

**Youngstown**  
**STATE UNIVERSITY**  
*Department of Mathematics and Statistics*  
*Syllabus for Mathematics 5852*

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**Course Title:** Real Analysis 2

**Course Number:** MATH 5852

**Semester:** Fall 2021

**Course Credit:** 3 s.h.

**Text:** Thomson, B., Elementary Real Analysis, ClassicalRealAnalysis.com (Second Edition)

**Course Prerequisite:** MATH 3720 and 3751 or equivalent

**Catalog Description:** Uniform convergence of sequences of functions and some consequences; functions on n-space: derivatives in vector spaces, mean value theorem, Taylor's formula, inverse mapping theorem, implicit mapping theorem.

**Course Objectives:**

- Developing an understanding of additional concepts of real analysis
- Developing the ability to read and understand mathematical definitions, theorems, and proofs
- Demonstrating the ability to communicate in mathematics and produce well-written proofs

**Learning Outcomes:**

- An understanding of convergence of sequences and series of functions
- An understanding of convergence of power series
- An understanding of functions in n-space including limits, differentiation, the Inverse Function Theorem and the Implicit Function Theorem

**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.

**Honors Contracts:** Honors students may contract this course for honors credit. Notify your instructor of your interest to discuss options, complete required paperwork, and submit the required materials to the instructor by the semester deadline.

**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](#)

#### Semester Dates:

- *Monday, August 30, 2021*- Term Begins
- *Monday, September 6, 2021* – University Closed, Labor Day
- *Tuesday, September 7, 2021* – The last day to add a class or change the grade option
- *Sunday, September 12, 2021* – The last day to withdraw with a full refund
- *Sunday, October 31, 2021* – The last day to drop the course with a grade of “W”
- *Thursday, November 11, 2021* – University Closed, Veteran’s Day
- *Wednesday-Friday, November 24-26, 2021* – No Classes, Thanksgiving Break
- *Saturday, December 18, 2021* – Term Ends

Please refer to this site in case of changes: <https://ysu.edu/provost/schedule-of-operations/2021-fall-calendar>

**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.

**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: Lincoln Building Room 408 and Online

MAC Webpage: (<https://cms.ysu.edu/mathematics-assistance-center/math-assistance-center>)

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.

#### Additional Resources:

- [The Penguin Service Center](#) - A One Stop for Campus is an enrollment resource established to help students access and manage their academic record and student accounts. Please visit the Penguin Service Center or call (330) 941-6000 for assistance with financial aid, records access, registration processes, and tuition charges/billing. The office is located on the second floor of Meshel Hall.
- [College/University Career Advisement](#)
- [University Counseling Services](#)

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*The following information is provided by your instructor:*

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**Faculty Information:**

|                           |  |
|---------------------------|--|
| Instructor:               | Eric J Wingler   |
| Office Location:          | 536 Lincoln Building   |
| Email:                    | ejwingler@ysu.edu  |
| Phone:                    | 330-941-1817   |
| Preferred Contact Method: | e-mail   |
| Student Support Hours:    | Monday: 0850—0950, 1300—1355<br>Tuesday: (none)<br>Wednesday: 0850—0950, 1300—1355<br>Thursday: (none)<br>Friday: 0850—0950<br>(Or by appointment) |
| Section Information       | CRN: 40772<br>Modality: Traditional Instruction Method<br>Days/Times: MWF, 1400—1450<br>Location: 312 Lincoln Building                             |

**Grading and Grading Scale:**

Your grade will be determined from class participation (20%), homework (20%), and exams (60%). While the final exam is not comprehensive, you still must be familiar with the concepts introduced throughout the course to perform adequately. If you are auditing the course, you must attend at least 40% of the time to receive the grade AU; otherwise you will receive the grade W. Students taking Math 5852 for graduate credit will be expected to do more work than those taking the course for undergraduate credit.

If you have a valid reason for missing an exam, you will be given a makeup. If possible, you should notify the instructor in advance of missing an exam to make arrangements to take a makeup.

On all exams it is expected that you will do your own work and not copy from others. Failure to comply with this policy may result in losing a significant amount of credit and could result in being assigned a failing grade for the course. On homework it is permissible to work in groups, but do not cheat yourself out of a learning experience by letting another person do all the work. Homework turned in late is subject to a slight reduction in credit (up to 20%) with the amount of reduction dependent on the degree of lateness. Generally, if your work on a homework assignment is substantially below perfect, you will be given a chance to redo the assignment for slightly less than full credit.

The following grading scale will be used.

|           |              |
|-----------|--------------|
| 88—100%   | A            |
| 76—87%    | B (at least) |
| 64—75%    | C (at least) |
| 50—63%    | D (at least) |
| Below 50% | F (at least) |

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.*

| <b>Chapter(s)</b> | <b>Section(s)</b> | <b>Topic(s)</b>  |
|-------------------|-------------------|--|
| 9                 | 1—6               | Sequences and series of functions; pointwise and uniform convergence   |
| 10                | 1—6               | Power series   |
| 11                | 1—9               | Algebraic and metric structure of $\mathbf{R}^n$ , mappings from $\mathbf{R}^n$ into $\mathbf{R}^m$ , limits |
| 12                | 1—6               | Differentiation on $\mathbf{R}^n$ , Inverse Function Theorem, Implicit Function Theorem                      |