

MATH 401 INTRODUCTION TO ANALYSIS I: SYLLABUS

Spring 2024 Syllabus

Class number: 20758 Course ID: 029452

Instructor: Bob Vaughan

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Office Hours: MWR 2:30-3:30 and otherwise by arrangement.

Class: MWF 1:25–2:15, 011 Huck Life Sciences.

Text: Vaughan, An Introduction to Analysis,
<https://personal.science.psu.edu/rcv4/INTAN.pdf>

Alternative Text: Binmore, Mathematical Analysis: A Straightforward Approach, Second edition
Cambridge Univ Press, ISBN-13: 9781107526235,
About \$25.00 from Abebooks.com (North America) or \$50 from Amazon.com.

Homework: Homework due Mondays except when Monday is a holiday in which case due next class.

Course Grades:

Homework 35%,

Mid-term Exams, Wednesday 7th February 5%,

Wednesday 13th March 10%,

Wednesday 10th April 15%,

Final Exam, Monday 29th April, 4:40pm-6:30pm, 008 Mueller Lab 35%.

A Grade: 90–100%, B Grade: 80–89%, C Grade: 70–79%,

D Grade: 60 - 69%, F Grade 0 - 59%.

Note that these ranges may be adjusted downward and the plus and minus grades will be determined within the appropriate ranges. There is **NO** extra credit work.

Topics

Properties of real numbers: Chapters 1-3.

Sequences: Chapters 4-5.

Infinite series: Chapter 6.

Limits and continuity: Chapters 7-9.

If time some aspects of the following may be covered

Differentiation: Chapter 10.

Power series: Chapter 18.

Course objective

By the end of the course the student should be able to give ε - δ proofs of standard theorems on limits based on the fundamental properties of the real numbers.

- Late homework will not be accepted unless prior permission is granted. No homework will be accepted after the graded ones have been returned to the students.
- No makeup exams are available except by prior arrangement in extenuating circumstances.

- All Penn State Policies regarding academic integrity apply to this course. Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

- Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) website provides contact information for every Penn State campus (<http://equity.psu.edu/sdr/disability-coordinator>). For further information, please visit

Student Disability Resources website (<http://equity.psu.edu/sdr/>).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: See documentation guidelines (<http://equity.psu.edu/sdr/guidelines>). If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

- Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park (CAPS)

(<http://studentaffairs.psu.edu/counseling/>): 814-863-0395

Counseling and Psychological Services at Commonwealth Campuses

(<https://senate.psu.edu/faculty/counseling-services-at-commonwealth-campuses/>)

Penn State Crisis Line (24 hours/7 days/week): 877-229-6400. Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

- Consistent with University Policy AD29, students who believe they have experienced or observed a hate crime, an act of intolerance, discrimination, or harassment that occurs at Penn State are urged to report these incidents as outlined on the University's Report Bias webpage (<http://equity.psu.edu/reportbias/>)