NEW YORK CITY COLLEGE OF TECHNOLOGY
The City University of New York

DEPARTMENT:	Mathematics
COURSE:	MAT 1475
TITLE:	Calculus I
DESCRIPTION:	Topics include functions, limits, differentiation, and tangent lines, L'Hôpital's Rule, Fundamental Theorem of Calculus and Applications.
TEXT:	M. Boelkins, D. Austin, S. Schlicker Active Calculus, https://activecalculus.org/ACS.html
CREDITS:	4 (4 class hours)
PREREQUISITES:	MAT 1375 OR high school mathematics GPA of at least 94 and a successful completion of a high school math course beyond Algebra 2 OR NYS Regents Trigonometry score of at least 85 (or equivalent on Common Core Algebra 2)

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Updated by Henry Africk, Laura Ghezzi, Caner Koca and Lin Zhou, Fall 2020

A. Testing Guidelines:

The following exams should be scheduled:

1. A one session exam at the end of the First Quarter.
2. A one session exam at the end of the Second Quarter.
3. A one session exam at the end of the Third Quarter.
4. A one session Final Examination.

B. A graphing calculator is required.

Course Intended Learning Outcomes/Assessment Methods

Learning Outcomes	Assessment Methods
1. Solve problems related to limits an continuity.	Classroom activities and discussion, homework, exams.
2. Find the derivative of functions using the definition, sum rule, product rule, quotient rule, and the chain rule.	Classroom activities and discussion, homework, exams.
3. · Use the derivative of a function to find an equation for the tangent line at a point. · Use L'Hôpital's Rule to evaluate limits. · Sketch the graph of functions. · Solve optimization problems. · Solve related rates problems.	Classroom activities and discussion, homework, exams.
4. Evaluate definite and indefinite integrals of polynomials, trigonometric and exponential functions.	Classroom activities and discussi homework, exams.

General Education Learning Outcomes/Assessment Methods

Learning Outcomes	Assessment Methods
1. Understand and employ both quantitative an qualitative analysis to solve problems.	Classroom activities and discussio homework, exams.
2. Employ scientific reasoning and logical thinking.	Classroom activities and discussio homework, exams.
3. Communicate effectively using written and oral means.	Classroom activities and discussio homework, exams.
4. Use creativity to solve problems.	Classroom activities and discussion, homework, exams.

New York City College of Technology Policy on Academic Integrity

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

MAT 1475: Calculus I Text: M. Boelkins, D. Austin, S. Schlicker; Active Calculus, https://activecalculus.org/ACS.html

Session	Topic	Homework
1	1.2 The notion of a limit	p. 19 # 1-7
2	1.2 The notion of a limit	p. 19 # 1-7
3	1.7 (1.7.1,1.7.2) Limits, continuity, and differentiability	p. 76 # 1-7 (limits, continuity only)
4	1.3 The derivative of a function at a point	p. 30 # 1-7
5	1.4 The derivative function 1.5 Interpreting, estimating, and using the derivative	p. 40 # 1-8 p. 50 # 1,2,4,5,7
6	1.6 The second derivative	p. 53 # 1-5
7	2.1 Elementary derivative rules	p. 95 # 1-11
8	**First Examination**	
9	2.2 The sine and cosine functions	p. 102 # 1-3
10	2.3 The product and quotient rules	p. 111 # 1-10
11	2.4 Derivatives of other trigonometric functions	p. 119 # 1-8
12	2.5 The chain rule	p. 126 # 1-9
13	2.6 Derivatives of inverse functions	p. 137 # 1-8
14	2.7 Derivatives of functions given explicitly	p. 145 # 1-7
15	**Midterm Examination**	
16	3.5 Related Rates	p. 199 # 1-6

17	1.8 The tangent line approximation	p. 86 # 1-5
18	3.1 Using derivatives to identify extreme values	p. 167 # 1-7
19	3.1 Using derivatives to identify extreme values	p. 167 # 1-7
20	3.3 Global optimization	p. 184 # 1-4
21	3.4 Applied optimization	p. 190 # 1-5
22	3.4 Applied optimization	p. 190 # 6-9
23	**Third Examination**	
24	2.8 Using derivatives to evaluate limits (L'Hopital's rule)	p. 155 # 1-7
25	4.1 Determining distance traveled from velocity (antiderivatives)	p. 211 # 1,2,3,6,8 + supplement
26	4.2 Riemann Sums	p. 224 # 1-6
27	4.3 The definite integral	p. 240 # 1-7, 9, 10
28	4.4 The fundamental theorem of calculus	p. 255 # 1-8
29	Review	
30	**Final examination**	