

Course Syllabus

[Jump to Today](#)

Introduction to Real Analysis I | Math 4331 | Sec 12923

Syllabus Navigation

Course Policies

- [Course Description and Structure](#)
- [Prerequisites and Necessary Skills](#)
- [Required Texts and Materials](#)
- [Course Outcomes](#)
- [Technical Requirements](#)
- [Technical Support](#)
- [Course Assessment & Grades](#)
- [Academic Support Services](#)
- [Online Etiquette](#)
- [Participation](#)
- [Course Absence](#)
- [Late Work](#)
- [Plagiarism](#)
- [Syllabus Revision](#)
- [Fair Use](#)
- [UH Required Syllabus Language](#)

University Policies

- [Accommodations](#)
- [Intellectual Dishonesty](#)
- [Title IX Sexual Misconduct](#)
- [Code of Student Rights, Responsibilities, and Conduct](#)
- [Campus Grading Policies](#)
- [Grade Appeal](#)
- [Dropping a Course](#)

Instructor Contact Information

Instructor: Bernhard Bodmann

- Email: bgb@uh.edu
- Phone: 713 743 3581
- Office: 641A PGH
- Office Hours: Tu 10-11am, Wed 1-2pm

with me. I try to respond to all emails within 24 hours from Monday to Thursday. Emails sent at the end of the week may have a longer response time. If you wish to discuss course content, it is usually best to do face-to-face, either during office hours or by appointment. Online discussions are also an option when discussing minor conceptual issues or straightforward questions about problem solving.

Course Description and Structure

This course provides a rigorous introduction to deeper properties of the real numbers, continuous functions, and differentiability needed for advanced study in mathematics, science and engineering. It is assumed that the student is familiar with the material of Math 3333, including an introduction to the real numbers, basic properties of continuous and differentiable functions on the real line, and an ability to do epsilon-delta proofs.

[\(Back to top\)](#)

Prerequisites & Necessary Skills

Math 3333 or 3334, as well as Math 3325.

Required Texts and Materials

Required: Kenneth Davidson and Allan Donsig, Real Analysis with Applications: Theory in Practice; Springer, 2010.

[\(Back to top\)](#)

Course Assessment & Grades

Course Assessment:

You will be graded in two ways: Homework assignments and exams. There will be approximately ten homework assignments. Please submit all work in person when due before class; do not send anything to my email address for grading. Please ensure that you are checking your university email and your course page in Canvas daily. You should be able to complete all work required in this course by devoting 2-3 hours each day to the class. There will be two midterm exams and a final exam.

- **Assignments:** Be careful to read through each assignment thoroughly so you know what is expected of you. If you are unsure what is expected, please contact me before you begin work so I can address your concerns.

How Will I Know How I'm Doing in This Course?

Grades will be posted in Canvas within 96 hours of the due date. Since Canvas keeps track of all of your grades, you should always be able to calculate your current grade in the course. If you need assistance, please contact me.

Grading Scheme

Assignment	Percentage of Final Grade
Assignment	30%
Midterm 1	20%
Midterm 2	20%
Assignment	30%
Total	100%

Grading Scale

Sample Grade Scale

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Grade	Percentage of Total
A+	100%
A	90-99%
A-	88-89%
B+	85-87%
B	80-84%
B-	76-79%
C+	71-75%
C	65-70%
C-	59-64%
D	50-58%
F	<50%

Note: If you are on track for a D, you are failing the course.

[k to top\)](#)

Late Work

Assignments may be accepted at the discretion of the instructor up to 24 hours late with a penalty, if the student informs the instructor before it is due.

[\(Back to top\)](#)

Required Computer & Digital Literacy Skills

- Comfort using Canvas, sending email with attachments, downloading and installing software, and using video conferencing tools like Zoom.
- Using online libraries and databases to locate and gather appropriate information.
- Using online search tools for specific academic purposes, including the ability to use search criteria, keywords, and filters.
- Properly citing information sources.

[\(Back to top\)](#)

Technical Requirements

You will need the following in order to participate in this course:

1. Computer hardware requirements:
 - A laptop or desktop computer
 - An internet connection
 - Speakers and a microphone – built-in or USB plug-in or wireless Bluetooth
 - A webcam or HD webcam - built-in or USB plug-in
2. Computer software requirements:
 - Adobe Acrobat or a similar PDF reader
 - Web Browser
 - Desktop version of Zoom (Optional)
3. Internet browser requirements:
 - Up-to-date
 - Google Chrome or Mozilla Firefox are recommended
4. Internet connection speed requirements:
 - Broadband wired or wireless (3G or 4G/LTE)

[\(Back to top\)](#)

Technical Support

Students who need help accessing Canvas, resetting a password, using email, or with any technology

Students can also find answers to frequently asked technology questions in the [UH Knowledge Base \(https://gethelp.uh.edu/#/\)](https://gethelp.uh.edu/#/), or in the [University Information Technology \(UITS\) quickstart guide \(https://www.uh.edu/infotech/help/quick-start-guides/student-quick-start/#quickstartfeedback\)](https://www.uh.edu/infotech/help/quick-start-guides/student-quick-start/#quickstartfeedback)

Course Technology Accessibility Statements and Privacy Policies

- **Canvas Accessibility Statement:** (<https://www.canvaslms.com/accessibility/>) This course uses technologies that may support accessibility in different ways.
- **Canvas Privacy Policy** (<https://www.canvaslms.com/policies/privacy/>): This course uses technologies that provide privacy.
- A link to an accessibility statement and privacy policy should be provided for any additional technology. Clicking here will take you to a page with links to [accessibility statements and privacy policies \(https://www.uh.edu/marcom/guidelines-policies/web-accessibility/#:~:text=All%20University%20web%20pages%20should,access%20your%20information%20the%20better.\)](https://www.uh.edu/marcom/guidelines-policies/web-accessibility/#:~:text=All%20University%20web%20pages%20should,access%20your%20information%20the%20better.) commonly used by faculty at UH.

[\(Back to top\)](#)

University Policies

Accommodations

Every attempt will be made to accommodate qualified students with disabilities (e.g. mental health, learning, chronic health, physical, hearing, vision neurological, etc.) You must have established your eligibility for support services through the appropriate office that services students with disabilities. Note that services are confidential, may take time to put into place and are not retroactive; Captions and alternate media for print materials may take three or more weeks to get produced. Please contact your campus office as soon as possible if accommodations are needed. Find [your campus office serving students with disabilities \(https://uh.edu/accessibility/\)](https://uh.edu/accessibility/).

[\(Back to top\)](#)

Intellectual Dishonesty

All work should be your original product, unless explicitly noted otherwise. Any materials you reference or take from others should be properly cited. Cheating, plagiarism, or fabrication in any form will not be tolerated, regardless of any justification.

Academic misconduct will not be tolerated. The minimum consequence is failing the assignment. In a case of more serious offense, a student may fail the course. **Students should NOT present work from other courses in this class (i.e.. using pieces of previous papers you have done is considered**

w [o top\)](#)

Title IX Sexual Misconduct

As your instructor, one of my responsibilities is to help create a safe learning environment on our campus. Title IX and our own Sexual Misconduct policy prohibit sexual misconduct. If you have experienced sexual misconduct, or know someone who has, the University can help. If you are seeking help and would like to speak to someone confidentially, you can make an appointment with [CAPS \(https://www.uh.edu/caps/\)](https://www.uh.edu/caps/)

It is also important that you know that federal regulations and University policy require me to promptly convey any information about potential sexual misconduct known to me to our Deputy Title IX Coordinator or UH's Title IX Coordinator. In that event, they will work with a small number of others on campus to ensure that appropriate measures are taken and resources are made available to the student who may have been harmed. Protecting a student's privacy is of utmost concern, and all involved will only share information with those that need to know to ensure the University can respond and assist.

[\(Back to top\)](#)

Code of Student Rights, Responsibilities, and Conduct

Students are expected to adhere to the Code of Student Rights, Responsibilities, and Conduct at all times. Any inappropriate behavior, disruptive conduct (e.g., engaging in hostile or disrespectful commentary on the site, or discussing irrelevant evidence) or non-compliance with faculty directions can result in a charge of Academic and/or Personal Misconduct, the consequence of which could be a variety of sanctions either from the instructor or the Dean of Students.

[\(Back to top\)](#)

Dropping a Course

During the first week of classes you may drop a class with no grade recorded on your transcript. From the second week of classes through the ninth week (the 'auto W' period), you may withdraw from a class with an automatic grade of 'W'. This will be recorded on your transcript, but not included in your GPA.

After the ninth week (and before the final exam period), a student wishing to withdraw with a grade of 'W' must be passing the course at that time. You must complete a 'Drop Only' form and contact the offices listed for signatures before giving the form to the instructor. The instructor will confirm on the form that you are passing at that time for a 'W' grade or that your grade is an 'F'. This 'F' grade WILL be included in calculation of your GPA.

Faculty members are required to report any student who stops attending a class and does not withdraw (with a grade of 'W' or 'F'). Failure of a course due to non-attendance may affect financial aid award amounts.

[\(Back to top\)](#)

Online Etiquette

It is important to build a class climate that is welcoming and safe for everyone. Please display respect for everyone in the class. You should avoid racist, sexist, homophobic, or other negative language that may exclude members of our campus and classroom community.

- Humor and sarcasm don't translate very well when using email or online discussions. Be careful. I **will delete** any posting that I believe is inappropriate.
- Keep in mind that there's a real, live human being with feelings on the other end of your email or discussion posting--if you were sitting in front of that person would you say to their face what you're saying in your email or discussion posting? Remember that your words are written in an email or discussion posting -- you can't take them back.
- Avoid offensive language, especially comments that might be construed as racist or sexist.
- Remember that the law still applies in cyberspace. Do not commit illegal acts online, such as libeling or slandering others, and do not joke about committing illegal acts.
- Do not post a message more than once.
- Generally speaking, avoid putting words into full capitals. Online, all-caps is considered SHOUTING.
- If you are following up a previous message or posting, summarize that message or posting. Read existing follow-up postings and don't repeat what has already been said.
- Reveal only information that you are comfortable sharing.

[\(Back to top\)](#)

Participation

You should be logging onto Canvas at least three times a week to view assignments, presentations, contribute to discussions, post questions, read posting of others, etc. Activities and assignments will be posted in advance providing ample time for completion. Please plan your schedules accordingly.

[\(Back to top\)](#)

Course Absence

If you plan to be absent from class activities for longer periods of time because of a sport, school, medical, or family event, please let the instructor know and complete your work in advance. For a scheduled exam/quiz, forum, or other course events, arrange with me for earlier date. In case you miss these scheduled events, you will receive a zero.

[\(Back to top\)](#)

be fully acknowledged. Offering the work of someone else as one's own is plagiarism. The language or ideas thus taken from another may range from isolated formulas, sentences, or paragraphs to entire articles copied from books, periodicals, speeches, or the writings of other students. The offering of materials assembled or collected by others in the form of projects or collections without acknowledgment also is considered plagiarism. Any student who fails to give credit for ideas or materials taken from another source is guilty of plagiarism.

Please see the [UH Academic Honesty Policy \(https://uh.edu/provost/policies-resources/honesty/\)](https://uh.edu/provost/policies-resources/honesty/) page for more information.

1. Directly quoting another person's actual words, whether oral or written;
2. Using another person's ideas, opinions, or theories;
3. Paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
4. Borrowing facts, statistics, or illustrative material; or
5. Offering materials assembled or collected by others in the form of projects or collections without acknowledgement.

[\(Back to top\)](#)

Syllabus Revision

The instructor reserves the right to revise or adjust the course syllabus to best accommodate the pace and needs of the students.

[\(Back to top\)](#)

Fair Use Policy

Copying or recording synchronous classes and asynchronous course materials without the express prior approval of [the professor] is prohibited. All copies and recordings remain the property of Indiana University and [the professor.] UH and [the professor] reserve the right to retrieve, inspect, or destroy the copies and recordings after their intended use. These policies are not intended to affect the rights of students with disabilities under applicable law or UH policies.

[\(Back to top\)](#)

UH Spring 2023 Syllabus Language

COVID-19 Information

Students are encouraged to visit the University's [COVID-19 website \(https://www.uh.edu/covid-19/information-for/students/\)](https://www.uh.edu/covid-19/information-for/students/) for important information including diagnosis and symptom protocols, testing, vaccine information, and post-exposure guidance. Please check the website throughout the semester.

Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustment/auxiliary aid, please contact the **Justin Dart Jr. Student Accessibility Center (<https://uh.edu/accessibility/>)** (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

Recording of Class

Students may not record all or part of a class, live stream all or part of the class, or make/distribute screen captures, without the advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the **Justin Dart, Jr. Student Accessibility Center (<https://uh.edu/accessibility/>)**. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use the instructor's recordings for their own studying and note-taking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Resources for Online Learning

The University of Houston is committed to student success and provides information to optimize the online learning experience through our **PowerOn website (<https://uh.edu/power-on/learning/>)**. Please visit this website for a comprehensive set of resources, tools, and tips including obtaining access to the internet, AccessUH, Blackboard, and Canvas; using your smartphone as a webcam, and downloading Microsoft Office 365 at no cost. For questions or assistance contact **UHOnline@uh.edu. (<mailto:UHOnline@uh.edu>)**

Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (state *when* webcams are required to be on and the *academic basis* for requiring them to be on). (Example: Webcams must be turned on during exams to ensure the academic integrity of exam administration.)

Academic Honesty Policy

High ethical standards are critical to the integrity of any institution. The policies of the University of Houston

are designed to handle any instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.

Title IX/Sexual Misconduct

Per the UHS Sexual Misconduct Policy, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the [Title IX website \(https://www.uh.edu/equal-opportunity/title-ix-sexual-misconduct/\)](https://www.uh.edu/equal-opportunity/title-ix-sexual-misconduct/)

Security Escorts and Cougar Ride

UHPD continually works with the University community to make the campus a safe place to learn, work, and live. Our Security escort service is designed for community members who have safety concerns and would like to have a Security Officer walk with them, for their safety, as they make their way across campus. Based on availability either a UHPD Security Officer or Police Officer will escort students, faculty, and staff to locations beginning and ending on campus. If you feel that you need a Security Officer to walk with you for your safety please call 713-743-3333. Arrangements may be made for special needs.

Parking and Transportation Services also offers a late-night, on-demand shuttle service called Cougar Ride that provides rides to and from all on-campus shuttle stops, as well as the MD Anderson Library, Cougar Village/Moody Towers, and the UH Technology Bridge. Rides can be requested through the UH Go app. Days and hours of operation can be found on [the parking and transportation website. \(https://uh.edu/af-university-services/parking/\)](https://uh.edu/af-university-services/parking/)

Syllabus Changes

Please note that the instructor may need to make modifications to the course syllabus. Notice of such changes will be announced as quickly as possible through (specify how students will be notified of changes).

Helpful Information



- [Coogs Care \(https://uh.edu/dsa/coogscare/\)](https://uh.edu/dsa/coogscare/)
- [Student Health Center \(https://www.uh.edu/healthcenter/\)](https://www.uh.edu/healthcenter/)

[\(Back to top\)](#)

Syllabus design idea attribution: [Indiana university](https://www.iu.edu/index.html)  (<https://www.iu.edu/index.html>)



Course Summary:

Date	Details	Due
Thu Sep 28, 2023	 Midterm 1 _____	
Thu Nov 16, 2023	 Midterm 2 _____	12am