FRANKLIN UNIVERSITY PROFICIENCY EXAM (FUPE)
STUDY GUIDE

Course Title:	***Applied Calculus (MATH 180)***
Recommended Textbook(s):	*Calculus: An Applied Approach*, 5th edition, Larson and Edwards, Houghton Mifflin, 1999
Number & Type of Questions:	20 Problems with complete solutions
Permitted Materials:	**Pencil & Formula Sheet (no examples) – submitted with test. Scientific or graphics calculator [not one with a built in algebra system (e.g., TI-92)]**
Time Limit:	3 Hours
Minimum Passing Score:	70%

Knowledge and Skills Required:

This test measure knowledge, skills, and competence of the topics addressed in Chapters 1 through 5, Section 6.1, and Chapter 9.

A formula reference sheet (no examples) may be prepared and used for the test. This sheet must be submitted with the test. A scientific or graphics calculator may be used, but a calculator with a built-in algebra system (e.g., TI-92) may not be used.

To pass this test, a student should be able to:

- Interpret various forms of notation indicating the derivative of a function.
- For a given function, find the difference quotient for a given value.
- Find derivatives of the types of functions addressed in the chapters noted above.
- Apply the concept of rate of change to application problems involving marginal cost, marginal revenue, and marginal profit.
- Find the critical numbers of a function.
- Find the equation of a tangent line at a given point.
- Determine the intervals in which a given function is increasing and decreasing.
- Find the absolute minimum and absolute maximum of a function in a given interval.
- Use the techniques of calculus to sketch a function, marking any asymptotes and intercepts.
- Find the differentials, dy and dx, of a function.
- Use differentials to approximate the change in cost, revenue, or profit in an application situation.
- Use the techniques of calculus to solve application problems involving continuously compounded interest.
- Find the indefinite integrals of the types of functions addressed in the chapters noted above.
- Find the particular antiderivative that satisfies given conditions. Find the area of a region bounded by two curves.