

## MAFE203IU- ANALYSIS 3, SPRING 2018

**Lecturer:** Dr. Nguyen Minh Quan. Office: O2. 610

Office Hours: Thursday: 8:00am-3:00pm, and by appointments.

Email: [quanmm@hcmiu.edu.vn](mailto:quanmm@hcmiu.edu.vn), [nmquan05@gmail.com](mailto:nmquan05@gmail.com)

Homepage: <http://www.hcmiu.edu.vn/webdirectory/Home/profile/quannm>

**Lectures: Friday 8:00 am - 10:30 am in A2.411**

**Teaching Assistant:**

Ms. Vu My Linh. Email address: [mylinh960944@gmail.com](mailto:mylinh960944@gmail.com)

**Textbooks:**

1. **R. Adams, *Calculus. A complete course, 7Ed., Addison-Wesley, 2010.***

(Main contents: Chapter 12, Chapter 13: Sec. 1, 2, 3, Chapter 14, Chapter 15: Sec. 1, 2, 3, 4, 5, Chapter 16: Sec. 1, 2, 3, 4)

2. **J. Stewart, *Calculus, 7Ed., Brooks/Cole, 2012. (Chapters 14, 15, 16)***

**References:**

1. J. Rogawski, *Multivariable Calculus, Early Transcendentals, 2Ed, W.H. Freeman and Company, 2012.*

**Number of credits:** 3

**Prerequisite:** Analysis I, II

**Course Objectives:**

- To provide students with *the main results*, theories, techniques and methodologies of calculus of functions of several variables concerning *Partial Derivatives, Differential, Multiple Integrals, Techniques of Integration, Vector Fields, Line Integrals, Surface Integrals*.
- To provide an understanding of the practical meaning, significance and applications of these ideas and techniques, through practical examples taken from many areas of engineering, business and the life sciences
- To develop skills in mathematical modeling and problem solving, in thinking logically, and in creatively applying existing knowledge to new situations

**Main Contents:** Functions of Several Variables: Limits, Continuity, Partial Derivatives; Multiple Integrals: Double Integrals, Triple Integrals, Techniques of Integration; Vector Fields; Line Integrals; Surface Integrals.

**Important Info: What can be used in examinations?**

Each student is allowed a maximum of **ONE** double-sided sheet of reference material (of size A4 or similar). The sheets must be stapled together and clearly marked with the student's name and ID. Scientific calculators are allowed, but other electronic devices (like computers, phones, etc) are NOT allowed.

**Examinations:** There will be two in-class exams: one midterm and one final exam.

**Assignment:** Homework (HW) problems and quizzes will be assigned regularly. HW assignments, lectures and announcements will be posted on IU Blackboard.

**Bonus credits in class:** Bonus points will be given for students who can correctly solve the problems/questions on the board when suggested/requested.

**Course Grades:** Your final grade will be determined by averaging your grades for exams and assignments with the following weightings:

**Assignments/Quizzes/HW and class attendances: 20%,  
Midterm Test: 30%,  
Final Exam: 50%.**

**Academic Integrity** Students are expected to adhere to the university policy on academic honesty. Cheating, plagiarism, or misrepresentation of your work will result in formal charges.

**Attendance:** I expect you to attend classes regularly unless you have a valid excuse. Please remember that once you miss classes and fall behind, it is very difficult to get back on track.

**Classroom Conduct!**

Cell phones must be off or set to silent mode in classroom (leave class to conduct your conversation). Please remove any headphones once class sessions begin. Use your laptop or ipad for course-related purposes only. Surfing the Web, doing homework, checking email/Facebook are all disruptive to class. Please be sensitive to not distract others while using your laptop. Do not engage in side conversations.

**Tentative Schedule**

Jan 26	Functions of Several Variables, Limits and Continuity
Feb 2	Partial Derivatives, the Chain Rule
Feb 9	Total Differentials and Approximations. Exercises.
<b>Feb 12-24</b>	<b>Tet Holiday! Happy Lunar New Year 2018!</b>
Mar 2	Directional Derivatives and Gradient.
Mar 9	Applications of Partial Derivatives. <b>HW1 due.</b>
Mar 16	Double Integrals.
Mar 23	Double Integrals (cont.)
Mar 30	Change of Variables in Double Integrals. Exercises. <b>HW2 due.</b>
<b>Apr 2-7</b>	<b>Midterm Examination</b>
Apr 13	Multiple Integrals.
Apr 20	Applications in Economics and Engineering. Exercises.
Apr 27	Vector Fields.
May 4	Line Integrals, Line Integrals of Vector Fields. <b>HW3 due.</b>
May 11	Green's Theorem. Surfaces and Surface Integrals.
May 18	Surface Integrals. Divergence Theorem.
May 25	Stokes' Theorem. Exercises. <b>HW4 due. Last day of class.</b>
<b>28/5-16/6</b>	<b>Reservation week and then Final Exam weeks (scheduled by OAA).</b>