

**Syllabus for MATH 2421 Section 001**  
**Calculus III – Summer 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:** Tuesdays & Thursdays 4:00 p.m. – 6:45 p.m. in SI 220.

3. **Office Hours:** Tuesdays & Thursdays before class (3:00 p.m. - 3:55 p.m.) in SI 132 (MERC Lab).

[If there are too many students, we may need to change the location.]

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 vectors, vector-valued functions, partial differentiation, multiple integration, and vector calculus.

8. **Prerequisite:** MATH 2411 [Calculus II]

9. **Textbook:** *Calculus: Concepts and Connections*, Smith/Minton (Maroon book). We cover five chapters, beginning with Chapter 08.

You will also need access to MathZone. If you already bought a password, then you do not need to buy a new one. If you bought your textbook on-line and it contains a MathZone kit, be sure that it is a *Student Access Kit*, and not an Instructor's Access Kit. You can buy a Student Access separately on-line at [www.mathzone.com](http://www.mathzone.com) (more details later).

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. 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 Calculus I and II.
- (b) To extend that knowledge to multivariable calculus.
- (c) To demonstrate the immediate relevance and applicability to other disciplines (Physics, in particular).

## 12. Grading:

	Weight
Test #1	37.5%
Test #2	37.5%
Quiz/Homework	25.0%

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

91.0 or more	= A
89.0 - 90.9	= A-
86.0 - 88.9	= B+
79.0 - 85.9	= B
69.0 - 78.9	= C
55.0 - 68.9	= D
Below 55.0	= F

## 13. Homework:

- Homework question write-ups are worth 10 points each. Some assignments have more questions than others.
- Unless I state otherwise, homework is due at the *beginning* of the next lecture after it is assigned. Assignments made on Tuesdays will probably be somewhat shorter than assignments made on Thursdays. There is a 50% penalty for unexcused late homework. I will not accept any homework which is more than one week late.
- We do NOT have a lot of time to answer homework questions during the lecture periods. It is imperative that you do not miss any class meetings!
- 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. Please emulate the "Procedures" handout when writing up your homework problems. I want to see a short summary of each question and I should NOT need to refer back to the text when analyzing your work. It pays to do most of the work on scratch paper *first*, and then copy your final solutions to the engineering pad.
- It is imperative that you spend as much time as possible at mastering the homework and computer work (8 hours minimum per week; some of that time can be spent in the lab working with other students!). Spend your time wisely! 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 the problems, then collaborate with other students or with me during office hours!

## 14. MathZone:

- This counts as homework points also. I will assign a few automated questions from each section which are hopefully different than the questions that I ask you to turn in.
- Each question is worth 10 points. I will group some questions together (possibly from two or more sections) and it will be labelled as a "Quiz". You may have THREE attempts to obtain a perfect score on any MathZone Quiz. The program will automatically record your best score.

- (c) You may do the MathZone Quizzes at home or in the MERC Lab. [This is clearly a cheap ploy to lure you into the MERC Lab and spend some time with my assistants and/or other students in this course!]

15. **Quizzes:**

- (a) Quiz questions are worth 20 points each. Some quizzes will have more questions than others. Often, a quiz question will be divided into multiple parts.
- (b) If I give an in-class quiz, then it will be given at the *end* of the lecture period. If you are late arriving to the lecture, please be considerate of the other students and enter quietly.
- (c) NO MAKEUPS ON QUIZ POINTS. NO EXCEPTIONS.
- (d) I will make some *replacement points* available during the course. These points can be applied to points lost on homework or quizzes. I expect you to attempt every homework and quiz question and I drop NOTHING.

16. **In-Class Tests:**

- (a) We strive to provide a *short review* prior 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 the week 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 on schedule! (Call or e-mail!)

17. **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.

18. **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.
- (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.

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

20. **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.

## 21. 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>.  
[That webpage also has all details concerning registration/payment deadlines!]
- (b) Students must complete and submit a drop/add form to make any schedule changes (beyond the SMART system). Students are NOT automatically dropped from a class if they stop attending or do not make tuition payments. The *student* is ultimately responsible for verifying his schedule prior to the officially published drop dates!
- (c) Late adds and late drops will be approved *only* when the circumstances surrounded the add or drop are beyond the student's control and can be documented. This will require a petition and documentation from the student.
- (d) Students wishing to graduate in August of 2006 MUST meet with their academic advisor to obtain a graduation application. The application must be completed and submitted by 8 June 2006.
- (e) Students are responsible for completing financial arrangements with financial aid, family, scholarships, etc. to pay their tuition. Students will be responsible for all tuition and fees for courses they do not officially drop! [In other words, use the proper drop/add procedures and forms!]
- (f) 1 June (11:59 p.m.) – Last day to be added to the wait-list for closed courses.
- (g) 30 May - 8 June – Students are responsible for verifying accurate Summer 2006 registration via web SMART. Students are NOT notified of their wait-list status by the University. All students must check their schedules prior to 8 June 2006 for accuracy!
- (h) 5 June (11:59 p.m.) – Last day to add courses via web SMART system.
- (i) 8 June (5:00 p.m.) – Last day to add structured courses without a written petition for a late add. **This is an ABSOLUTE deadline.** This deadline does not apply to independent study, internships, and late-starting module courses.
- (j) 8 June (5:00 p.m.) – Last day to drop a Summer 2006 course for tuition refund and no transcript notation. **This is an ABSOLUTE deadline.**
- (k) 8 June (5:00 p.m.) – Last day for undergraduates to apply for August 2006 graduation. **This is an ABSOLUTE deadline.**
- (l) 8 June (5:00 p.m.) – Last day to request Pass/Fail or No Credit option. **This is an ABSOLUTE deadline.**
- (m) 3 July (5:00 p.m.) – Last day for NON-CLAS students to drop a Summer 2006 course without a petition to their home college and receiving their Dean's approval.
- (n) 10 July (5:00 p.m.) – Last day for CLAS students to drop a Summer 2006 course. **This is an ABSOLUTE deadline. Dean's approval required.**
- (o) 13 July (5:00 p.m.) – Last day to withdraw (drop all courses) without a written petition.

## Tentative Schedule

- 5/30:** Sect. 8.1 (Vectors in 2D)  
Sect. 8.2 (Vectors in 3D)
- 6/01:** Sect. 8.3 (Dot Product)  
Sect. 8.4 (Cross Product)
- 6/06:** Sect. 8.5 (Lines & Planes in 3D)  
Sect. 9.1 (Vector-Valued Functions)
- 6/08:** Sect. 9.2 (Calculus of Vector-Valued Functions)  
Sect. 9.3 (Motion in Space)
- 6/13:** Sect. 9.4 (Curvature/Unit Tangent Vector)  
Sect. 9.5 (Tangent & Normal Vectors)
- 6/15:** Sect. 8.6 (Surfaces)  
Sect. 10.1 (Functions of Several Variables)
- 6/20:** Sect. 10.2 (Limits & Continuity)  
Sect. 10.3 (Partial Derivatives)
- 6/22:** Sect. 10.4 (Total Differential, Linear Approximations, and Tangent Planes)  
Sect. 10.5 (Chain Rule)
- 6/27:** Sect. 10.6 (Gradient & Directional Derivative)  
THIS IS THE END OF THE MATERIAL FOR TEST #1.  
Sign up for one of these testing times:
- (a) 9:00 a.m. – 11:45 a.m. on Friday, 30 June OR
  - (b) 11:30 a.m. – 2:15 p.m. on Saturday, 1 July.
- 6/29:** Sect. 10.7 (Extrema of Two-Variable Functions)  
Sect. 11.1 (Double Integrals)
- 7/04:** INDEPENDENCE DAY HOLIDAY. NO CLASS MEETING!
- 7/06:** Sect. 11.2 (Area, Volume, and Center of Mass)  
Sect. 11.3 (Polar Double Integrals)
- 7/11:** Sect. 11.4 (Surface Area)  
Sect. 11.5 (Triple Integrals)
- 7/13:** Sect. 11.6 (Cylindrical Coordinates)  
Sect. 11.7 (Spherical Coordinates)
- 7/18:** Sect. 12.1 (Vector Fields)  
Sect. 12.2 (Curl & Divergence)

- 7/20:** Sect. 12.3 (Line Integrals)  
Sect. 12.4 (Independence of Path)
- 7/25:** Sect. 12.5 (Green's Theorem)
- 7/27:** Sect. 12.6 (Surface Integrals)  
[Mention Stokes' Theorem.]
- 8/01:** Sect. 12.7 (Divergence Theorem)
- 8/03:** TEST #2.