Department of Mathematics & Statistics

CALCULUS AND ANALYTIC GEOMETRY I

MAT 250 – Entry # 1723

Course Section: 3 – Credit Hours: 5

FALL 2008 – Course Syllabus

Meeting: M T W Th F 10:30–11:20AM; FH 303

Instructor: Dr. Donald Adongo, FH 6A-7

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Office Hours: M T W Th F 11:30-12:30 PM

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I Title

Calculus and Analytic Geometry I

II Catalog Description

First course in calculus develops main ideas of differentiation and integration of single-variable functions. Topics include limits, continuity, techniques of differentiation, graphing techniques, definite and indefinite integral, basic integration methods, and applications of the derivative and integral to natural and social sciences. Prerequisite: ACT math standard score of at least 26 or MAT 150 or MAT 140/145.

III Purpose

This purpose of this course is to provide a firm grasp of the function, to develop a basic understanding of the concept of the Limit, and to use this knowledge to build the Derivative, Integral, and associated applications.

IV Course Objectives

Students should:

1) have a strong intuitive understanding and a beginning level analytical understanding of the concept of the Limit;
2) be able to compute limits of ordinary functions when they exist and be able to explain why a limit does not exist;
3) have a solid analytical understanding of continuity and be able to determine where and why an ordinary function is discontinuous;
4) know the implications of the Intermediate Value Theorem;

5) have a strong understanding of the Derivative, from its definition to its interpretation as a slope and as a rate of change;

6) have a firm grasp of the meaning of the Mean Value Theorem;

7) know the relationship of the first derivative of a function to its graph and the relationship of the second derivative of a function to its graph;

8) understand the implications of the Extreme Value Theorem;

9) understand intuitively and analytically the Chain Rule;

10) have a feel for the derivative as a measuring device of incremental change;

11) know the relationship between the integral and the derivative;

12) the relationship between the integral and area;

13) know the Fundamental Theorem of Calculus;

14) have an understanding of Riemann sums and how they are affected by using smaller increments;

15) have a feel for the integral as a device for summing incremental units to find a whole.

V Content Outline

This course will address the calculus content of chapters 2–5. Chapter 1 will be reviewed.

VI Instructional Activities

A portion of most class periods will be spent discussing new material and working examples from this material as a class, another portion of most class periods will be spent addressing questions about the previous day's material. There is no need to be formal or to raise your hand to ask questions. Feel free to just ask, whether I am explaining a problem or introducing new material. There is no need to feel shy about asking questions; that is the purpose of the class. Those in the class who do not ask questions do not necessarily know more than you do, they might be shy about asking questions, or they might not be aware of what they do not know because they have not read the sections or worked any problems.

VII Calculator Limitations

Use of calculators such as the TI-89 and TI-92 which compute symbolic derivatives and integrals will not be allowed on the exams.

VIII Resources

No outside texts or materials are required. However, occasionally handouts will be given to aid in the understanding and organization of the material. If you miss a class period, it is your responsibility to get a copy of any item handed out that day.

IX Grading Procedures

Your grade will be based on EXAM grades, HOMEWORK grades, PARTICIPATION grades, and the FINAL EXAM. Sixty percent of the course grade will come from 4 major exams (each exam counts 15 percent of the grade) and twenty-four percent of the course grade will come from the final exam. The homework grade

will contribute 10 percent while the participation grade is worth 6 percent of the course grade. The grading scale will be:

% Points (x)	90 - 100	$80 \leq x < 90$	$70 \leq x < 80$	$60 \leq x < 70$	$0 \leq x < 60$
Grade	A	B	C	D	E

Exams: The Exams will test your comprehension of concepts and skills not covered on a previous exam. Exams may contain both problem-solving questions and essay questions. 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 week. 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 weeks (an extension may be granted in rare cases), with the grade to be determined as explained at that time. Our four semester exams will be **September 16, October 7, October 21,** and **November 17**.

Final: The Final will be a comprehensive exam covering any material addressed that semester. The Final exam will be on **Thursday, December 11th at 10:30 a.m.** in **FH 303**.

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 weekly.

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 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 Tuesday, August 26th. The last day to change from Audit to Credit is Tuesday, August 26th. The last day to drop individual courses and receive a grade of "W" is Friday, October 31st. Students who withdraw from all classes after Friday, October 31st and before Thursday, November 25th will receive a 'WP' or a 'WE'. The last day to change from Credit to Audit is Friday, October 31st, if you qualify for an Audit. (See the Audit policy below.)

Auditing: To Audit the course you need my permission. You will be expected to participate in all tests and assignments with a course average of at least 25%, and you will be expected to attend with no more than 5 absences for the whole semester. If you switch to 'Audit' in mid-semester, you must meet all of the requirements of an ordinary auditor (mentioned above). In addition, you may not miss more than 7% of the remaining class periods and you may not have more than 5 absences for the entire semester. Thus, if you have already missed 6 or more class periods, you may not change to 'Audit.' Failure to meet any of these after being granted an Audit will result in the grade 'Au' being changed to an 'E.'

X Attendance Policy

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 and your grade will suffer (indirectly) if you do not attend. If you miss three or fewer days this semester, I will drop your two lowest homework grades. If you miss between four and six days for the semester, I will drop one of your homework grades. If you miss seven or more days this semester, no homework grades will be dropped. 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. See the MSU policy on attendance in the current Catalog: (online at http://www.murraystate.edu/provost/catalogs/010507.html#Policies) Note the following provisions on arriving late to class or leaving early:

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

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

Your participation grade can be no more than 1.1 *your percentage of class attendance.

Holidays: We will not have class on Monday September 1 (Labor Day), Friday October 3 (Fall Break) and from Wednesday November 26 through 28 (Thanksgiving Break).

XI Academic Honesty

Cheating and plagiarism (submitting another person's material a is one's own, or doing work for another person which will receive academic credit) are all impermissible. This includes

1) the use of unauthorized notes on an exam,

2) looking at the exam of another or allowing another to look at your exam,

3) taking an exam for another or having another take an exam for you,

4) telling others the contents of an exam they have not yet taken or soliciting from others the contents of an exam which you have not taken, and

5) copying the contents of another's take-home assignment or allowing another to copy the contents of your take-home assignment (this does not include working together, with mutual understanding, on a take-home assignment).

The result of non-premeditated cheating (i.e. (2) or (5)) will be a zero for that assignment. The result of premeditated cheating (i.e. plagiarism or (1), (3), or (4)) will result in a grade of 'E' for the course. See the MSU policy on Academic Honesy in the current Catalog: (online at http://www.murraystate.edu/provost/catalogs/010507.html

XII Texts and references

Calculus, Early Transcendentals,1st ed. by Jon Rogawski, 2008; W.H. Freeman and Company.

XIII Prerequisites

ACT math standard score of at least 26 or MAT 150 or MAT 140/145.

XIV Statement of Affirmative Action and Equal Opportunity

Murray State University does not discriminate on grounds of race, color, gender, sexual orientation, religion, national origin, age, disability, or veteran's status in providing any educational or other benefits services of Murray State University to students or those applying for admission at Murray State University. Murray State University attempts to provide equal opportunity in all areas of student admissions, financial aid, employment, and placement and provides upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities. For information regarding nondiscrimination policies contact the Office of Equal Opportunity, 270-809-3155. Additional information is provided in the current Catalog: (online at http://www.murraystate.edu/ provost/catalogs/010507 .html#Policies) .