1. **Instructor:** Mike Kawai, MERC Lab Director.

2. **E-mail:** mike.kawai@ucdenver.edu
   If I’m not tending a course, then I’m in NC 4009/4015.

3. **Time and Location:** Tuesday/Thursday 5:00p - 6:15p in PL M202
   PLEASE TURN OFF YOUR CELL PHONES DURING OUR LECTURE PERIODS!

4. **Office Hours:** For now, we can meet in NC 4015 from 4:00pm to about 4:45pm in MERC Lab (NC 4015). We may need to change this, if our classroom meeting space moves.

5. **Website:** math.ucdenver.edu/~mkawai
   This is our course captain’s website. Check here if you missed a lecture.

6. **Course Description:** Topics are primarily based on integration: sequences and series, integration techniques, and applications.

7. **Prerequisite:** MATH 3000 & 2421 [Abstract Math & Calculus III]

8. **Textbook:** *Advanced Calculus*, Fitzpatrick, Second edition. We cover Chapters 1, 2, 3, 4, 6, 8, and 9.

9. **Course Goals:**
   (a) To prove the basic calculus theorems using various convergence techniques.
   (b) To understand general analysis techniques and apply them to other applications.

10. **Grading:**

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<thead>
<tr>
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<th>Weight</th>
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<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
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<tr>
<td>Oral Exam</td>
<td>10%</td>
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<tr>
<td>Tests #1, #2, #3</td>
<td>25% each</td>
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Your final course grade will be determined by the following percentage scale:

- 92.0 or more  = A
- 90.0 - 91.9  = A–
- 87.0 - 89.9  = B+
- 81.0 - 86.9  = B
- 79.0 - 80.9  = B–
- 76.0 - 78.9  = C+
- 70.0 - 75.9  = C
- 55.0 - 69.9  = D
- Below 55.0  = F
11. **Regular Written Homework:**

(a) There will be exactly 10 written assignments worth 10 pts. each. They will be graded for accuracy, so it is important to use technology whenever possible to check your answers!

(b) Homework is due at the beginning of lecture on the date printed on the assignment sheet.

(c) I do NOT drop any scores from this group.

(d) NO LATE HOMEWORK WILL BE ACCEPTED since these are always due on a Thursday. If you had started working on it on the previous weekend, then you should be able to ask reasonable questions on the Tuesday before it is due.

I do NOT accept faxed or e-mailed homework. You may drop your homework off at the MERC Lab early if I’m not available to take it. It must be time-stamped before the due date time.

(e) HOMEWORK MUST BE TYPED. The Equation Editor in MS Word has all the special symbols.

(f) You will receive a cover sheet. For each question [see written sample], you MUST:

   (i) write the correct problem statement.
   
   (ii) write an “abstract” for your solution. You should be able to make a quick explanation as to the general solution path, without getting into the details.

   (iii) organize all the work for the solution neatly. If you need to, write one or two connected sentences in each “paragraph”. If you need to include a diagram, then you may make free-hand sketches on engineering pad paper and include them.

   (iv) be absolutely sure that your logic is sound. There are large penalties (also on tests) for the following:

      (α) not following directions. Often, students receive no credit for proving the wrong thing.

      (β) not using the correct proof technique. I usually can’t give you any more feedback than “this is the wrong technique”. It’s typically very difficult to explain why.

      (γ) being unsure. This is also the same as being “incomplete” most of the time. If you forget about something that we have discussed, then you will probably receive no credit here.

12. **In-Class Tests:**

(a) We strive to provide a short review prior (the previous lecture period) to each in-class test, but our schedule is quite tight. Be sure to ask questions about the review material which will be handed out two sessions before each exam.

(b) No technology is allowed on the test. We supply you with a note sheet of formulas prior to the test.

(c) There are severe consequences for not contacting me prior to test time if you cannot take the tests at the appointed time! (E-mail!!!)

13. **Oral Exam**

(a) You will need to sign up for a time outside of our lecture time to present a proof (I will choose) and then be able to discuss a few items from a given list of topics.

(b) Prof. Julien Langou thinks this is a good idea, so we should do this.
14. Academic Honesty:

(a) I encourage you to work with other students, but your written homework should be your own. If I see evidence that all you did was copy someone else’s homework proof, then everyone involved will get a zero for that assignment.

(b) I HAVE NO TOLERANCE FOR CHEATING. Cheating of any kind on a quiz or test will result in a course grade of “F”. It is possible that you will also be expelled from the University.

(c) It is okay to collaborate on homework, but if there is obvious evidence that you are simply COPYING homework solutions from a solutions manual or from another student, then you will receive a failing grade on that assignment.

You are responsible for being attentive to or observant of campus policies concerning academic honesty as stated in the CLAS Academic Integrity and Honor Code.

15. Drops & Incompletes: You have until Friday, 2 April (5:00pm) to drop this course with only the instructor’s (but not the Dean’s) signature. The incomplete policy of the department and college is strictly enforced. Incomplete grades (I) are NOT granted for low academic performance. To be eligible for an incomplete grade, a student MUST meet ALL of the following requirements:

(a) The student successfully completed a minimum of 75% of the course.

(b) There were special circumstances beyond the student’s control that precluded the student from attending class and completing the course. Verification of these special circumstances is required.

(c) The student has made arrangements to complete the missing coursework with the original instructor via a CLAS Course Completion Agreement.

The Course Completion Agreement is available from the CLAS Advising Office (NC 2024) or from the Department of Mathematical Sciences (6th floor of the CU-Denver Building).

16. Religious Holiday Accomodations: You must inform me at the beginning of this semester, in order for me to accommodate any rescheduling of your coursework.

17. Disability Accomodations: To be eligible for accommodations, students must be registered with the UCD Office of Disability Resources and Services (DRS). The office is located at NC 2514 [(303)556-3450]. Faculty cannot arbitrarily decide to give a student extra time, extra assistance, or other forms of aid unless it is formally mandated by the DRS.
Tentative Schedule (Tues./Thurs.)

01/17: Sect. 5.1 & 7.7 (Improper Integrals)
01/19: Sect. 8.1 & 8.2 (Overview & Sequences)
01/24: Sect. 8.3 (Infinite Series)
01/26: Sect. 8.4 (Divergence & Integral Tests)
01/31: Sect. 8.5 (Ratio, Root, & Comparison Tests)
02/02: Sect. 8.6 (Alternating Series)
02/07: Sect. 9.1 (Approximating Functions with Polynomials)
02/09: Sect. 9.2 (Properties of Power Series)
02/14: [TUESDAY] TEST #1
02/16: Sect. 9.3 (Taylor Series)
02/21: Sect. 9.4 (Working with Taylor Series)
02/23: Sect. 7.1 (Integration by Parts)
02/28: Sect. 7.2 (Trigonometric Integrals)
03/01: Sect. 7.3 (Trigonometric Substitutions)
03/06: Sect. 7.4 (Partial Fractions)
03/08: Sect. 7.5 & 7.6 (Other Integration Strategies & Numerical Integration)
03/13: Sect. 7.8 (Intro. to Differential Equations)
03/15: Review
03/27: [TUESDAY] TEST #2
03/29: Flexible day.
04/03: Sect. 6.1 (Velocity & Net Change)
04/05: Sect. 6.2 (Regions Between Curves)
04/10: Sect. 6.3 & 6.4 (Volume by Slicing & by Shells)
04/12: Sect. 6.5 (Length of Curves)
04/17: Sect. 6.6 (Physical Applications)
04/19: Sect. 6.7 (Logarithmic & Exponential Functions Revisited)
04/24: Sect. 6.8 (Exponential Models)
04/26: Sect. 10.1 & 10.2 (Parametric Equations & Polar Coordinates)
05/01: Sect. 10.3 (Calculus in Polar Coordinates)
05/03: Review & catch-up.
05/05: [Saturday!] **UNIFORM FINAL** (room to be announced later).
         9 a.m. to 12 noon.