CALCULUS FOR THE LIFE SCIENCES WITH APPLICATIONS II

The University of Toledo
Mathematics & Statistics Department, College of Natural Sciences and Mathematics
MATH1760-0XX, CRN XXXXX

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Instructor: (Insert Name)	**Class Location:**	(Insert Building/Room)
Email: (Insert Email Address)	**Class Day/Time:**	(Insert Days/Time)
Oce Hours: (Insert Days/Time)	**Lab Location:**	(Insert Bldg/Oce #, if applicable)
Oce Location: (Insert Building/Oce #)	**Lab Day/Time:**	(Insert Days/Time, if applicable)
Oce Phone: (Insert Phone Number)	**Credit Hours:**	3
Term: (Insert Semester/Year)		

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COURSE DESCRIPTION

Indenite and denite integrals, probability, functions of several variables, least squares, dierential equations.

STUDENT LEARNING OUTCOMES

The successful MATH1760 student should be able to:

Indenite integrals: Construct antiderivatives analytically. Find indenite integrals by using integration formulas and by the methods of substitution and integration by parts.

Denite integrals: Use Riemann sums to estimate and to evaluate denite integrals. Evaluate denite integrals by use of the Fundamental Theorem of Calculus. Identify a denite integral of a function in terms of areas of regions between the graph of the function and the x-axis, and use denite integrals to calculate areas of planar regions.

Dierential equations: Determine whether a function is a solution of a dierential equation. Solve separable dierential equations. Use dierential equations to model a variety of real-life situations. Determine the equilibrium solutions of autonomous dierential equations and classify their stability.

Probability: Use the Multiplication Principle, permutations, and combinations to determine the number of possible outcomes in a given situation. Describe sample spaces of experiments. Compute probabilities if outcomes are equally likely. Compute the probabilities of complementary events and OR-events, apply the multiplication rule for independent events, and compute conditional probabilities. Use probability distributions, including the binomial distribution and the normal distribution, to compute probabilities.

Vectors: Represent vectors graphically in rectangular coordinates. Perform basic vector operations graphically and algebraically - addition, subtraction, and scalar multiplication. Compute the dot product and the cross product of vectors.

PREREQUISITES

You must have minimum grade of C- in Calculus for the Life Sciences with Applications I (MATH 1750), or equivalent (MATH 1850, MATH 1830, MATH 1920, or transfer credit).

TEXTBOOK: *Calculus for Biology and Medicine*, Prentice Hall, 3rd Ed., 2011 MyMathLab access code (for online homework) NOT MyMathLabPlus! The loose-leaf edition, ISBN 9781256873778, includes a MyMathLab access code.

UNIVERSITY POLICIES:

POLICY STATEMENT ON NON-DISCRIMINATION ON THE BASIS OF DISABILITY (ADA)

The University is an equal opportunity educational institution. Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.

ACADEMIC ACCOMMODATIONS

The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office (Rocket Hall 1820; 419.530.4981; studentdisabilitysvs@utoledo.edu) as soon as possible for more information and/or to initiate the process for accessing academic accommodations. For the full policy see:

FINAL EXAM:

OTHER DATES
The last day to drop this course is:
The last day to withdraw with a grade of \W" from this course is:

STUDENT SUPPORT SERVICES
Free math tutoring on a walk-in basis is available in the Math Learning and Resources Center located in Rm B0200 in the lower level of Carlson Library (phone ext 2176). The Center operates on a walk-in basis. MLRC hours can be found at `http://www.math.utoledo.edu/mlrc/MLRC.pdf`

CLASS SCHEDULE

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Chapter	Section	Topic/Learning Outcome	Hours
Chapter	5	Applications of Differentiation	(2 hours)
	5.8	Antiderivatives; *Indefinite integrals*	2.0
Chapter	6	Integration	(7 hours)
	6.1	The Definite Integral; *Definite integrals*	4.0
	6.2	The Fundamental Theorem of Calculus; *Definite integrals*	1.0
	6.3	Applications of Integration; *Definite integrals*	2.0
Chapter	7	Integration Techniques and Computational Methods	(7 hours)
	7.1	The Substitution Rule; *Indefinite integrals*	2.0
	7.2	Integration by Parts and Practicing Integration; *Indefinite integrals*	2.0
	7.3	Rational Functions and Partial Fractions; *Indefinite integrals*	1.0
	7.4.1	Improper Integrals (Unbounded Intervals); *Definite integrals*	2.0
Chapter	8	Differential Equations	(7 hours)
	8.1	Solving Differential Equations; *Differential equations*	4.0