Marshall University
Syllabus

Course Title	*Calculus with Analytic Geometry III*
Course Number	*MTH 231- Section 601- CRN 6083*
Semester/Year	Summer III 2015
Days/Time	MTWRF 10-12:20pm
Location	Smith Hall 513
Instructor	Dr. Michael Otunuga
Office	WES 3229 (Engineering building)
Office Hours	MTWRF 12:30-2:30pm others by appointment. To make an appointment, email in advance when possible.
Phone	(304) 696-3049
E-Mail	otunuga@marshall.edu
Textbook	**Calculus**, Early Transcendental , 2nd edition by Jon Rogawski
Sections Covered	12.1-12.7, 13.1-13.5, 14.1-14.8, 15.1-15.6, 16.1-16.5
Course	Vectors, curves, and surfaces in space
Course Description	Derivatives and integrals of functions of more than one variable. A study of the calculus of vector valued functions.
Calculator	TI-83 or higher. In order to plot 3D graphs, download Graph3 to your calculator by following instructions on last page (Those with TI-89 and above need not worry about this). Graphing calculators may not be allowed for some problems in exam
Prerequisites	MTH 229 or 230
Outcome & Objectives	Student will learn to calculate and apply limits, to calculate with vectors, to calculate partial and total derivatives and to interpret them as rates of change, to calculate multiple integrals, line integrals and surface integrals; and to interpret them as accumulations and limits of sample sums, to apply integrals to word problems, to apply derivatives and integrals to parametric curves, to work with rectangular, polar, cylindrical and spherical coordinates.
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to http://www.marshall.edu/academic-affairs/?page_id=802 for policies regarding Academic Dishonesty, Excused Absence Policy, University Computing Services Acceptable Use, Inclement Weather, Dead Week, Academic Dismissal, Academic Forgiveness, Academic Probation and Suspension, Academic Rights and Responsibilities for Students, Affirmative Action, Sexual Harassment. See the University Academic Calendar (http://www.marshall.edu/calendar/academic/) for course withdrawal dates.
Free Tutoring	Free tutoring in Music Smith Hall 115 from Monday to Friday.
Disabled Students	The Disabled Student Services web site is now available. You may visit it at http://www.marshall.edu/disabled . Students seeking special accommodations need to follow the university policy detailed at this web site. It is their responsibility to initiate the process for receiving accommodations based upon their disability
Coming late	Students should come on time and stay in the class for entire class. If you are late by more than 5 minutes, you will be considered to be absent. You will get a grade reduction if you make a total of 1 week unexcused absence

Course Contents

Vectors Geometry:	Vectors, the dot product, the cross product, equations of lines and planes, cylinders and quadric surfaces, etc.
Vector-Valued Functions:	Vector functions and space curves, derivatives and integrals of vector functions, arc length and curvature, motion in space, etc.
Partial Derivatives:	Functions of several variables, limits and continuity, partial derivatives, tangent planes and linear approximation, the chain rule, directional derivatives, optimization in several variables etc.
Multiple Integration:	Double and triple integrals, iterated integrals, cylindrical and spherical coordinates, change of variables, etc.
Line & Surface Integrals:	Vector fields, line integrals, the fundamental theorem of line integrals, Green's theorem, curl and divergence, parametric surfaces and their areas, surface integrals, Stokes' theorem, etc.

Course Requirements / Due Dates

Homework: 5 (five) Homework assignments will be given and collected. Copies of Homework are listed on the next page. You are responsible for reading the text, working the exercises, coming to office hours for help when you are stuck, and being aware of the dates for the major exams.

Quizzes: There will total of 5 quizzes during class meetings during the last 25 minutes of class. Quiz problem will be given from assigned homework problems. Make-up quizzes and exam are only given in the event of a university-excused absence only. Quizzes on July 15, July 22, July 29, August5, and August 10.

Tests: There will be 2 exams given in class during the semester. Exam dates: July 27, and August 10.

Final Exam: There will be a two-hour final exam on August 14

Grading Policy

Attendance	25pts
Quizzes	75pts
Homework	50pts
Two major exams	200pts
Final (comprehensive) exam	150pts

The grading scale **A:** 90 – 100%, **B:** 80 – 89, **C:** 70– 79, **D:** 60 – 69, **F:** 0-59

Homework Problems

---------- Homework 1: Due: July 20 ----------
12.1 1, 2, 5, 9, 11, 15, 17, 19, 22(B), 23, 25, 27, 29, 34, 37, 39, 40, 42, 48, 52
12.2 1, 3, **5**, 9, 11, **13**, 15, 17, **18**, 22, 23, **25**, 27, 29-39 (**Odds**), 43, **45**, 47, 50, **52**, 54
12.3 1, **4**, 11, **13**, 15, 18, **19**, 21, **25**, 27, **29(a)**, 30, **31**, 32, **34**, 36, 39, 41, **44**, 49, 51, **53**, **59**, 63, **65**
12.4 **5**, 7, 9, **11**, **15**, 17, **19**, **21**, 29, **30**, 34, 36, **37**, 38, **39**, 40, **54**
12.5 1, **3**, 5, **7**, 10, 11, 13, **15**, 17, 18, **19**, 21, **23**, 24,**27**,28,**32**,33,**35**,37,**41**,49,**51**,58,59,60,64,68,69,70
12.6 1, 3, 7, 13, 17, 21, 25, 29
12.7 1, 3, **5**, 7, 9, **11**, 13, 15, **17**, 21, 22, **23**, 25, 26, **29**, 31, **35**, 37, **39**, 41, 47, 49, **51**, 53, **55**, 59
---------- Homework 2: Due July 27 ----------
13.1 1, 2, 3, **4**, 6, **8**, **9**, **11**, 14, 15, 20, **21**, 26, **27**, **35**, 37
13.2 3, **4**, 7, **9**, 10, **13**, 14, **17**, **20**, 22, **23**, **25**, 29, **31**, 33, 39, **41**, **43**, 47, **49**, 51, **53**
13.3 1, **3**, **5**, 7, 9, **11**, 18, 22, **24**, 26
13.4 2, **3**, **5**, **7**, **8**, 9, **12**, **13**, 15, **16**, 44, **47**, Osculating Plane
13.5 **3**, 4, **5**, **12**, 15, **16**, 18, 34, **36**, 38, **39**
---------- Homework 3:Due August 3 ----------
14.1 1, **3**, 5, **6**, 10, **17**, **18**, **19**, **20**
14.2 **3**, 7, **9**, **13**, **14**, **15**, 16, 22, **24**, **31**
14.3 2, **3**, **5**, 7, 13, **15**, **21**, 25, **29**, **34**, 37, **41**, 57, **58**, 60, **61**, 63, **66**, 71
14.4 1, **3**, 5, **8**, 11, **13**, **16**, 21, **23**, 29
14.5 2, **5**, 6, **7**, 9, **11**, 13, **16**, 19, **21**, 23, **25**, 27, **29**, **31**, 42, **43**
---------- Homework 4: Due August 10 ----------
14.6 **1**, 2, **3**, 5, **7**, **8**, 10, 11, **12**, 14, 15, **25**, **27**, 30
14.7 1, **2**, 3, 5, **7**, **9**, 10, **11**, 12, 13, **15**, 19, 23, 28, **29**, 30, 31
14.8 1, 4, **5**, **7**, 8, **9**, 10, 11, 42(try)
15.1 **1**, **3**, 5, 7, **15**, 17, **19**, **21**, 23, **24**, 25, 27, **29**, 31, **33**, **37**, 39, **41**
15.2 1, **5**, 7, 8, **9**, 11, **13**, **17**, 18, **21**, **25**, **26**, **27**, **33**, 34, **35**, **39**, 40, **41**, **45**, 46

Turn in at least the bold faced problems. You are free to do more.

How to download Graph3 on your TI-83 for 3D PLOT

Step 1: Download and install TI Connect Software to your computer. The link is here https://education.ti.com/en/us/software/details/en/14D11109C9F44D55B9BBF65E5A62E7F1/swticonnectsoftwareforwindows

Step 2: Download the file "graph3.zip" (contains graph3.8xk file and a PDF instruction manual) to your computer. Unzip it. Download it here: http://www.ticalc.org/archives/files/fileinfo/247/24741.html

Step 3: Connect your calculator to your computer using the graph link **cable** (this should be included when you purchase your calculator)

Step 4: Open the installed TI Connect Software and click "Send to TI Device". Make sure your connected calculator is **ON** throughout Steps 4 and 5. Click "Select device" on the opened window (if calculator is not ON, no device will be seen)

Step 5: Open the unzipped graph3 folder and drag "graph3.8xk" file to the opened window. Next, click

"Send to device"

Step 6: To use 3D, go to APPS on your calculator, click Graph3. Press tab "Y=" twice and select 3D

How to download Graph3D on your TI-84/TI 84 Plus/ TI 84 Plus SE for 3D PLOT

You can also download graph3 described above but graph3D is better for TI-84 series. Follow the following instructions to download.

Step 1: Download and install TI Connect Software to your computer. The link is here https://education.ti.com/en/us/software/details/en/14D11109C9F44D55B9BBF65E5A62E7F1/swticonnectsoftwareforwindows

Step 2: Download the file "graph83p" to your computer. Unzip it. Download it here: http://www.ticalc.org/archives/files/fileinfo/255/25521.html

Step 3: Connect your calculator to your computer using the graph link **cable** (this should be included when you purchase your calculator)

Step 4: Open the installed TI Connect Software and click "Send to TI Device". Make sure your connected calculator is **ON** throughout Steps 4 and 5. Click "Select device" on the opened window (if calculator is not ON, no device will be seen)

Step 5: Open the unzipped graph3 folder and drag "graph3d" file to the opened window. Next, click "Send to device"

Step 6: To open the program on your calculator, click "PRGM" and chose the appropriate file.

For those that need help or don't have a graph link cable, bring your calculator to class. I will be discussing more in class.