

Course: MATH 1320-05 Survey of Calculus (Spring 2018)
Meetings: MWF @ 14:10 - 15:00 (Ritter Hall 242)

Instructor: Dal S. Yu
Office: Ritter Hall 113
Office Hours: MWF @ 13:00-14:00 and TTh @ 16:30-17:00 (or by appointment)
Phone: (314) 977 - 2851
Email: dal.yu@slu.edu
Website: <http://dalsyu.org/classes/math1320.php>

Prerequisites: Math 1200 with a grade of C or better.

Textbook: We will be using an online textbook written specifically for this course:
Business Calculus with Excel, 2016, Mike May, S.J., Anneke Bart
<http://math.slu.edu/~may/ExcelCalculus/>

Technology: We will be using Microsoft Excel and other software both in class and out of class. Therefore it is necessary that you have a laptop for this course (used laptops can be found online for the price of a standard textbook). Microsoft Excel can be obtained free of charge for all SLU students from ITS:
<https://www.slu.edu/its/new-to-slu/free-office-365-for-slu>.

Android App: *BillikenMath1320* is an Android app designed for this class for students to view the class calendar, view class information, calculate grades, and access other general information. The app can be freely downloaded from the class website onto any Android device (optional).

Grading: **A:** [100, 92], **A-:** (92, 90], **B+:** (90, 87], **B:** (87, 82], **B-:** (82, 80],
C+: (80, 77], **C:** (77, 72], **C-:** (72, 70], **D:** (70, 60], **F:** (60, 0]

Your grade for the course will be weighted as follows:

Quizzes	6%
Homework	15%
Exam 1	18%
Exam 2	18%
Exam 3	18%
Final Exam (May. 9 @ 14:00 - 15:50)	25%

Syllabus:

Chapter 1 - Functions, Graphs, and Excel

- * 1.1: Linear Functions and Models;
- * 1.2: Functions in the Business setting;
- * 1.3: Introduction to Excel Spreadsheets;
- * 1.4: Graphing Functions with Excel;
- * 1.5: Using Excel to find Best-fit Curves;
- * 1.6: Finding Numerical Solutions with Goal Seek.

Chapter 2 - Business Applications

- * 2.1: Market Equilibrium Problems (Linear Models);
- * 2.2: Modeling Revenue, Cost, and Profit;
- * 2.3: Non-linear Functions.

Chapter 3 - Rate of Change and Derivatives

- * 3.1: Marginal Functions and Difference Quotients;
- * 3.2: Numeric Derivatives and Limits;
- * 3.3: Local Linearity;
- * 3.4: Optimization;
- * 3.5: An Introduction to "Solver".

Chapter 4 - Symbolic Differentiation

- * 4.1: Elementary Derivatives;
- * 4.2: Derivative Rules for Combinations of Functions;
- * 4.3: The Chain Rule;
- * 4.4: Differentiation using Computer Algebra;
- * 4.5: Second Derivative and Concavity.

Chapter 5 - Differentiation Techniques and Applications

- * 5.1: Implicit Differentiation;
- * 5.2: Related Rates;
- * 5.3: Elasticity (optional).

Chapter 6 - Functions of Several Variables

- * 6.1: Evaluating and Graphing Functions of Several Variables;
- * 6.2: Wire Frames, Partial Derivatives, and Tangent Planes;
- * 6.3: Critical Points and Extrema;
- * 6.4: Optimization and Best Fitting Curves.

Chapter 7 - Integration

- * 7.1: Approximating Definite Integrals as Sums;
- * 7.2: The Fundamental Theorem of Calculus;
- * 7.3: Basic Anti-differentiation;
- * 7.4: Integration by Change of Variables or Substitution;
- * 7.5: Integration using Computer Algebra;
- * 7.6: The Normal Distribution: An extended example with numeric integration;
- * 7.7: Applications of the integral: Investment and depreciation;
- * 7.8: Business applications of the integral: Profit, Lorentz Curves, Consumer and Producer Surplus.

- Attendance:** Attendance will be taken each class. Students who miss more than three classes will have 1% point deducted from their final grade for **each** class missed thereafter. On the other hand, students who do not miss any classes (with the exception of excused absences) will receive an additional 1% point to their final grade.
- For an absence to be excused, the student must provide clear evidence documenting an unpredictable, unavoidable, and out of your control circumstance.
- Alternatively, with the exception of exam days (and possibly other applicable days), students may make up an absence by submitting a paper with worked out solutions to exercises from the sections covered that day (the instructor will choose the exercises). The student must submit this work by the next class period.
- Homework:** Homework assignments will be assigned each week. Late homework will be accepted for a reduced score that will be determined by the instructor. Students are encouraged to work in small groups.
- Quizzes:** We will have occasional quizzes that will be graded by select problems. There are no make-ups for quizzes, but two lowest quiz scores will be dropped at the end of the semester.
- Exams** There will be three exams and a comprehensive final exam. Exam dates will be announced around two weeks in advance of each exam.
- The day of our final exam is Monday, May. 9, 2018 @ 14:00 - 15:50** in the same room where we normally meet.
- In general, there are no make-ups for missed tests. If a test is missed for an emergency, (defined as being verifiable, unpredictable, and out of your control) the instructor will determine how to fairly compute the grade.

