

Dixie State University

<http://www.dixie.edu>

Syllabus for Business Calculus (3.0 credits)

CRN 26227 Math 1100-02 Spring 2015

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| Instructor: | Claudia A. Mora Bornholdt | Classrooms & Class time: |
| Phone: | 435-879-4574 | SNOW 151: MWF 11:00 a.m – 11:50 a.m. |
| Email: | morabornholdt@dixie.edu | |
| Office: | SNOW 005C | |
| Office hours: | MWRF 9:00 a.m. – 10:00 a.m.; R 10:00 a.m. – 11:00 a.m. | |
| Date Range: | January 12, 2015 – May 8, 2015 | |

Course Objectives: All classes in mathematics at Dixie State University support the general education goal of the college, and will:

- Require students to perform mathematical processes including fractions, percentages, decimals, proportions/ratios, algebraic equations and/or calculus techniques.
- Provide students with application problems that use a variety of methods including arithmetical, algebraic and geometric methods.
- Challenge students to make inferences from mathematical models that include formulas, graphs and tables.
- Provide students with real-life applications that use a variety of mathematical functions.

Upon successful completion of this course, the students will demonstrate through testing the ability to:

1. Discuss and analyze the concept of limits and the interrelationships of the graphic, numeric, and symbolic approaches to limits.
2. Discuss and analyze the interpretations of functions and their first and second derivatives.
3. Apply basic calculus techniques to data and functions that serve to model real-life applications of business, economics, social science, and architecture careers.
4. Apply the definite integral as the limit of a sum to applications in the areas of business, economics, sociology, and ecology.
5. Understand Quantitative Analysis and how it applies to business. This is a technique that seeks to understand behavior by using complex mathematical modeling and by assigning a numerical value to variables to try to replicate reality mathematically.

Class Structure: This section will be taught as a lecture course but will have an extensive computer based component. This means all homework and reviews will be done, checked and submitted to the instructor through a computer program called MyMathLab (MML). *You will need access to a computer with internet for daily assignments.* Computer labs on campus are available to those students who do not have internet access.

- **To register for MyMathLab (MML)**, go to <http://www.mymathlab.com/> and
 - ✓ Under the heading “Register”, click “Student”.
 - ✓ When you are asked for the **COURSE ID** enter **morabornholdt85124**
 - ✓ Follow the instructions to either create an account, or sign in if you have an existing account. If you are creating a new account, you will need to purchase a student **ACCESS CODE** from either the publisher as you are registering or ahead of time from the bookstore. Check both places to see which is less expensive.
 - ✓ When you enter your **email account**, please make sure you use the email that you check the most often.
 - ✓ If you have questions, please go to <http://www.pearsonmylabandmastering.com/northamerica/students/get-registered/index.html> and watch the video found by scrolling towards the bottom of the screen or you may contact customer support service (<http://www.mymathlab.com/student-support>).
 - ✓ We recommend that you initially sign onto MML using the 14-day free trial. Once you feel certain this is the right class for you, pay for access. All homework and reviews assignments are on MML.
- **You Have Access to MML, What Next?**
 - ✓ Log on to MML and, if you are using your own computer, be sure to download any required plugins by clicking on the “Browser Check” on the home page. You are now ready to do math.
 - ✓ Go back to MML Course Home and click on Homework. Here is your list of assignments.

Prerequisite: ACT Score of 25 or higher, Accuplacer (CPT) score of 95- 104, or complete MATH 1050 with a C or better. All prerequisites satisfied within two years of enrollment in this course.

eTextbook and Other Expenses: Software based on the textbook Calculus and Its Applications 10th edition by Bittinger and Ellenbogen (textbook not required) but you need to purchase an access code for MML (Cost approx \$95) A non-graphing scientific calculator (\$8-\$20) is recommended; however, you may use the MML calculator on the computer.

Catalog Description: Fulfills General Education Mathematics requirement. Required of majors in the Udvar-Hazy School of Business, and students majoring in CIT, IT, and VT. Emphasizes functions, modeling, differentiation, applications of differentiation, exponential and logarithmic functions, integration, applications of integration, and functions of several variables.. FA, SP, SU 3.000 Credit hours.

Calculators: A non-graphing scientific calculator is recommended and will be allowed only on tests. Graphing Calculators, Cell phones, iPads, etc., may not be used as calculators on tests.

Attendance: Attendance is essential and may be counted into your grade. Tardiness will be frowned upon and may invoke the ire of the instructor. You are responsible for anything said in class during your absence. Make-up exams will NOT be given except in documented emergencies, such as death in immediate family, hospitalization (documentation required), active military duty, DSU-sponsored-events requiring mandatory attendance (proof of attendance required). You must notify your instructor immediately in the case of an emergency for consideration. If you miss an exam without notification and documentation, you will receive a zero.

Homework/Test Reviews: Assignments are to be completed in MML. Due dates are posted in MML.

- Homework assignments and test reviews do not have a minimum score in order to access the test for those sections.
- Test reviews count the same as a homework assignment.
- You get three attempts to get a problem correct. If after the third attempt you still have not gotten the problem correct, you may request a similar problem to be generated and graded by clicking on the “Similar Exercise” button at the bottom of the homework/review window. You are encouraged to repeat homework/review problems and obtain a perfect score before the due date.
- If you do not know how to solve a problem, you may select the “Help Me Solve This”, “View an Example”, or other help features in the right hand menu in the MML homework window. If you need further assistance, contact your instructor.
- There is a 10% penalty for any late problems from assignments/reviews.
- Your homework/review scores will be totaled and scaled so that they are worth 20% of your overall course grade.

Quizzes: A take home quiz will be posted in MML on Friday and is to be turned in the following Wednesday. The top ten quiz grades will be kept and be worth 10% of your overall course grade. **No make-ups will be given for missed quizzes under any circumstance since several quiz scores will be dropped.**

Tests: There will be four midterm tests: Test 1 is on Friday February 6, Test 2 is on Wednesday March 4, Test 3 is on Monday April 6, and Test 4 is on April 22. Each test will be worth 12.5% of your final grade. Make-up exams will NOT be given except in documented emergencies, such as death in immediate family, hospitalization (documentation required), active military duty, DSU-sponsored-events requiring mandatory attendance (proof of attendance required). You must notify your instructor immediately in the case of an emergency for consideration. If you miss an exam without notification and documentation, you will receive a zero. The lowest test score percentage can be replaced with the final exam percentage. You may take each test only once.

Final Exam: The final exam will be comprehensive and is worth 20% of your overall course grade. **You must take the final exam on Monday May 4 from 10:00 a.m. – 12 noon in SNOW 151. You may take the final comprehensive exam only once.** If you have a course schedule conflict with the final exam schedule, please contact your instructor.

Grading Policy: Grades will be based on: (with an allowance of $\pm 1\%$)

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|--------------------------|-------------|-----------|----------------|
| Homework and Reviews 20% | Quizzes 10% | Tests 50% | Final Exam 20% |
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You can see your grade and all your scores on your MML Grade Book. Letter grades will be assigned as follows:

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|--------------------|--------------------|--------------------|--------------------|
| A 94 – 100% | B 83 – 86% | C 70 – 74% | D 55 – 59% |
| A- 90 – 93% | B- 80 – 82% | C- 65 – 69% | D- 50 – 54% |
| B+ 87 – 89% | C+ 75 – 79% | D+ 60 – 64% | F 0 – 49% |

MyMathLab (MML): Please make sure you check your MML site frequently since class information will be posted there. Go to <http://www.mymathlab.com/> to access MML.

Canvas: The Canvas site for this class will contain the Syllabus and how to register in MML. Go to <https://canvas.dixie.edu/> to access Canvas. The above and other class information will be posted in MML.

Disability Resource Center: If you are a student with a medical, psychological, or learning disability or think you might have a disability and would like accommodations, contact the Disability Resource Center (652-7516) in the North Plaza. The Disability Resource Center (<http://dixie.edu/drcenter/>) will determine eligibility of the student requesting special services and determine the appropriate accommodations related to their disability.

Receiving your grades at the end of the semester: Your course letter grade will be posted on Banner as soon as the Final Exam has been graded and the overall course average calculated (usually within 48 hrs after Exam has been taken).

Withdrawing from or dropping a class: If you never attend a class, the instructor may withdraw you from it. If you attend even one day, the instructor cannot withdraw you from the class. Since not all instructors will withdraw you for non-attendance, you should take care of that transaction for yourself by going to the registration window. If you quit attending and do not withdraw from the class, you will receive an F or WF which averages into your GPA as an F.

Changing your schedule: It is your responsibility, as the student, to ensure the accuracy of your class schedule. Be sure to check your schedule after every change you make to it. Run a hard copy and keep it!

Complete Withdrawal: Dropping all classes does not withdraw you from the college and you may receive all F's. You must contact the Advisement Center, complete a withdrawal form, and surrender your student ID card.

Changes: Although unlikely, this syllabus and/or the assignment schedule may be changed if deemed necessary by the instructor. All changes will be announced in class and/or sent to your MML account.

Miscellaneous Information: Click on this link - <http://www.dixie.edu/reg/syllabus/> - for comprehensive information on the Semester Dates, the Final Exam Schedule, University resources such as the library, Disability Resource Center, IT Student Help Desk, Online Writing Lab, Testing Center, Tutoring Center, and Writing Center. In addition, please review DSU policies and statements with regards to Academic Integrity, Disruptive Behavior and Absences related to university functions.

| Approximate Schedule for Math 1100 Business Calculus Spring 2015 | | |
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| Date | Day | Section |
| Jan 12 | Mon | Introduction; Sec. 1.1 Limits: A Numerical & Graphical Approach |
| Jan 14 | Wed | Sec. 1.2 Algebraic Limits and Continuity |
| Jan 16 | Fri | Sec. 1.2 Cont. |
| Jan 19 | Mon | Holiday-No School |
| Jan 21 | Wed | Sec. 1.3 Average Rates of Change |
| Jan 23 | Fri | Sec. 1.4 Differentiation Using Limits of Difference Quotients |
| Jan 26 | Mon | Sec. 1.5 Differentiation Techniques: The Power and Sum-Difference Rules Sec. 1.6 Differentiation Techniques: The Product and Quotient Rules |
| Jan 28 | Wed | Sec. 1.6 Cont. Sec. 1.7 The Chain Rule |
| Jan 30 | Fri | Sec. 1.7 Cont. |
| Feb 2 | Mon | Sec. 1.8 Higher-Order Derivatives |
| Feb 4 | Wed | Test 1 Review Day |
| Feb 6 | Fri | Test 1 |
| Feb 9 | Mon | Sec. 2.1 Using 1 st Derivatives to Find Max and Min Values and Sketch Graphs |
| Feb 11 | Wed | Sec. 2.2 Using 2 nd Derivatives to Find Max and Min Values and Sketch Graphs |
| Feb 13 | Fri | Sec. 2.3 Graph Sketching: Asymptotes and Rational Functions |
| Feb 16 | Mon | Holiday-No School |
| Feb 18 | Wed | Sec. 2.4 Using Derivatives to Find Absolute Max and Min Values |
| Feb 20 | Fri | Sec. 2.5 Max-Min Problems; Business and Economics Applications |
| Feb 23 | Mon | Sec. 2.5 Cont. Sec. 2.6 Marginals and Differentials |
| Feb 25 | Wed | Sec. 2.7 Implicit Differentiation and Related Rates |
| Feb 27 | Fri | Sec. 2.7 Cont. |
| Mar 2 | Mon | Test 2 Review Day |
| Mar 4 | Wed | Test 2 |
| Mar 6 | Fri | Sec. 3.1 Exponential Functions |
| Mar 9-13 (M-F) | | Spring Break Holiday - No School |
| Mar 16 | Mon | Sec. 3.2 Logarithmic Functions |
| Mar 18 | Wed | Sec. 3.3 Applications: Uninhibited and Limited Growth Models Sec. 3.4 Applications: Decay |
| Mar 20 | Fri | Sec. 3.5 The Derivatives of a^x and $\log_a x$ |
| Mar 23 | Mon | Sec. 3.5 Cont. Sec. 3.6 An Economics Application: Elasticity of Demand |
| Mar 25 | Wed | Sec. 4.1 Antidifferentiation Sec. 4.3 Areas and Definite Integrals |
| Mar 27 | Fri | Sec. 4.4 Properties of Definite Integrals |
| Mar 30 | Mon | Sec. 4.5 Integration Techniques: Substitution |
| Apr 1 | Wed | Sec. 4.6 Integration Techniques: Integration by Parts |
| Apr 3 | Fri | Review |
| Apr 6 | Mon | Test 3 |
| Apr 8 | Wed | Sec. 5.1 An Economics Application: Consumer Surplus and Producer Surplus |
| Apr 10 | Fri | Sec. 5.2 Applications of Integrating Growth and Decay Models |
| Apr 13 | Mon | Sec. 5.2 Cont. |
| Apr 15 | Wed | Sec. 5.4 Improper Integrals |
| Apr 17 | Fri | Sec. 5.7 Differential Equations |
| Apr 20 | Mon | Review |
| Apr 22 | Wed | Test 4 |
| Apr 24 | Fri | Sec. 6.1 Functions of Several Variables Sec. 6.2 Partial Derivatives |
| Apr 27 | Mon | Sec. 6.3 Max-Min Problems |
| Apr 29 | Wed | Final Exam Review Day |
| May 1 | Fri | Study for Final Exam |
| May 4 | Mon | Final Exam from 10:00 a.m. - 12 noon in SNOW 151 |