MATH 205-01 Multivariable Calculus (**F2F**) Fall 2024
MTWTh 12:30-13:50 at WB #3

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Moodle: (key: multi)
(1) This section of MA205 is F2F (= class meets on campus). We mostly use Moodle for Evaluation at the end of the semester.
(2) When you have trouble with Moodle, call 735-2620, or email to moodlehelp@triton.uog.edu

Office Hours: MTWTh 10:30-12:00 (F2F) and appointment (F2F/Online)

Text: Calculus: Multivariable, **6th edition** by McCallum et. al.

Tentative Schedule:

1st-5th week	Aug 14-Sep 12	Ch 12,13,14	Test 1	**Sep 11,12** (12:30-13:50)
6th-11th week	Sep 16-Oct 24	Ch 15,16,17	Test 2	**Oct 23,24** (12:30-13:50)
12th-15th week	Oct 28-Nov 21	Ch 18,19,20	Test 3	**Nov 20,21** (12:30-13:50)
16th-18th week	Nov 25-Dec 11	Ch 21	Final Exam	**Dec 10,11** (**12:00**-13:50)

Grades: The total number of points available is 500. Grades will be no lower than those set forth in the following table. Student's work is usually graded on a partial credit basis. Student's written solutions must include all work needed in order to solve problems. Points will be deducted (or given none) for omitting any work even if the answer is correct.

Quiz	100pts
Test 1	100pts
Test 2	100pts
Test 3	100pts
Final Exam	100pts

A+	98-100 %
B+	87-89 %
C+	77-79 %

A	93-97 %
B	83-86 %
C	70-76 %
D	60-69 %
F	0-59 %

A–	90-92 %
B–	80-82 %

Quiz/Attendance: Students are expected to attend every scheduled class. It is the student's responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes. **QUIZ ALMOST EVERY CLASS** (*In-Class or Takehome*). No make-up for Quiz; if you miss a Quiz, your score for that Quiz is zero. Instead **FIVE** lowest Quiz scores will be dropped, and your total Quiz score will be adjusted out of 100 pts at the end of the semester. The main purpose of the Quiz is to let you prepare for "bigger" Tests and the cumulative Final Exam. Do not worry too much about low score on a single Quiz. However,

• **If you are late, leave early, or skip in the middle of the class, YOU LOSE ONE CREDIT**, and your Quiz score is zero that day. No make-up for Quiz. If you fail (or forget) to turn in a Takehome Quiz**, YOU LOSE ONE CREDIT** as well.

• **LOSING TEN OR MORE CREDITS** will result in **Grade F** regardless of the reason and of your total points.

Tests/Final Exam: There will be three in-class Tests and the cumulative Final Exam. No make-up for Tests and Final Exam. All notes and the textbook are prohibited from use. It is crucial to do well on Tests and Final Exam. Missing any **SINGLE** Test or **Final Exam** will result in grade **F** regardless of your total points. Very special circumstances will be handled very specially by consultation with the instructor. Except for true emergencies, these special cases are arranged in advance with the instructor.

Homework: Homework will be assigned regularly. Homework is an essential component of the course. To be successful, a student must complete all assigned homework *even if it is not collected nor graded.*

Calculator: A scientific calculator such as TI-83 is required for this course. Students are expected to have a working calculator for Quiz/Test/Exam **with exception announced each time**. However, calculators which can do symbolic computation (e.g. TI-89) are **not** allowed. **PC/Mac/Tablet/Cell Phone calculator is not allowed.**

Reference: (if you need a book easier)
How to Ace the Rest of Calculus: The Streetwise Guide, Including Multi-Variable Calculus,
by Colin Adams et.al., Times Books, 2001

To MA205 students:
Calculus consists of two branches called differential calculus and integral calculus. In MA203 and MA204 (known as calculus 1 and 2), we have already learned both differential calculus and integral calculus. But now here comes the next MA205 known as calculus 3. What the hell do we have to study more?

A function $y = x^2$ looks familiar to us. This is called a function of *one* variable. How about $z = x^2 + y^2$? This is called a function of *two* variables because when we input two values x and y to get the output value z. How do we graph it? If we want to graph $z = x^2 + y^2$, we need 3-dimensional space instead of 2-dimensional space (xy-plane). The main theme of MA205 is the calculus of *multi*variables. We start from understanding the functions having more than one input and output, then learn differential calculus and integral calculus in this new setting.

Do you still remember the Fundamental Theorem of Calculus? FTC is the most important principle in this branch of math because this tells us a connection between the differentiation and the integration. (They are inverse operations each other.) In MA205 FTC develops and changes its name called the **Stokes' Theorem**. This is the goal of MA205—the real climax of calculus.

Catalog Course Description: This course covers the calculus of functions of several variables, including partial differentiation and multiple integration. It also covers introductory topics in vector calculus, including vector fields, line integration, Green's Theorem, and Stokes' Theorem. Prerequisite: Grade of C or better in MA204.

Rational for Offering Course: The basic content of the course is needed by any student who is planning to continue in mathematics. The ideas introduced in this course provide a foundation for all upper division mathematics courses.

Academic Integrity: All assignments and Quiz/Test/Exam must be your own work. The term "plagiarism" includes, but is not limited, to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. Plagiarizing in your essay or **CHEATING** on Quiz/Test/Exam will result in **Course Grade F** regardless of your total points. Academic Integrity is about performing in your role as student in ways that are honest, trustworthy, respectful, responsible, and fair (see www.academicintegrity.org for more information). As a student, you will complete your academic assignments in the manner expected by the instructor. Academic dishonesty, including but not limited to cheating and plagiarism may result in suspension or expulsion from the University. Refer to the UOG Student Handbook and Code of Conduct for more information.

Notification of Rights Under FERPA: The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights for students, parents and school officials can be viewed at http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html.

Tobacco-free campus: UOG is a tobacco-free/smoke-free, vaping/e-cigarette free campus. Thank you for not using tobacco products or e-cigarettes on campus, for helping to fight cancer, and for helping make UOG a healthy learning and living environment.

DSS Accommodation: For individuals covered under the ADA (Americans with Disabilities Act), if you are a student with a disability requiring academic accommodation(s), please contact the Disability Support Services Office to discuss your confidential request. A Faculty Notification letter from the Disability Support Services counselor will be provided to me. To register for academic accommodations, please contact or visit Sallie S. Sablan, DSS counselor in the School of Education, office 110, disability-support@triton.uog.edu or telephone/TDD 671-735-2460.

Curriculum Mapping:

Course SLOs	Program PLOs	UOG ILOs	Method of Assessment
SLO 1	PLO 1,2	ILO 1,2	Homework assignments, quizzes, and tests
SLO 2	PLO 1,2,3,4	ILO 1,2	Homework assignments, quizzes, and tests
SLO 3	PLO 1,2,4	ILO 1,2,5	Homework assignments, quizzes, and tests
SLO 4	PLO 1,2,4	ILO 1,2,5,6	Homework assignments, quizzes, and tests
SLO 5	PLO 1,2,5	ILO 1,2,6	Homework assignments, quizzes, and tests

(Course SLOs)
SLO 1: Demonstrate knowledge of the theory and applications of functions of several variables and vector-valued functions.
SLO 2: Apply differential calculus, multiple integrals and vector integral calculus to solve application problems.
SLO 3: Perform partial differentiation, compute total and directional derivatives.
SLO 4: Use line integrals and surface integrals to gain insight of vector fields.
SLO 5: Describe divergence and curl in the context of general integral theorems.

(Math PLOs)
PLO 1: Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.
PLO 2: Exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).
PLO 3: Argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools.
PLO 4: Apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.
PLO 5: Show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields.
PLO 6: Demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

(UOG ILOs)
ILO 1: Mastery of critical thinking & problem solving
ILO 2: Mastery of quantitative analysis
ILO 3: Effective oral and written communication
ILO 4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context
ILO 5: Responsible use of knowledge, natural resources, and technology
ILO 6: An appreciation of the arts & sciences
ILO 7: An interest in personal development & lifelong learning