

Dr. Donald Adongo, FH 6A-7

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Office Hours: TR 8:30 – 9:20 am; and by appointment

Section 1 CRN 11690

Meeting: 9:30 am – 10:45 am TR FH 310

<http://campus.murraystate.edu/faculty/dadongo>

DEPARTMENT: Mathematics and Statistics

COURSE PREFIX: MAT

COURSE NUMBER: 220

CREDIT HOURS: 3

I. TITLE:

Business Calculus

II. COURSE DESCRIPTION AND PREREQUISITE(S):

An introduction to calculus and its applications for students in various fields of business. Primary emphasis is on differential calculus.

Prerequisite(s): ACT Mathematics sub-score of 23, or MAT 140.

III. COURSE OBJECTIVES:

The student will:

- A. explain the concept of limit from a graphical and numerical viewpoint;
- B. evaluate limits of functions defined algebraically;
- C. compute the derivative of an algebraic, exponential and logarithmic function;
- D. explain the relationship between first and second derivative and the increasing/decreasing nature and the concavity of a function;
- E. be able to take an optimization problem expressed in narrative form, build an appropriate mathematical model, apply differential calculus techniques to find the optimal solution and then interpret this solution within the framework of the original problem;
- F. compute anti-derivatives and evaluate definite integrals for algebraic, exponential and logarithmic functions;
- G. gain an insight into the power and broad use of calculus techniques to solve problems arising in business, economics, social and behavioral sciences, life sciences and physical sciences.

IV. CONTENT OUTLINE:

- A. The Limit: developed from numerical, graphical and algebraic viewpoints; basic computational skills are developed
- B. Continuity
- C. Derivative
- D. Applications of the derivative are studied in depth: related rate problems, curve sketching, and optimization

V. INSTRUCTIONAL ACTIVITIES:

Lecture, daily assignments, group work, projects, reading assignments, oral presentations, and quizzes.

VI. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:

None.

VII. TEXT(S) AND RESOURCES:

Calculus for Business, Economics, Life Sciences, and Social Sciences, by Barnett, Ziegler, and Byleen; 12th Edition; Prentice Hall.

VIII. EVALUATION AND GRADING PROCEDURES:

Exams, homework, projects and/or quizzes are used to assess the student's development of mathematical skills, their understanding of key concepts and their ability to express this understanding via numerical and graphical and narrative methods. Critical thinking and mathematical writing are major components of exams and quizzes. These skills are evaluated in terms of clarity, organization, notation, correctness of mathematical procedures and ability to explain results.

Forty five percent of the course grade will come from 3 major exams (each exam counts 15 percent of the course grade). The homework grade will contribute 15 percent, while the participation grade is worth 10 percent of the course grade. The Final Exam is worth thirty percent of the course grade. The grading scale is:

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|-----------|---|
| 90-100% | A |
| 80-89% | B |
| 70-79% | C |
| 60-69% | D |
| Below 60% | E |

Exams: The Exams will test your comprehension of concepts and skills not covered on a previous exam. Exams occur for everyone (to be fair to everyone) on the scheduled date. Sometimes, however, extenuating circumstances do exist. If you absolutely must miss an exam, you are to stop by or call me (or leave a message with the office if I am not in when you call) before the exam to tell me why you cannot be at the exam. In addition, you must complete the "missed exam form" (see the course website) within one day. If you do not, you will get a zero on that exam with no opportunity to make it up. An excused missed exam will be made up in my office within two days (an extension may be granted in rare cases), with the grade to be determined as explained at that time. Our three semester exams will be **February 27, April 5, and April 26.**

Final: The Final will be a comprehensive exam covering any material addressed that semester. The Final exam will be on **Wednesday, May 9th at 8:00 a.m.** in FH 310.

Homework: Homework will be assigned at the beginning of each section and will also be listed on the course web site. Homework will be collected once a week (Tuesday). (**No Late Homework**). Homework must be completed in pencil, separate from your notes, and on loose-leaf paper or paper without rough edges. **Staple** your papers together if you have used more than one sheet other wise your homework **will not be graded**. Your name and class meeting time should be written on the top right part of the first page.

Participation: Each day's discussion of new material depends on vigorous participation on your part. During the semester you will have to work out on the board a total of twenty (20) problems. Each problem will be worth 5 points. The problems have to be picked from the assigned homework in the immediate past class meeting. Only one problem may be solved per class meeting and this will take place at the beginning of class. The value of board presentations depend upon basic familiarity with the topic, and naturally, your participation might be limited by your attendance. See attendance policy below.

Important Grade-dates: The last day to drop a course without receiving a grade (or a W) is Monday, January 23. The last day to drop individual courses and receive a grade of "W" (no penalty) is Tuesday, April 17. The last day to change a full semester class from CREDIT to AUDIT is Tuesday, April 17.

B. Auditing: If you seek to change your status to audit, you must continue to do all the graded assignments, to attend classes regularly after the audit is given, to miss no more than 3 class periods after the audit is given, and to maintain at least a 40% average in the course. If these requirements are not followed, then an "E" will be earned for this course.

IX. ATTENDANCE POLICY:

Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins.

Class attendance will be taken daily. If you miss class you are responsible for obtaining the day's notes and assignments. While you are not graded on class attendance, you are expected to attend every class period or your grade will suffer (indirectly) if you do not attend. If you miss three or fewer days (or do not miss at all) this semester, I will drop your three lowest homework scores. To level the playing field between those who must miss classes because of MSU and those who do not, the only kind of absence which will not be counted in this regard is a university-required absence. Thus, anything else (for instance, being sick, going on a job interview, taking care of a sick relative, etc.) will count as one of these absences.

Note the following provisions on arriving late to class or leaving early:

Every two tardies (arriving late) will count as an absence.

Leaving class early will count as an absence unless you provide me with a reason in advance.

X. ACADEMIC HONESTY POLICY:

Cheating, plagiarism (submitting another person’s material as one’s own), or doing work for another person which will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, or term papers, or the presentation of unacknowledged material as if it were the student’s own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

Note: Faculty reserve the right to invalidate any examination or other evaluative measures if substantial evidence exists that the integrity of the examination has been compromised.

XI. NON-DISCRIMINATION POLICY STATEMENT:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. For more information, contact the Director of Equal Opportunity, 103 Wells Hall. 270-809-3155 (voice), 270-809-3361 (TDD).

XII. Other required departmental or collegiate committee information

Electronic Communication Policy: It is the default policy of the Department of Mathematics and Statistics that, without the prior consent of the course instructor, no device may be used for electronic communication in class. This shall include cell phones, smart-phones, computers, laptops, and tablets. In addition, this includes verbal calling, incoming calls, email, text messaging, the use of cell phone calculators on tests and quizzes, and the use of the wireless capabilities of calculators or other electronic devices. Unless given special permission in advance from the course instructor for potential cases of emergency or critical family situations, cell phones must be kept on silent and out of sight (i.e. secured to a person's belt or kept in a bag or purse away from desks). Should a student's cell phone be visible, ring, or should the student be engaged in some other form of unauthorized usage that the course instructor finds to be disruptive to the class, the student may be asked to leave class and not return for that class period, and be counted absent for that day. Similar restrictions and penalties apply to use of other electronic devices, unless permitted by the instructor for that class period.



Please fill out this portion, detach and return to the instructor by **Friday January 20, 2012.**

By my signature below, I certify that I have received a copy of the course syllabus for MAT 220-(01) taught by Dr. Donald Adongo during the Spring Semester of 2012. Furthermore, I certify that I have read and understand the contents of the course syllabus.

Printed Name:

Signature:

Date: