



**Instructor:** Eric J. Wingler

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**Office Location:** 536 Cafaro Hall

**Phone:** (330)-941-1817

**Student Support Hours:** Monday- 1000—1055, 1400—1500  
 Tuesday- (none)  
 Wednesday- 1000—1055, 1400—1500  
 Thursday- (none)  
 Friday- 1000—1055  
 (or by appointment)

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**Course Description:** This course is an introduction to the measure theory. Topics include rings and algebras of sets, measures, measurable functions, integration, a comparison of the Riemann integral with the Lebesgue integral, convergence properties, the Radon-Nikodym theorem,  $L^p$  spaces, and classical Banach spaces.

**Prereq.:** 24 s.h. of mathematics including *MATH 3721* or *MATH 3751*. *MATH 3721* or *MATH 3751* or *MATH 721* and *MATH 722* or *MATH 751* and *MATH 752*

**Course Materials:** *Measure Theory*. Paul R. Halmos. (97 Edition).

### Course Objectives:

The goals for students in the course include:

- Developing an understanding of the fundamental concepts of measure theoretic techniques.
- Gaining an understanding of the Lebesgue integral and how it differs from the Riemann integral.
- Enhancing students' knowledge about the derivative of a function and its properties.
- Developing the ability to express themselves mathematically and to construct proofs using real analysis techniques.

### Learning Outcomes and Tentative Course Schedule:

*The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.*

Chapter(s)	Topic(s)
Intro.	Brief history of integration and discussion of normed spaces
I	Sets and Classes
II	Measures and Outer Measures
III	Extension of Measures
IV	Measurable Functions
V	Integration
VI	General Set Functions

### Grading and Grading Scale:

Class attendance, participation, and homework will determine 100% of your grade. This will be discussed further in class.

The following grading scale will be used.

90 –100%	A
80 –89%	B (at least)
70 –79%	C (at least)
55 –69%	D (at least)
Below 55%	F (at least)

**Semester Dates:**

Monday, August 28, 2023 – Term Begins  
Monday, September 4, 2023 – Labor Day (University closed)  
Tuesday, September 5, 2023 – The last day to add a class or change the grade option  
Sunday, September 10, 2023 – The last day to drop with a full refund  
Monday, September 11, 2023 – First day to drop with a grade of “W”  
Sunday, October 29, 2023 – The last day to drop the course with a grade of “W”  
Friday, November 10, 2023– Veterans Day (University closed)  
Wednesday, November 22 – Sunday, November 26, 2023 – Thanksgiving Break  
Monday, December 11 – Saturday, December 16, 2023 – Final Exams  
Saturday, December 16, 2023 – Term Ends

Please refer to [this site](#) in the event of changes to semester dates.

**Mathematics Achievement Center (MAC):** The [Math Achievement Center](#) is an academic support service which is integrated with the Department of Mathematics & Statistics. Our mission is to assist YSU students in the strengthening of the fundamental mathematics skills which are necessary for success in the study of mathematics and to provide resource materials for independent study.

**Location:** Cafaro Hall Room 408 and Online

**Email:** [mac@ysu.edu](mailto:mac@ysu.edu)

**Phone:** (330)-941-3274

Visit our [website](#) to schedule an appointment and check for services available for your course.

**Honors Contracts:** Please contact the instructor regarding eligibility for honors contracts.

**Blackboard:** This class will be using the Learning Management System Blackboard. Blackboard can be accessed at: <https://ysu.blackboard.com/>. Here you will find a copy of this syllabus, assignments, notes, solutions, etc. You are required to regularly check Blackboard for documents.

**Faculty Evaluations:** At the end of the semester, you will be asked to evaluate the instructor and the course in general. We ask that you take these evaluations seriously and provide honest feedback as these are reviewed by the Chair of the Department of Mathematics and Statistics.

**YSU Policies:** [University policies](#) can be found online and provide you guidance on your rights as a student in this course. The links below take you directly to a specific policy. Should you have any questions about a policy, please do not hesitate to contact me using the information at the top of the syllabus.

- [Statement of Non-Discrimination from the University](#)
- [Academic Integrity/Honesty](#)
- [Student Accessibility](#)
  - In accordance with university procedures, if you have a documented disability and require accommodations to obtain equal access in this course; please contact me privately to discuss your specific needs. To coordinate reasonable accommodations, you must be registered with the Accessibility Services, located in Kilcawley Center Room 2082. You can reach Accessibility Services at 330-941-1372.
- [Incomplete Grade Policy](#)
- [Coronavirus Statement](#)

**How to Get Help:** YSU is committed to your success. As a student you have access to several resources that may be instrumental in helping you succeed in this course and others. Please do not hesitate to utilize any of these [free support services](#) to support your academic success, physical and mental health, and help you navigate your time as a YSU student.

**Additional Resources:**

- [The Penguin Service Center](#) - The Penguin Service Center is a single place to receive essential information, find guidance, and resolve enrollment-related concerns in the areas of financial aid, records and registration, and student billing. Call the Penguin Service Center at 330-941-6000 or visit their website to [Ask a Question](#).
- [University Counseling Services](#) - As a student, you may experience a variety of concerns that can impede your academic success. Such life stressors may lead to diminished academic performance or reduce your ability to participate fully in life. Services are available to assist you with addressing these and other concerns you may be experiencing. Contact the Student Counseling Services (330-941-3737) to learn more about the confidential mental health services available to our currently enrolled students.
- [College/University Career Advisement](#) - The academic advising staff at Youngstown State University assists undergraduate students in the development of meaningful educational plans while maintaining the integrity of the institutional programs and degrees. For any academic advising questions please [visit here](#) to be directed to your academic college.