

Math 3200-01 (#47973)
Introduction to Analysis I (3)
Fall 2015 (Monday, 24 August – Friday, 11 December 2015)
TH 2:30-3:45 PM SNOW 147

Instructor: Dr. Brent D. Albrecht
Office: SNOW 137
Office Hours: MW 1:00-1:50 PM
 & By Appointment
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Prerequisites: Math 2200 Grade of C or Higher and Math 2210 Grade of C or Higher.

Course Description: For students interested in advanced Mathematics. Introduces the construction of rigorous proofs of mathematical claims in beginning analysis. Required for Utah Level 4 Math Endorsement.

Objectives: To convey to the students the beauty and utility of real analysis, and to illustrate some of its applications in modern society.

To convey, to the extent possible using the content of this course, the quantitative literacy skill set adopted by Dixie State University:

All mathematics courses at Dixie State University support the general education goal of the university, and will require students to:

1. Employ mathematical techniques in solving computational problems.
2. Interpret mathematical models.
3. Construct quantitative and logical arguments.
4. Apply mathematical knowledge to solve real-world problems.
5. Communicate in the mathematical language through the proper use of notation and terminology.
6. Explore and analyze mathematical concepts, using technology to the appropriate extent.

Upon successful completion of this course, the students will demonstrate through testing the ability to:

1. Explain, in mathematical terms, the definitions (e.g., continuity, differentiability, integrability, etc.) and theorems (e.g., the mean value theorem, the intermediate value theorem, the fundamental theorem of calculus, etc.) underlying advanced calculus.
2. Articulate and discriminate between such notions as continuity and uniform continuity (as applied in describing functions) and

- pointwise and uniform convergence (as applied both in describing sequences of functions and in describing power series).
3. Identify the notational subtleties responsible for the variance between the definitions of these terms.
 4. Create and analyze rigorous arguments in the mathematical language that demonstrate both a thorough command of accepted notation and terminology as well as a strong understanding of introductory real analysis.
 5. Utilize the TeX/LaTeX typesetting environment to produce technical and mathematical papers that meet the current formatting standard for circulation and dissemination within the scientific community.

“Philosophy is written in this grand book – the Universe – which stands continually open to our gaze, but it cannot be understood unless one first learns to comprehend the language and interpret the characters in which it is written. It is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it.”

- Galileo Galilei

Text: Advanced Calculus, 2nd Ed. by Patrick M. Fitzpatrick.

Attendance: It is essential that students attend class, and roll is taken on randomly selected days in order to ensure student attendance. Tardiness is strongly discouraged. Attendance records may be used in determining borderline grades. Absences due to university-sponsored activities are handled as stated in Dixie State University Policy #5-23 (located at <http://www.dixie.edu/humanres/policy/sec5/523.html>).

Homework: Homework assignments are collected on a weekly basis and are graded predominately by completion. Students must rigorously prove all of the assertions in their work in order to receive credit, and they are encouraged to collaborate with one another on homework problems. Students are required both to typeset their work using TeX/LaTeX and to organize their work with chapter, section, and problem numbers.

Quizzes: Quizzes are administered in person during class and on a regular basis.

Exams: All exams are administered in person either during class or in the Dixie State University Testing Center (located in the North Plaza Building). There will be three midterm exams and one comprehensive final exam. Exams are administered according to the following (tentative) schedule:

- Midterm I: 2:30-3:45 PM on Tuesday, 15 September 2015
- Midterm II: 2:30-3:45 PM on Thursday, 29 October 2015
- Midterm III: 2:30-3:45 PM on Tuesday, 1 December 2015
- Final: 2:30-4:30 PM on Thursday, 17 December 2015

Make-up exams are given only in extenuating circumstances, and only if prior arrangements are made. The instructor reserves the right to make evaluations on a case-by-case basis.

Grading:	Homework & Quizzes	20%	94 – 100%	A
	Midterm I	15%	90 – 93%	A-
	Midterm II	15%	87 – 89%	B+
	Midterm III	15%	83 – 86%	B
	Final	35%	80 – 82%	B-
			75 – 79%	C+
			70 – 74%	C
			65 – 69%	C-
			60 – 64%	D+
			55 – 59%	D
		50 – 54%	D-	
		0 – 49%	F	

Academic Integrity: Students are expected to uphold the highest standards of academic integrity. Section 4, Article XI of Dixie State University Policy #5-33 (located at <http://www.dixie.edu/humanres/policy/sec5/533.html>) outlines the standards of student academic conduct. While students are encouraged to collaborate on homework assignments, their submitted work should accurately reflect the results of their individual efforts. Students must do their own work during exams. Talking, having discussions, comparing papers, copying, and collaborating are not allowed on exams. The use of notes, unapproved calculators, and communication devices such as cell phones is also prohibited during exams. Academic dishonesty will result in the failure of written work and may lead to failure of the course and/or university disciplinary action.

Classroom Etiquette: Students are responsible for helping to maintain a respectful classroom learning environment. Academic discipline for instances of disruptive behavior are handled as stated in Dixie State University Policy #5-33 (located at <http://www.dixie.edu/humanres/policy/sec5/533.html>).

Title IX Statement: DSU seeks to provide an environment that is free of bias, discrimination, and harassment. Any member of the campus community who has been the victim of sexual harassment/misconduct/assault is encouraged to make a report to the university's Title IX Director, Cindy Cole. Students may call Cindy at (435) 652-7731 or send an email to cindy.cole@dixie.edu. Faculty members are required to notify the Title IX Director of the basic facts of any incident reported to them.

Accommodations: Any student seeking accommodations or services due to a disability must contact the Disability Resource Center (located in the North Plaza Building). Students may call the center at (435) 652-7516 or send an email to drc@dixie.edu. The Disability Resource Center determines

eligibility for and authorizes the provision of accommodations and services. The center can arrange to provide materials (including this syllabus) in alternate formats if necessary.

Dmail: Important class and university information is sent to students' Dmail accounts. All Dixie State University students are automatically assigned a Dmail account. Students are responsible for knowing the information sent to their Dmail accounts.

Class Schedule: The Dixie State University Fall 2015 Semester Schedule is located online at <http://new.dixie.edu/reg/?page=fall2015>. The (tentative) schedule for the class is as follows:

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
August 24	25 Preliminary & 1.1	26	27 1.2 & 1.3	28
31	September 1 2.1 & 2.2	2	3 2.2 & 2.3	4
7 <i>Labor Day No Class</i>	8 2.4 & Review	9	10 Review & 3.1	11
14	15 Midterm I (Chapters 1-2)	16	17 3.2 & 3.3	18
21	22 3.4 & 3.5	23	24 3.5 & 3.6	25
28	29 3.7 & 4.1	30	October 1 4.1 & 4.2	2
5	6 4.3 & 4.4	7	8 4.5 & 6.1	9
12	13 6.2 & 6.3	14	15 <i>Semester Break No Class</i>	16 <i>Semester Break No Class</i>

19	20 6.4 & 6.5	21	22 6.5 & 6.6	23
26	27 Review & 8.1	28	29 Midterm II (Chapters 3-6)	30
November 2	3 8.2 & 8.3	4	5 8.3 & 8.4	6
9	10 8.5 & 8.6	11	12 8.6 & 8.7	13
16	17 9.1 & 9.2	18	19 9.3 & 9.4	20
23	24 Review	25 <i>Thanksgiving No Class</i>	26 <i>Thanksgiving No Class</i>	27 <i>Thanksgiving No Class</i>
30	December 1 Midterm III (Chapters 8-9)	2	3 Review	4
7	8 Review	9	10 Review	11
14	15	16	17 Final Exam 2:30 - 4:30 PM	18