

Syllabus for Math 3345 (Real Analysis I)

Section 001

Fall 2021

Instructor: Dr. Alex Bearden
Email: cbearden@uttyler.edu (preferred method of contact)
Office: RBN 4009
Office Hours: Monday 1:45–3:15 p.m.
Wednesday 1:45–3:15 p.m.
or by appointment

Lecture Times: MoWeFr 10:10–11:05 am
Lecture Rooms: RBN 3041

Course Format

This course, including all exams and lectures, will be **fully in-person**.

Catalog Description of Course

Study of metric spaces, sequences, series, continuous functions, differentiation, and integration.
Prerequisites: A grade of C or better in MATH 2414 and MATH 3425.

Course Learning Objectives

Upon completion of this course, students should be able to do the following:

- Write complete, correct, and coherent proofs.
- Understand, discuss, and use abstract mathematical concepts including but not limited to the following:
 - the real number system;
 - sequences and series;
 - properties relating to functions including continuity, differentiation, and integration.

Textbook

We will use the following textbook, possibly along with supplemental notes provided by the instructor.

Basic Analysis I: Introduction to Real Analysis, Volume I, by Jiří Lebl.

This book is available for free online from the following website: <https://www.jirka.org/ra/>. There are also paperback hard copies for sale on Amazon for about \$13.

Canvas

A Canvas site will be set up for the course. Notes, announcements, and grades will be posted there.

Homework

Homework problems will be assigned every week on Wednesdays, and submitted **in-person**. It is extremely important to **start the homework assignments early**. Also, please, please, please do not simply look up and copy solutions to the homework problems—this is probably one of the worst things you can possibly do for your education and for your grade. It is normal and good to get stuck and feel unsure about how to solve a problem. When this happens to you, talk to a fellow student, ask me about it in office hours, or bring it up in class!

Attendance Policy

You must attend class to do well in this course. You will not get homework credit if you do not turn in your homework in-person; but more importantly, too many absences will make it difficult for you to keep up with the material.

In general, you must attend in-person, but in certain occasional, temporary, and pre-approved circumstances, I may allow a period of Zoom attendance. Let me know as early as possible if you would like to request Zoom attendance for certain class days. The decision to allow Zoom attendance will remain at my sole discretion.

Reading Assignments

You will be expected to read each section we cover from the textbook or from my notes word-for-word.

Reading math (and especially the extremely detailed and subtle math we will see in this course) is grueling work, but the payoff is worth it! At first, it will take you a very, very long time to read through even a few lines of a proof, but you must persevere! There is no way to learn this material without reading it on your own, patiently, carefully, line-by-line, checking every. tiny. detail. If you stay faithful to this, magical things will happen.

Exams

There will be four exams during the term—three midterm tests and a cumulative final exam. All midterms will be held in the same room at the same time as the lectures; the time and location for the final exam will be announced later.

Test 1	Wednesday, September 15
Test 2	Wednesday, October 13
Test 3	Wednesday, November 10
Final Exam (all sections covered)	TBA, sometime December 6–10

No books, notes, or phones will be allowed on any exam. Make-up exams will be given only in pre-approved or extreme, verifiable emergency situations.

Grading

A student's final course grade will be a weighted average of homework grades, three midterm test grades, and a final exam grade. The weights are as follows:

Homework	20%
Test 1	20%
Test 2	20%
Test 3	20%
Final Exam	20%

Your final letter grade will be determined by the following scheme:

greater than or equal to 89.5%	A
greater than or equal to 79.5% and less than 89.5%	B
greater than or equal to 69.5% and less than 79.5%	C
greater than or equal to 59.5% and less than 69.5%	D
less than 59.5%	F

Withdrawal

- Friday, September 3:* census date; i.e., last day to withdraw without penalty
Monday, November 1: last day to withdraw with a "W"

Course Content

We will plan on covering all or part of Chapters 1–6 from the textbook, possibly with some additional supplemental material.

Tutoring Resources

There are two primary free tutoring resources for math courses at UT Tyler:

- **MLC tutoring** is held online (via Zoom) and in-person in RBN 4021 (big room in the middle of the fourth floor of RBN with all the glass windows).
- **PASS tutoring** is held both online via the Upswing platform and in-person on the fourth floor of the library, in LIB 401. You can either just walk in with no appointment, or you can make an appointment. (I suppose if you don't make an appointment and they're busy, you may not get helped.) See the website here for more info: <https://www.uttyler.edu/tutoring/>.

Schedule

The following is a tentative schedule for the course:

Monday	Wednesday	Friday
8/23 Syllabus, Introduction/Review	8/25 start Chapter 1	8/27
8/30	9/1 Homework 1 due	9/3 (Census date)
9/6 NO CLASS (Labor Day)	9/8 Homework 2 due start Chapter 2	9/10
9/13 start Chapter 2	9/15 Test 1	9/17
9/20	9/22 Homework 3 due	9/24
9/27 start Chapter 3	9/29 Homework 4 due	10/1
10/4	10/6 Homework 5 due	10/8
10/11	10/13 Test 2	10/15
10/18 start Chapter 4	10/20 Homework 6 due	10/22
10/25	10/27 Homework 7 due	10/29
11/1 start Chapter 5	11/3 Homework 8 due (Last day to withdraw)	11/5
11/8	11/10 Test 3	11/12
11/15 start Chapter 6	11/17 Homework 9 due	11/19
11/22 NO CLASS (Thanksgiving)	11/24 NO CLASS (Thanksgiving)	11/26 NO CLASS (Thanksgiving)
11/29	12/1 Homework 10 due	12/3 Last day of class
12/6	12/8 Final exam?	12/10

(All of the following is standard, UT Tyler-wide, official stuff required to be on the syllabus.)

UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please go to this website: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

Campus Carry

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

UT Tyler a Tobacco-Free University

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products. There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar. Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract. The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)

- Schedule adjustments (section changes, adding a new class, dropping without a “W” grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date). Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, #3150 or call 903.566.7079

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed

Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically

Emergency Exits and Evacuation

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services

Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

- ii. “Plagiarism” includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the submission of it as one’s own academic work offered for credit.
- iii. “Collusion” includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.
- iv. All written work that is submitted will be subject to review by plagiarism software.

UT Tyler Resources for Students

- The Mathematics Learning Center, RBN 4021. This is an open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu
- UT Tyler Counseling Center (903.566.7254)