Math 220 Multivariable Calculus Syllabus
Agnes Scott College, Fall 2020
Jim Wiseman, jwiseman@agnesscott.edu, Buttrick 331

Office hours: Mon 2:00-2:30, Tues 2:00-3:00, and by appointment.

Required material: McCallum, Hughes-Hallett, Gleason, et al., Multivariable Calculus, 5th ed.

Plan: We'll cover most of chapters 12-17. There's a more detailed schedule below, but it's subject to change.

Homework: By now you've probably figured out that working problems is mostly how you learn math. There will be homework assigned nearly every week, due at midnight on Wednesdays. I strongly encourage you to work in groups, but you must make sure that you understand the problem completely yourself before submitting your answer. You will turn in some of each assignment on Webwork, which you can access through Canvas. You can submit answers as many times as necessary on Webwork (up to the due date), so I expect that you'll get 100% on each assignment. Some of the assignments you do not need to turn in, but you are responsible for the material - completing only the Webwork assignments is not enough to prepare you for the exams. Math 220 is a 4-credit course. In addition to in-class time, you will be spending time outside of class on various activities. The first and most important activity is to regularly read the text and to work through and understand the examples in each section. You should try to spend time on this every day.

Proficiency tests: You will need to pass two tests on multivariable calculus proficiency skills on Webwork, one on partial differentiation (chapter 14 material), and the other on multiple integration (chapter 16 material). Each will consist of a small number of problems, and you must get all of them correct. Each test is 5% of your final grade, and no partial credit will be given. You may retake the proficiency tests (with different problems) as many times as necessary. These must be completed by hand without help from any technology, websites, or other people.

Honor code and group work: All students are expected to follow the honor code throughout the semester; all exams and assignments should be pledged.
I strongly encourage you to work on the homework in groups. I suggest that you work on the problems by yourself first, making a note of anything giving you trouble; then meet with your group and work through the remaining problems together; and finally submit the solutions by yourself. Every group member must submit her own solutions independently; just copying the group's answers is plagiarism and is unacceptable.

Getting help: Chances are that sooner or later you'll get stuck on something, so don't get frustrated. Think hard, and if you're still stuck, do something else for a while. (It's amazing how often that works.)
My office hours are above - these are times when I'm guaranteed to be in my office waiting to talk to someone. If you want to see me at other times, please let me know and we'll find a time.
Student learning assistants in the Math Learning Center will be able to provide help throughout the week. More details, including the schedule, will be posted on Canvas. You are encouraged to use this service, and should think of it as part of your weekly mathematics regimen.
Finally, I can't emphasize enough that your classmates are your best source of help.

Course goals:
Learn the tools and techniques of multivariable calculus, and their application in both mathematical and scientific contexts
Understand the development of differentiation and integration of functions of several variables
Develop an intuition for the geometry and properties of curves and surfaces

Enhance your analytic (problem solving) skills, your ability to think abstractly and to analyze critically, and your computational (algebraic) skills
Be able to use computer software as a computational tool for understanding and solving problems in multivariable calculus and its applications
Learn to communicate mathematics effectively, both orally and in writing

Exams: We will have three midterm exams and one final exam, all closed-book. The first midterm covers all material up to that point, the second covers all material since the first, the third covers all material since the second, and the final is cumulative.

Assessment: Each midterm 15%, each proficiency test 5%, homework 20%, final exam 25%.

Late work: Late work won't be accepted, and you won't be allowed to make up missed exams, except under very exceptional circumstances (e.g., the sasquatch attacks - and even then you should get a note from the sasquatch). In the case of a conflict that you absolutely can't resolve (for example, a religious holiday), you may arrange to take a midterm exam early.

Attendance and participation: I expect you to be at every class meeting on time, unless you've talked to me about having to be absent for technological or other reasons. However, tardiness or absence will have no (direct) effect on your grade, unless of course you miss a midterm.

Dates and deadlines:
First midterm exam: Monday, 9/27
Partial differentiation proficiency test: due Friday, 10/22
Second midterm exam: Wednesday, 10/27
Multiple integration proficiency test: due Wednesday, 11/19
Third midterm exam: Monday, 11/22

Final exam: self-scheduled.

Date	**Topic**
Mon 8/23	Intro, 12.1 Functions of two variables
Wed 8/25	12.2 More functions of two variables, 12.3 Contour diagrams
Fri 8/27	More 12.3, 12.4 Linear functions
Mon 8/30	13.1, 13.2 Vectors
Wed 9/1	13.3 Dot product
Fri 9/3	More 13.3, 13.4 Cross product
Mon 9/6	**Labor Day - no classes**
Wed 9/8	More 13.4 Cross product
Fri 9/10	14.1 Partial derivatives
Mon 9/13	14.2, 14.3 Computing and interpreting partial derivatives

Date	Topic
Wed 9/15	More 14.3
Fri 9/17	14.4 Gradients and directional derivatives
Mon 9/20	14.4, 14.5 More gradients and directional derivatives
Wed 9/22	More 14.5
Fri 9/24	Catch up, review
Mon 9/27	**First exam**
Wed 9/29	14.6 Chain rule
Fri 10/1	More 14.6, 14.7 Second-order partial derivatives
Mon 10/4	More 14.7
Wed 10/6	15.1, 15.2 Local extrema
Fri 10/8	More 15.2
10/11-10/15	**Fall break**
Mon 10/18	15.3 Lagrange multipliers
Wed 10/20	More 15.3 Lagrange multipliers
Fri 10/22	More 15.3 Lagrange multipliers
Mon 10/25	Catch up, review
Wed 10/27	**Second exam**
Fri 10/29	16.1 Definite integral
Mon 11/1	16.2 Iterated integrals
Wed 11/3	More 16.2 Iterated integrals
Fri 11/5	More 16.2, 16.3 Triple integrals
Mon 11/8	More 16.3 Triple integrals
Wed 11/10	16.4 Polar coordinates
Fri 11/12	More 16.4, 16.5 Cylindrical and spherical coordinates
Mon 11/15	More 16.5 Cylindrical and spherical coordinates
Wed 11/17	16.6 Probability

Date	Topic
Fri 11/19	Catch up, review
Mon 11/22	**Third exam**
11/24-11/26	**Thanksgiving break**
Mon 11/29	16.7 Change of variables
Wed 12/1	17.1 Parametrized curves
Fri 12/3	17.2 Velocity and acceleration
Mon 12/6	Summary, review

Course evaluation: Your feedback on the course is extremely valuable to me, the math department, and the administration. In particular, I take your comments very seriously and use them to improve the course the next time I teach it. You are responsible for completing an evaluation of the course at the end of the semester.

Title IX: Agnes Scott is here to help you if you have experienced any form of sexual harassment or violence, dating or domestic violence, or stalking. Please talk to any faculty or staff member with whom you feel comfortable. Faculty and staff members want to support you and have been trained to help. They will also inform the Title IX office so that you learn about options available to you. If you do not want college administrators to know what you have experienced, you may talk to the chaplain, as well as nurses or counselors in the Wellness Center with complete confidentiality. They will not tell anyone what you share with them unless you give your express permission. You may contact the Title IX Coordinator directly at T9Coordinator@agnesscott.edu.

Inclusion: This course adheres to the principles of diversity and inclusion integral to the Agnes Scott community. We respect people from all backgrounds and affirm people's decisions about gender expression and identity. Please let me know your preferred name or gender pronoun if different from the class roster. The Gay Johnson McDougall Center for Global Diversity and Inclusion is centered and grounded in dismantling systems of oppression, including structural and systemic racism, as well as empowering each individual to take action that uplifts and builds community. Students can contact them at diversity@agnesscott.edu or 404.471.6118.

ADA: Agnes Scott College seeks to provide equal access to its programs, services and activities for people with various abilities. If you will need accommodations in this class, please contact the Office of Academic Advising and Accessible Education (404-471-6150) to complete the registration process. Once registered, please contact me so we can discuss the specific accommodations needed for this course.