SYLLABUS FOR "[FALL/SPRING]" SEMESTER, 20xx

Course Title:	Honors Calculus I	Instructor:	"[Instructor Name]"
Credit Hours:	4	Office:	"[Office Location]"
Course Number:	MATH 1920-00x	Hours:	"[Office Hours]"
Location and Time	"[Location and Time]"	email:	"[e-mail address]

TEXTBOOK: *Thomas' Calculus: Early Transcendentals*, 12th edition by M. Weir and J. Hass, Pearson.

CATALOG DESCRIPTION
Limits, differentiation, Fundamental Theorem of Calculus, Mean Value Theorem, curve sketching, maxima/minima, definite and indefinite integrals, applications.

PREREQUISITES
Math 1320 (College Algebra) and Math 1330 (Trigonometry) or Math 1340 (College Algebra and Trigonometry) or satisfactory placement score.

LEARNING OBJECTIVES
The successful Calculus I student should be able to apply the following competencies to a wide range of functions, including piecewise, polynomial, rational, algebraic, trigonometric, inverse trigonometric, exponential and logarithmic. A more detailed list of learning objectives is given below. At least 70% of the course time will be devoted to these essential outcomes. These objectives are listed again in the chronological list of topics at the end of this syllabus.

- **Limits:** Determine the existence of, estimate numerically and graphically and find algebraically the limits of functions. Recognize and determine infinite limits and limits at infinity and interpret them with respect to asymptotic behavior.
- **Continuity:** Determine the continuity of functions at a point or on intervals and to distinguish between the types of discontinuities at a point.
- **Derivatives:** Determine the derivative of a function using the limit definition and derivative theorems. Interpret the derivative as the slope of a tangent line to a graph, the slope of a graph at a point, and the rate of change of a dependent variable with respect to an independent variable.
- **Indeterminate Forms**: Evaluate limits that result in indeterminate forms, including the application of L'Hopital's Rule.
- **Higher Order Derivatives:** Determine the derivative and higher order derivatives of a function explicitly and implicitly and solve related rates problems.
- **Graph Sketching:** Determine absolute extrema on a closed interval for continuous functions and use the first and second derivatives to analyze and sketch the graph of a function, including determining intervals on which the graph is increasing, decreasing, constant, concave up or concave down and finding any relative extrema or inflection points. Appropriately use these techniques to solve optimization problems.
- **Antiderivatives:** Determine antiderivatives, indefinite and definite integrals, use definite integrals to find areas of planar regions, use the Fundamental Theorems of Calculus, and integrate by substitution.

RESOURCES
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

GRADING AND EVALUATION
Syllabus should describe the methods of evaluation whether quizzes, exams or graded assignments. There should be at least two one-hour in class exams. If quiz scores are not used as a portion of the grade there should be three one-hour exams. A description of a grading method that includes the proportion that each evaluating method counts toward the grade should be described. If the grading method uses a grading scale it should be clearly stated.

A sample reasonable grade distribution for this class would be:

Homework and Quizzes:	30%
Midterm Exams:	40%
Final Exam:	30%

In scheduling quizzes and exams, it should be kept in mind that the last day to add/drop the class is the end of the second week of classes and the last day to withdraw from the class is the end of the tenth week. By these dates students like to have some measure of their progress in the class.

IMPORTANT DATES
*The instructor reserves the right to change the content of the course material if he perceives a need due to postponement of class caused by inclement weather, instructor illness, etc., or due to the pace of the course.

MIDTERM EXAM:

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 _____

MISSED CLASS POLICY
If you miss any graded item, then this item may only be made up in accordance with the University's Missed Class Policy. This policy requires that you contact me in advance by phone, e-mail or in person, provide official documentation for the absence, and make up the missed item as soon as possible. You can find the University's Missed Class Policy at
http://www.utoledo.edu/facsenate/missed_class_policy.html

ACADEMIC DISHONESTY
Any act of academic dishonesty as defined by the University of Toledo policy on academic dishonesty (found at http://www.utoledo.edu/dl/students/dishonesty.html) will result in an F in the course or an F on the item in question, subject to the determination of the instructor.

NON-DISCRIMINATION POLICY
The University of Toledo is committed to a policy of equal opportunity in education, affirms the values and goals of diversity.

STUDENT DISABILITY SERVICES
The University will make reasonable academic accommodations for students with documented disabilities. Students should contact the Student Disability Services (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:
http://www.utoledo.edu/offices/student-disability-services/sam/index.html

STUDENT PRIVACY
Federal law and university policy prohibits instructors from discussing a student's grades or class performance with anyone outside of university faculty/staff without the student's written and signed consent. This includes parents and spouses. For details, see the "Confidentiality of student records (FERPA)" section of the University Policy Page at http://www.utoledo.edu/policies/academic/undergraduate/index.html

CLASS SCHEDULE
Syllabus should provide a list of sections to be covered and should indicate the material that might be covered on each in class examination. Please provide a class schedule that includes the exam schedule, list of drop and withdrawal dates, and time and place of the final exam. The recommended time to be devoted to each chapter is listed below. It is understood that since each class is different; the way you cover the material may vary. Nonetheless, the schedule below provides a template for completing the syllabus for the course, and should be checked throughout the semester to avoid covering too much material in the last weeks of the semester and to insure that no sections are left uncovered. Students will proceed to MATH 1930. The material in MATH 1920 is essential for success in that course.

SUGGESTED SCHEDULE

Chapter 1		**Functions**	(total 5 hr)
	1.1	**(Op.)** Functions and Their Graphs	
	1.2	**(Op.)** Combining Functions: Shifting and Scaling Graphs	
	1.3	Trigonometric Functions	1
	1.4	**(Op.)** Graphing with Calculators and Computers	
	1.5	Exponential Functions	1.5
	1.6	Inverse Functions and Logarithms	2.5

Chapter 2		**Limits and Continuity**	(total 5 hr)
	2.1	**(Op.)** Rates of Change and Tangents to curves	
	2.2	Limit of a Function and Limit Laws; *Limits*	1.5
	2.3	**(Op.)** The Precise Definition of a Limit	
	2.4	One-Sided Limits; *Limits*	1
	2.5	Continuity; *Continuity*	1.5
	2.6	Limits Involving Infinity; Asymptotes of Graphs; *Limits*	1

Chapter 3		**Differentiation**	(total 13 hr)
	3.1	Tangents and the Derivative at a Point; *Derivatives*	1
	3.2	The Derivative as a Function; *Derivatives*	1
	3.3	Differentiation Rules; *Derivatives*	1.5
	3.4	The Derivative as a Rate of Change; *Derivatives*	1
	3.5	Derivatives of Trigonometric Functions; *Derivatives*	1
	3.6	The Chain Rule; *Derivatives*	1.5
	3.7	Implicit Differentiation and Higher Order Derivatives; *Higher Order Derivatives*	1
	3.8	Derivatives of Inverse Functions and Logarithms; *Derivatives*	1.5
	3.9	Inverse Trigonometric Functions; *Derivatives*	1.5
	3.10	Related Rates; *Higher Order Derivatives*	1
	3.11	Linearization and Differentials; *Derivatives*	1

Chapter 4		**Applications of Derivatives**	(total 7 hr)
	4.1	Extreme Values of Functions; *Graph Sketching*	1.5
	4.2	**(Op.)** The Mean Value Theorem	
	4.3	Monotonic Functions and the First Derivative Test; *GraphSketching*	1
	4.4	Concavity and Graph Sketching; *Graph Sketching*	1.5
	4.5	Indeterminate Forms and L'Hopital's Rule; *Indeterminate Forms*	1
	4.6	Applied Optimization; *Graph Sketching*	2
	4.7	**(Op.)** Newton's Method	
	4.8	**(Op.)** Antiderivatives	

Chapter 5		**Integration**	(total 7 hr)
	5.1	Area and Estimating with Finite Sums; *Antiderivatives*	1
	5.2	**(Op.)** Sigma Notation and Limits of Finite Sums	
	5.3	The Definite Integral; *Antiderivatives*	1.5
	5.4	The Fundamental Theorem of Calculus and Antiderivatives; *Antiderivatives*	1.5
	5.5	Indefinite Integrals and the Substitution method; *Antiderivatives*	1.5
	5.6	Substitution and Area Between Curves and Definite Integrals; *Antiderivatives*	1.5
		Total Hours	37