical analysis to complete.
Make connections between Mathematical concepts and real world problems	I ☑ A ☐	