Calculus II, Math 157-02, Fall 2025 Course Syllabus and Outline

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Meeting time and room: MWRF 8:10 am – 9:00 am, **See course website for room update**

Office Hours: MWF 9:10 am to 10:00 am and by appointment (virtually any time)

email empty57quarter@yahoo.com to schedule an appointment

Google Meet Code: https://meet.google.com/vuv-ompe-fxn

Course website, no account required, https://5f216d8247491.site123.me/

"It is trite but true that Mathematics is learned by doing it, not by watching other people do it." From Introduction of the book "Methods of Modern Mathematical Physics I: Functional Analysis" by Michael Reed and Barry Simon.

COVID-19 STATEMENT:

The wearing of a face mask in the classroom is **mandatory.** Students will be directed to leave the classroom if a face mask is not worn properly to cover the nose and mouth. Any student who refuses or fails to comply with the University's requirements and precautions against COVID-19, and any other measures the University advances for the safety and protection of the Howard Community, will constitute a violation of the University's Student Code of Conduct and could result in sanctions up to and including expulsion from the University.

Academic Code of Student Conduct (refer to Howard University handbook): No Copying, unauthorized use of calculators, books, or other materials, or changing answers or other academic dishonesty will be tolerated

It is your responsibility to learn. I expect you to take the initiative to succeed in this class. That means doing your homework, studying the textbook, asking questions in class and asking questions outside the class.

REQUIRED TEXT: Calculus, Early Transcendental, **9th** Edition, by Stewart

Grading scheme: A: 90-100   B: 80-89 C: 70-79 D: 60-69   F:<60

6 tests (5 tests during semester, final exam), 18 points each, worst one to drop,

Homework, 10 points. All together add up to 100.

Topics to be covered and suggested homework and exercises:

Applications of Integration:
6.1 Areas between curves: 1~35 odd, 41, 42, 43, 44, 64~70
6.2 Volumes by cross sections and revolutions, washers: 1~40
6.3 Shell methods: 1~30, 39~42, 47~50
6.4 Work: 1, 3, 7, 9, 11
6.5 Average value of a function: 1 through 8

Techniques in integration (Core of Calculus II):
7.1 Integration by parts: 1~60
7.2 Trig. Integrals: 1~56
7.3 Trig. Substitutions: 5~38
7.4 Partial fractions: 7~40
7.5 Strategy for integration: 1~93 choose any 20 you like.
7.7 Numerical integration: 7, 9, 11
7.8 Improper integrals: 5~48

More applications:
8.1 Arc length, length of a curve: 9~25
8.2 Area of surface of revolution: 9~20
8.3 Applications to physics and engineering: 25~33
8.4 Applications to economics and Biology: 1, 3, 5, 7, 9

Parametric and polar:
10.1 Curves defined by parameter: 13~22
10.2 Calculus with parametric curves: 1~24, 35, 36, 37, 38
10.3 Polar: 21~28, 33~50
10.4 Calculus with polar curves: 5~12, 39~54
10.5 Conic sections: 1, 3, 17, 19, 27, 33, 35, 37, 45, 47, 49
10.6 Conic sections in polar coordinates: 1~21 odd

Sequences and series:
11.1 Sequences: 27~62
11.2 Series: 23~50
11.3 Integral test: 3~28,
11.4 Comparison tests: 7~40
11.5 Alternating series: 2~20, 22~34
11.6 Ratio and root tests and absolute convergence: 3~34
11.7 Strategy for testing series: 1~38 choose 10 you like
11.8 Power series: 3~36
11.9 Representing functions by power series: 3~12
11.10 Taylor and MacLaurin: 11~30, 67~72
11.11: Applications of Taylor's polynomials: 17, 19 21

CLASSROOM POLICIES:
    1. ***No cell phone or computer usage during class, including texting.*** Please turn your ringer off before the start of class and keep your laptop closed.
    2. Research has shown that students who regularly attend class tend to do better than those who do not. Please be on time.

3. No calculator allowed while taking tests.

Homework: Homework is an absolutely essential learning part of the course. You cannot work problems on exams if you have not practiced the techniques and become comfortable applying the concepts within the homework problems. If you misuse homework by not doing it yourself, or not checking that you can solve a problem on your own after having been shown how to do it, then your exam scores and corresponding grade will reflect this. Trust me on this last point. Some additional points:

- You are strongly encouraged to collaborate in the analysis and study stage of homework preparation. However, you are required to completely write your own original work.
- You will be graded on your PROCESS in work construction rather than simply your ability to calculate. You must present your work solutions as if they are complete educational tools for study. In essence, you must PRESENT your solution and not simply answer questions.

Course Policy: You are responsible for lecture notes, any course material handed out, and attendance in class. While I will not formally record your attendance, I will get to know you and your rate of presence over time. ***The lectures will be conducted as if you have already read the material and attempted some homework problems.*** In this manner, you can focus mainly on those parts of the lectures that cover the areas of your reading you found difficult to understand. My teaching style is that of interactive discussion and I will rely on your input in developing the material. Active participation in the classroom is a great way to generate the discussion necessary to fully grasp the material.

Ethics Statement: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Cheating is wrong. Cheating hurts our community by undermining academic integrity, creating mistrust, and fostering unfair competition. The university will punish cheaters with failure on an assignment, failure in a course, permanent transcript notation, suspension, and/or expulsion. Offenses may be reported to medical, law, or other professional or graduate schools when a cheater applies.

Violations can include cheating on exams, plagiarism, reuse of assignments without permission, improper use of the Internet and electronic devices unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Ignorance of these rules is not an excuse.

In this course, as in many math courses, working in groups to study particular problems and discuss theory is strongly encouraged. Your ability to talk mathematics is of particular importance to your general understanding of mathematics.

You should collaborate with other students in this course on the general construction of homework assignment problems. However, you must write up the solutions to these homework problems individually and separately. If there is any question as to what this statement means, please see the professor.

Statement on Interpersonal Violence: Howard University takes sexual assault, dating violence, domestic violence, stalking and sexual harassment seriously. If a student reveals that he or she needs assistance with any of these issues, all responsible employees, including faculty, are required to share this information with the University Title IX Office (202-806-2550) or a student can be referred for confidential services to the Interpersonal Violence Prevention Program (IVPP) (202-238-2382) or the University Counseling Services (202-806-6870). For more information, please go to www.CampusSafety-First.Howard.Edu