

Syllabus for MATH 1401 Sections 003
Calculus I – Spring 2006

1. **Instructor:** Mike Kawai

I am also the Director of the Math Education Resource Center [MERC Lab], our department's technology lab, located in the Science Bldg., Room 132.

2. **Time and Location:**

There are TWO main lectures each week on Mondays & Wednesdays 5:30 p.m.- 7:00 p.m. in SI 138.

Section 003's Recitation meets on Wednesdays 7:15 p.m. - 8:15 p.m. in SI 138.

The Recitation Assistant is Nathan Acks.

His office phone is (303)556-2787. His office is located in the CU-Denver Bldg. Room 653.

3. **Office Hours:**

I am available before both main lectures in the MERC Lab (SI 132) from 4:45 p.m. to 5:30 p.m.

Nathan is available on Mondays after the main lecture from 7:00 p.m. to 8:00 p.m. He will also hold his office hours in the MERC Lab (SI 132).

[If there are many students wanting assistance during Nathan's office hour, then I will try to hang around the MERC Lab also.]

MERC Lab Phone: (303)556-8532. Leave messages there after hours!

Other times are available by appointment.

4. **My Office of Record:** CU-Denver Bldg. 652, (303) 556-6265 [Math Dept.: (303) 556-8442]

Unfortunately, that office is used as a storage shed for the MERC Lab and I don't really have space to entertain guests. I'm never in there, so don't look for me there. When in doubt, try the MERC Lab!

5. **E-mail:** mkawai@math.cudenver.edu

6. **Website:** math.cudenver.edu/~mkawai

If you miss a lecture, please check here first for course materials!

7. **Course Description:** Topics include an introduction to differential and integral calculus, including applications of the derivative and the definite integral.

Note: Students cannot receive credit for both MATH 1080 and 1401.

8. **Prerequisites:** You must meet at least one of the following:

(a) A score of at least 600 on the SAT MATH.

(b) A score of at least 27 on the ACT MATH.

(c) A passing score on the College-Level Math ACCUPLACER test.

The ACCUPLACER is available in the MERC Lab through Monday, 23 January 2006 (8:00 p.m.). The passing score is 80 points out of 119.

If you cannot meet any of the prerequisites, then you will be disenrolled at (approximately) the beginning of the second week of class.

9. **Textbook:** *Calculus: Concepts and Connections*, Smith & Minton (Maroon book). If you buy this text new from the book store, then it should also have a cardboard MathZone registration kit inside. Save it!!!
10. **Optional Technology:** A graphing calculator is often very handy during lectures. We often check our boardwork with the TI-89/92. Calculators are NOT used on the in-class quizzes or tests, nor on the Uniform Final. You may use technology if I give a Lab Assignment (which may count as a quiz).

If you have a Windows PC, you may obtain a free copy of Derive5 from the MERC Lab. Follow the installation instructions very carefully!

11. **Course Goals:**

- (a) To reinforce knowledge gained from College Algebra and Trigonometry.
- (b) To understand the conceptual development and application of differential and integral calculus.
- (c) To demonstrate the immediate relevance and applicability to other disciplines (Physics, in particular).

12. **Grading:**

	Weights
Quiz	20%
Test #1	20%
Test #2	20%
Written Project Report	10%
Final Exam	30%

Your final course grade will be determined by the following percentage scale:

90.0 or more	= <i>A</i>
88.0 - 89.9	= <i>A-</i>
86.0 - 87.9	= <i>B+</i>
79.0 - 85.9	= <i>B</i>
69.0 - 78.9	= <i>C</i>
55.0 - 68.9	= <i>D</i>
Below 55.0	= <i>F</i>

13. **Quizzes:** Quizzes are administered during your Recitation Hour. Check the tentative schedule at the end of this document. Somewhere in that schedule, I must always squeeze in some technology quizzes. Those will be taken in the MERC Lab (SI 132). Details to be disclosed later. **THE QUIZ QUESTIONS ARE TYPICALLY BASED ON THE HOMEWORK!** So if you don't do the homework, you probably won't do so well on the quizzes! I will drop your lowest quiz score.

14. **Homework:** All homework must be completed on *engineering pad paper*. Only use the graph paper side when drawing scaled graphs and figures. Organize all work neatly. I have attached a sample write-up for you to emulate. It pays to do most of the work on scratch paper *first*, and then copy your final solutions to the engineering pad. Unless I tell you otherwise, I will collect the homework on Thursdays and make corrections. It is possible that the homework assignment *is* the quiz for that week, but, of course, I won't tell you that beforehand... Be sure to come to class and turn in the homework and collect the solution sets! I will leave the extra solution sets on the gray literature racks outside of SI 132. When I pass out the homework solutions in class, IT IS TOO LATE TO TURN IN AN ASSIGNMENT unless you have made a **prior** arrangement with me.

It is imperative that you spend as much time as possible at mastering the homework and technology (6 hours minimum per week; some of that time can be spent in the lab working with other students!). If you find yourself working on one problem for more than 10 minutes without any progress, then move on to another problem. Doing other problems will often clarify something which you needed to do for the original problem. If you are getting stuck on all of the problems, then collaborate with other students or with Ilya or me during office hours!

15. **Missed a Main Lecture?** Here's what I expect you to do:
- (a) Get notes from another student! More importantly, ask that student to give you a 5-minute summary of what he thought was important about that lecture.
 - (b) Check my website for downloadable stuff.
 - (c) Check the literature racks outside of SI 132 for handouts.
 - (d) If you have completed ALL of the above, then come see Ilya or me if you don't understand the conceptual development or application.
16. **In-Class Tests:** We strive to provide one full lecture period of review prior to each in-class test. This is not guaranteed due to snow days or other scheduling irregularities. Be sure to ask questions about the review material which will be handed out the week before each exam. No technology is allowed on the in-class portion. There are severe consequences for not contacting me prior to test time, if you cannot take the tests on schedule! (Call or e-mail!)
17. **Project:** We will analyze a Pendulum problem. We will collect data during one of the Recitation Hours and then derive and verify appropriate models using calculus. The report format will be handed out with the assignment. I suggest that you purchase a small jump drive to accommodate the reporting software.
18. **Final Exam:** The exam is CUMULATIVE. It is scheduled for 9:00 a.m. - 12:00 noon on SATURDAY, 6 May 2006. Make plans now! Attendance at the Final Exam is mandatory. Having your exam rescheduled is extremely rare and is not permitted for reasons such as a plane ticket that was purchased earlier or attendance at weddings.
19. **Cheating:** I HAVE NO TOLERANCE FOR THIS AT ALL. 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.

20. **Drops and Incompletes:** Incomplete grades (IW or IF) are NOT granted for low academic performance. To be eligible for an incomplete grade, students MUST meet *all* of the following requirements:
- (a) The student successfully completed a minimum of 75% of the course (or completed everything except the Uniform Final).
 - (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.
21. **Religious Holiday Accommodations:** You must inform me *at the beginning of this semester*, in order for me to accommodate any rescheduling of your coursework.
22. **Disability Accommodations:** To be eligible for accommodations, students *must* be registered with the UCDHSC Office of Disability Resources and Services (DRS). The office is located in the Arts Bldg. in Room 177 [(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.
23. **Dean's Office Announcements:**
- (a) All students must always have an accurate mailing and e-mail address.
To update this information, please go to: <http://www.cudenver.edu/registrar>.
 - (b) Students are responsible for completing financial arrangements with financial aid, family, scholarships, etc.
 - (c) 12 January 2006 (5:00 p.m.) – Payment Plan deadline for students registering by 16 December 2005. Students *not on financial aid* are administratively disenrolled for non-payment.
 - (d) 19 January (11:59 p.m.) – Last day to be added to the wait-list for closed courses.
 - (e) 17 January - 27 January – Students are responsible for verifying accurate Spring 2006 registration via web SMART.
 - (f) 27 January (11:59 p.m.) – Last day to add courses via web SMART system.
 - (g) 1 February (5:00 p.m.) – Last day to add 16-week structured courses without a written petition for a late add. This deadline does not apply to independent study, internships, and late-starting module courses.
 - (h) 1 February (5:00 p.m.) – Last day to drop a Spring 2006 course for tuition refund and no transcript notation.
 - (i) 1 February (5:00 p.m.) – Last day for undergraduates to apply for May 2006 graduation.
 - (j) 10 February (5:00 p.m.) – Last day for CLAS students to add a Spring 2006 course. Treated as an **absolute** deadline.
 - (k) 3 April (5:00 p.m.) – Last day for students to drop a Spring 2006 course without college approval.
 - (l) 14 April (5:00 p.m.) – Last day to drop this course. Treated as an **absolute** deadline.
 - (m) 1 May (5:00 p.m.) – Last day to withdraw (drop all courses) without a written petition.

Tentative Schedule

1/18: Course Expectations

(1.1) Preview of Calculus

(1.2) Concept of Limit

(1.3) Computation of Limits

1/23: (1.4) Continuity

(1.5) Limits Involving Infinity

1/25: (2.1) Tangent Lines & Velocities

1/30: (2.2) The Derivative

2/1: (2.3) The Power Rule

2/6: (2.4) Product & Quotient Rules

2/8: (2.5) The Chain Rule

2/13: (2.6) Derivatives of Trigonometric Functions

2/15: (0.5) Review of Logarithmic Functions

2/20: (2.7) Derivatives of Exponential & Logarithmic Functions

2/22: Review for Test #1

2/27: Test #1

3/1: Data Collection Activity for Pendulum Project

3/6: (2.8) Implicit Differentiation

3/8: (0.4) Inverse Trigonometric Functions & Their Derivatives

3/13: (2.9) Mean Value Theorem

(3.1) Linear Approximations

3/15: (3.2) Indeterminate Forms & L'Hôpital's Rule

3/27: (3.3) Maximum & Minimum Values

(3.4) Increasing & Decreasing Functions

3/29: (3.5) Concavity & Overview of Curve Sketching

4/3: (3.6) Optimization Problems

4/5: (3.8) Related Rates and Parametric Equations

4/10: Clean-up for Pendulum Project

4/12: Review for Test #2

4/17: Test #2

4/19: (4.1) Area Under a Curve

(4.2) The Definite Integral

4/24: (4.3) Antiderivatives

4/26: (4.4) Fundamental Theorem of Calculus

5/1: (4.5) Integration by Substitution

5/3: Review for Uniform Final

5/6: SATURDAY! 9:00 a.m. - 12:00 noon **UNIFORM FINAL!**

Please arrive no later than 8:50 a.m. Location to be announced.