Department of Mathematics, University of Utah
Calculus II
MATH 1220 – Section 06 – Fall 2016
Course Information and Syllabus
Updated December 1, 2016

Instructor:	Akil Narayan
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Phone:	801-581-8984
Office:	WEB 4666
Office hours:	Monday 2-4pm, Tuesday 3-5pm
Office hours location:	WEB 4666

Class time and location: TTh, 6:00pm-8:00pm, JFB (Fletcher) B-1

Section webpage: http://www.sci.utah.edu/~akil/math1220

Course Information: This is a 4-credit course.

Learning objectives: Upon successful completion of this course, a student should be able to:

- Compute derivatives and integrals for exponential, logarithmic, hyperbolic functions, and inverse trigonometric functions.
- Integrate integrable functions using integration by parts, u-substitution, trigonometric substitutions, rationalizing substitutions, partial fraction decomposition, and trigonometric identities. This includes knowing which techniques to apply to a given integral.
- Use L'Hôpital's Rule to calculate indeterminate-type limits and also know what limits are the non-indeterminate forms and how to compute those limits. Compute improper integrals.
- Understand the difference between an infinite sequence and infinite series and determine if a sequence converges or diverges.
- Determine whether or not an infinite series of numbers converges or diverges using a variety of tests.
- Understand what it means for a Power Series to converge or diverge and be able to find the Taylor Series for a given function.
- Differentiate and integrate functions in polar coordinates.

Prerequisites: C or better in (MATH 1210 OR MATH 1250 OR MATH 1270 OR MATH 1311 OR MATH 1310) OR AP Calculus AB score of at least 4 OR AP Calculus BC score of at least 3.

Course description: Geometric applications of the integral, logarithmic, and exponential functions, techniques of integration, conic sections, improper integrals, numerical approximation techniques, infinite series and power series expansions, differential equations (continued).

Text: D. Varberg, E. J. Purcell, and S. E. Rigdon, *Calculus with Differential Equations* (9th edition), Pearson (2006), ISBN-10 0132306336, ISBN-13 978-0132306331 (required).
For purchasing information please see http://www.math.utah.edu/schedule/bookInfo/

Homework: Problem sets will be announced in-class and subsequently posted on the course website. Homework will be divided into weekly assignments and collected in-class on Tuesdays. Only paper (hard) copies of assignments will be accepted; electronic copies will *not* be accepted. Late assignments of any form will *not* be accepted unless a student provides documentation showing extenuating circumstances.

Over the course of the semester, your lowest homework score will be dropped in the computation of a final grade.

Exams: This course will have 2 in-class midterm exams, in addition to 1 in-class final exam. The midterm exams will be held in class on Thursdays September 29, and November 17.

The final exam is a cumulative exam in the same format as the midterm exams. The final exam will be held on Tuesday, December 13 from 6:00-8:00pm in the normal class meeting room, JFB B-1.

Unless otherwise specified, **neither calculators nor notes of any kind are allowed on any of the exams**. The homework assignment problems can (and should) be completed without resorting to a calculator.

Grading: Your course grade will be computed as follows.

- Homework 25%
- Midterm exams . . . . 2 x 22.5%
- Final exam 30%

Final letter grades will be assigned based on the following scheme:

- 92% - 100% — A
- 90% - 91% — A−
- 88% - 89% — B+
- 82% - 87% — B
- 80% - 81% — B−
- 78% - 79% — C+
- 72% - 77% — C
- 70% - 71% — C−
- 68% - 69% — D+
- 62% - 67% — D
- 60% - 61% — D−
- 0% - 59% — E

Important dates:

Sept 2		Last day to add, drop (delete), elect CR/NC, or audit classes
Sept 29		Midterm 1
Oct 21		Last day to withdraw from classes
Nov 17		Midterm 2
Dec 2		Last day to reverse CR/NC option
Dec 9		Reading Day
Dec 13	**6:00pm**	Final exam

Class communication: An email list is set up with which I shall send out information not communicated during class. This email list will also be used to communicate class information in the case of unusual circumstances affecting the the logistics of the class. If you are not officially registered for the class but wish to be on the roster, please discuss it with me.

If you are registered for the course, but do not receive the course email announcements to your University of Utah email address, please notify me immediately. It is not possible for me to arrange delivery of these emails to a non-UUtah account.

The section website will also be used to communicate more technical matter of the class (e.g. problem sets, lecture summaries, etc.).

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to change that may be necessitated by a revised semester calendar or other circumstances. The above two methods, in addition to the coursewide website, are reliable means of getting information about changes to the course.

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

Student responsibilities and integrity: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.
http://regulations.utah.edu/academics/6-400.php

Semester calendar
(Subject to change!)

Day	Date	Text Section(s)	Topic
Tuesday	August 23, 2016	6.1	Hello + natural logarithms
Thursday	August 25, 2016	6.2	Inverse functions
Tuesday	August 30, 2016	6.3 – 6.4	General exponentials and logarithms
Thursday	September 1, 2016	6.5 – 6.6	Exponential growth, first-order linear ODE's
Tuesday	September 6, 2016	6.7 – 6.8	ODE approximations, inverse trig functions
Thursday	September 8, 2016	6.8 – 6.9	Inverse trig and hyperbolic functions
Tuesday	September 13, 2016	7.1 – 7.2	Integration rules, integration by parts
Thursday	September 15, 2016	7.3 – 7.4	Trig integrals, rationalizing substitutions
Tuesday	September 20, 2016	7.5 – 7.6	Partial fractions and strategies
Thursday	September 22, 2016	—	No Class
Tuesday	September 27, 2016	—	Review
Thursday	September 29, 2016	—	**MIDTERM EXAM 1**
Tuesday	October 4, 2016	8.1 – 8.2	Indeterminate forms
Thursday	October 6, 2016	8.3 – 8.4	Improper integrals
Tuesday	October 11, 2016	—	No Class: Fall break
Thursday	October 13, 2016	—	No Class: Fall break
Tuesday	October 18, 2016	9.1 – 9.2	Infinite sequences and series
Thursday	October 20, 2016	9.3 – 9.4	Positive series tests
Tuesday	October 25, 2016	9.4 – 9.5	Ratio test, alternating series
Thursday	October 27, 2016	9.5 – 9.6	Alternating and power series
Tuesday	November 1, 2016	9.6 – 9.7	Power series
Thursday	November 3, 2016	9.7 – 9.8	Power, Taylor, and Maclaurin series
Tuesday	November 8, 2016	9.8 – 9.9	Taylor series and approximations
Thursday	November 10, 2016	9.9	Taylor approximations
Tuesday	November 15, 2016	—	Review
Thursday	November 17, 2016	—	**MIDTERM EXAM 2**
Tuesday	November 22, 2016	10.5	Polar coordinates
Thursday	November 24, 2016	—	No Class: Thanksgiving
Tuesday	November 29, 2016	10.6	Graphs of polar equations
Thursday	December 1, 2016	10.7	Calculus in polar coordinates
Tuesday	December 6, 2016	—	Final exam review
Thursday	December 8, 2016	—	No Class
Tuesday	December 13, 2016	6:00pm-8:00pm	**FINAL EXAM**