

# Syllabus

Title	Calculus II
Number	MATH 2414-105
Time	MTWR 11:30–12:20
Place	PH 203
Instructor	David Milovich
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Phone	(956) 326-2570
Office	BVC 321
Hours	TBD using student poll
Department	Engineering, Mathematics, and Physics
College	Arts and Sciences
Institution	Texas A&M International University
Term	Fall 2013

**Course description.** Techniques and applications of integration: area between curves, volumes of solids of revolution, work, areas of surfaces of revolution, arc-length, introduction to differential equations, parametric equations and polar coordinates, sequences and series. Prerequisite: MATH 2413.

**Student learning outcomes.** Upon successful completion of this course, the student will be able to:

- interpret the definite integral of a function geometrically as the area of a region, and use the Fundamental Theorem of Calculus to compute antiderivatives and definite integrals;
- apply different methods of integration, such as substitution, integration by parts, trigonometric integrals and partial fraction decomposition to compute antiderivatives as well as definite integrals;
- set up and compute integrals to solve problems in the computation of areas, volumes, work, arc-length, surface area of a surface of revolution, as well as be able to solve first order differential equations of linear and separable type, and be able to determine if a given improper integral converges;
- use a method of numerical integration to approximate a definite integral using several methods of approximation, including the left point, right point, trapezoid and Simpson's rule. Students will also be able to estimate the error in the computation of such approximations;
- identify curves given in terms of parametric equations, as well as write a curve in terms of a parameter. Students will also be able to apply integration to compute areas enclosed by a parametric curve, as well as to find its arc-length or area of revolution around an axis;
- approximate a given real analytic function using Taylor or Maclaurin series, be able to estimate the error, including determining if such series converges to the function, and use these techniques to compute limits of functions, estimate definite integrals or approximate the value of a function at a point.

## Textbook.

- Required: *Calculus: Early Transcendentals*, Stewart, 7th ed. (2012). ISBN 9780538497909.
- Bring your book to class every day.

## Technology.

- Email latency. I expect you to check your TAMIU email (dusty.tamtu.edu) and ANGEL (elearning.tamtu.edu) at least five days a week. Conversely, I will reply to your emails no later than the next day, except that Saturday emails may not receive a reply until Monday.
- I frequently use ANGEL to send messages to the class (which should get copied to your TAMIU email too). I also frequently post content such as whiteboard photos to the ANGEL Lessons tab.
- Calculators. At minimum, a scientific calculator is required. I strongly recommend a calculator that also includes a computer algebra system and parametric plotting capabilities. Examples include the TI89, TI92, TI-Nspire CAS, and HP-50g.
- Bring your calculator to class every day.
- Do not rely on a phone calculator. Phones are not allowed during test.
- I will use Excel for some examples. I will post these examples to the ANGEL Lessons tab so that you can explore them outside of class. If you do not have a computer with Excel, I recommend the BVC 202/205 computer labs.

### **Homework.**

- Homework is progressively assigned daily in class and due in class approximately twice every three weeks. For example, the homework problems assigned in class Aug. 28 through Sep. 3 will be due on Sep. 6. (See the schedule section below for all due dates.)
- If you do your homework as part of a group, then your group should just turn in one homework with everyone's name on it.

### **Tests.**

- Dates: 9/23, 10/8, 10/29, 11/4, and final exam date.
- All tests are open-book and open-note (so the questions will be harder).
- All tests require a calculator.
- All tests forbid phones.
- When studying for tests, focus on your lecture notes and homework exercises.
- The first four tests each cover about nine class days of material, about one week after the material was covered in class.
- The final exam is comprehensive.
- Each test is preceded by a review day (two review days for the final).

### **Grading.**

Homework is worth 15% of your grade. Tests 1–4 are each worth 15% of your grade. The final exam is worth 25% of your grade.

letter	minimum score requirement
A	90% score OR in top 10% of scores
B	80% score OR in top 30% of scores
C	70% score OR in top 70% of scores
D	60% score OR in top 90% of scores
F	

**Make-ups.** There are no make-ups for missed work, except by situations covered by university rules.

## Schedule

Sequence	HW due	Day	Date	Sections	Topic
1		W	8/28	7.7	intro; midpoint rule
2		R	8/29	8.1	arc length
3		M	9/2	7.7	trapezoid rule
4		T	9/3	8.2	area of surface of revolution
5		W	9/4	7.7	Simpson's rule
6	1--4	R	9/5	6.2	volume of revolution: washer method
7		M	9/9	6.3	volume of revolution: shell method
8		T	9/10	6.4	work
9		W	9/11	6.4	work
10		R	9/12	5.5	integration by substitution
11		M	9/16	7.1	integration by parts
12	5--9	T	9/17	10.1	parametric curves
13		W	9/18	10.1	parametric curves
1--9		R	9/19		review 1
1--9		M	9/23		test 1
14		T	9/24	10.3	polar coordinates
15	10--13	W	9/25	10.3	polar coordinates
16		R	9/26	7.8	improper integrals
17		M	9/30	7.8	comparison tests for integrals
18		T	10/1	11.1	sequences
19	14--17	W	10/2	11.2	series
20		R	10/3	11.3	integral test
10--17		M	10/7		review 2
10--17		T	10/8		test 2
21		W	10/9	11.4	direct comparison test
22		R	10/10	11.4	direct comparison test
23		M	10/14	11.4	limit comparison test
24	18--22	T	10/15	11.4	limit comparison test
25		W	10/16	11.5	alternating series
26		M	10/21	11.5	alternating series
27		T	10/22	11.6	absolute and conditional convergence
28	23--26	W	10/23	11.6	ratio test
29		R	10/24	11.6	root test
18--26		M	10/28		review 3
18--26		T	10/29		test 3
30		W	10/30	11.8	power series
31		R	10/31	11.8	power series
32		M	11/4	11.9	power series as functions
33	27--31	T	11/5	11.9	power series as functions
34		W	11/6	11.10	Taylor series
35		R	11/7	11.10	Taylor series
36		M	11/11	11.11	Applications of Taylor series
37	32--35	T	11/12	11.11	Applications of Taylor series
38		W	11/13	11.11	Applications of Taylor series
27--35		R	11/14		review 4
27--35		M	11/18		test 4
39		T	11/19	7.4	partial fractions
40		W	11/20	7.4	partial fractions
41		R	11/21	7.2	trigonometric integrals
42	36--40	M	11/25	7.2	trigonometric integrals
43		T	11/26	7.3	trigonometric substitution
44		W	11/27	7.3	trigonometric substitution
45		R	11/28	7.3	trigonometric substitution
1--20		M	12/2		review
21--45	41--45	T	12/3		review
1--45		?	?		final exam

# **Policies of the College of Arts and Sciences**

**(Required on all COAS Syllabi)**

## **Classroom Behavior**

The College of Arts and Sciences encourages classroom discussion and academic debate as an essential intellectual activity. It is essential that students learn to express and defend their beliefs, but it is also essential that they learn to listen and respond respectfully to others whose beliefs they may not share. The College will always tolerate diverse, unorthodox, and unpopular points of view, but it will not tolerate condescending or insulting remarks. When students verbally abuse or ridicule and intimidate others whose views they do not agree with, they subvert the free exchange of ideas that should characterize a university classroom. If their actions are deemed by the professor to be disruptive, they will be subject to appropriate disciplinary action, which may include being involuntarily withdrawn from the class.

## **Plagiarism and Cheating**

Plagiarism is the presentation of someone else's work as your own. **1)** When you borrow someone else's facts, ideas, or opinions and put them entirely in your own words, you must acknowledge that these thoughts are not your own by immediately citing the source in your paper. Failure to do this is plagiarism. **2)** When you also borrow someone else's words (short phrases, clauses, or sentences), you must enclose the copied words in quotation marks as well as citing the source. Failure to do this is plagiarism. **3)** When you present someone else's paper or exam (stolen, borrowed, or bought) as your own, you have committed a clearly intentional form of intellectual theft and have put your academic future in jeopardy. This is the worst form of plagiarism.

Here is another explanation from the 2010, sixth edition of the *Manual of The American Psychological Association* (APA):

*Plagiarism:* Researchers do not claim the words and ideas of another as their own; they give credit where credit is due. Quotations marks should be used to indicate the exact words of another. *Each* time you paraphrase another author (i.e., summarize a passage or rearrange the order of a sentence and change some of the words), you need to credit the source in the text.

The key element of this principle is that authors do not present the work of another as if it were their own words. This can extend to ideas as well as written words. If authors model a study after one done by someone else, the originating author should be given credit. If the rationale for a study was suggested in the Discussion section of someone else's article, the person should be given credit. Given the free exchange of ideas, which is very important for the health of intellectual discourse, authors may not know where an idea for a study originated. If authors do know, however, they should acknowledge the source; this includes personal communications. (pp. 15-16)

Consult the Writing Center or a recommended guide to documentation and research such as the *Manual of the APA* or the *MLA Handbook for Writers of Research Papers* for guidance on proper documentation. If you still have doubts concerning proper documentation, seek advice from your instructor prior to submitting a final draft.

**Use of Work in Two or More Courses:** You may not submit work completed in one course for a grade in a second course unless you receive explicit permission to do so by the instructor of the second course.

**Penalties for Plagiarism:** Should a faculty member discover that a student has committed plagiarism, the student should receive a grade of 'F' in that course and the matter will be referred to the Honor Council for possible disciplinary action. The faculty member, however, may elect to give freshmen and sophomore students a "zero" for the assignment and to allow them to revise the assignment up to a grade of "F" (50%) if they believe that the student plagiarized out of ignorance or carelessness and not out of an attempt to deceive in order to earn an unmerited grade. This option should not be available to juniors, seniors, or graduate students, who cannot reasonably claim ignorance of documentation rules as an excuse.

**Caution:** Be very careful what you upload to Turnitin or send to your professor for evaluation. Whatever you upload for evaluation will be considered your final, approved draft. If it is plagiarized, you will be held responsible. The excuse that "it was only a draft" will not be accepted.

**Caution:** Also, do not share your electronic files with others. If you do, you are responsible for the possible consequences. If another student takes your file of a paper and changes the name to his or her name and submits it and you also submit the paper, we will hold both of you responsible for plagiarism. It is impossible for us to know with certainty who wrote the paper and who stole it. And, of course, we cannot know if there was collusion between you and the other student in the matter.

**Penalties for Cheating:** Should a faculty member discover a student cheating on an exam or quiz or other class project, the student should receive a "zero" for the assignment and not be allowed to make the assignment up. The incident should be reported to the chair of the department and to the Honor Council. If the cheating is extensive, however, or if the assignment constitutes a major grade for the course (e.g., a final exam), or if the student has cheated in the past, the student should receive an "F" in the course, and the matter should be referred to the Honor Council. Under no circumstances should a student who deserves an "F" in the course be allowed to withdraw from the course with a "W."

**Student Right of Appeal:** Faculty will notify students immediately via the student's TAMIU e-mail account that they have submitted plagiarized work. Students have the right to appeal a faculty member's charge of academic

dishonesty by notifying the TAMIU Honor Council of their intent to appeal as long as the notification of appeal comes within 5 business days of the faculty member's e-mail message to the student. The *Student Handbook* provides details

### **UConnect, TAMIU E-Mail, and Dusty Alert**

Personal Announcements sent to students through TAMIU's UConnect Portal and TAMIU E-mail are the official means of communicating course and university business with students and faculty – not the U.S. Mail and not other e-mail addresses. Students and faculty must check UConnect and their TAMIU e-mail accounts regularly, if not daily. Not having seen an important TAMIU e-mail or UConnect message from a faculty member, chair, or dean is not accepted as an excuse for failure to take important action. Students, faculty, and staff are encouraged to sign-up for *Dusty Alert* (see [www.tamtu.edu](http://www.tamtu.edu)). *Dusty Alert* is an instant cell phone text-messaging system allowing the university to communicate immediately with you if there is an on-campus emergency, something of immediate danger to you, or a campus closing.

### **Copyright Restrictions**

The Copyright Act of 1976 grants to copyright owners the exclusive right to reproduce their works and distribute copies of their work. Works that receive copyright protection include published works such as a textbook. Copying a textbook without permission from the owner of the copyright may constitute copyright infringement. Civil and criminal penalties may be assessed for copyright infringement. Civil penalties include damages up to \$100,000; criminal penalties include a fine up to \$250,000 and imprisonment.

### **Students with Disabilities**

Texas A&M International University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal education opportunity. It is the student's responsibility to register with the Director of Student Counseling and to contact the faculty member in a timely fashion to arrange for suitable accommodations.

### **Incompletes**

Students who are unable to complete a course should withdraw from the course before the final date for withdrawal and receive a "W." To qualify for an "incomplete" and thus have the opportunity to complete the course at a later date, a student must meet the following criteria:

1. The student must have completed 90% of the course work assigned before the final date for withdrawing from a course with a "W", and the student must be passing the course;
2. The student cannot complete the course because an accident, an illness, or a traumatic personal or family event occurred after the final date for withdrawal from a course;
3. The student must sign an "Incomplete Grade Contract" and secure signatures of approval from the professor and the college dean.
4. The student must agree to complete the missing course work before the end of the next long semester; failure to meet this deadline will cause the "I" to automatically be converted to a "F"; extensions to this deadline may be granted by the dean of the college.

This is the general policy regarding the circumstances under which an "incomplete" may be granted, but under exceptional circumstances, a student may receive an incomplete who does not meet all of the criteria above if the faculty member, department chair, and dean recommend it.

### **Student Responsibility for Dropping a Course**

It is the responsibility of the STUDENT to drop the course before the final date for withdrawal from a course. Faculty members, in fact, may not drop a student from a course without getting the approval of their department chair and dean.

### **Independent Study Course**

Independent Study (IS) courses are offered only under exceptional circumstances. Required courses intended to build academic skills may not be taken as IS (e.g., clinical supervision and internships). No student will take more than one IS course per semester. Moreover, IS courses are limited to seniors and graduate students. Summer IS course must continue through both summer sessions.

### **Grade Changes & Appeals**

Faculty are authorized to change final grades only when they have committed a computational error or an error in recording a grade, and they must receive the approval of their department chairs and the dean to change the grade. As part of that approval, they must attach a detailed explanation of the reason for the mistake. Only in rare cases would another reason be entertained as legitimate for a grade change. A student who is unhappy with his or her grade on an assignment must discuss the situation with the faculty member teaching the course. If students believe that they have been graded unfairly, they have the right to appeal the grade using a grade appeal process in the *Student Handbook* and the *Faculty Handbook*.

### **Final Examination**

Final Examination must be comprehensive and must contain a written component. The written component should comprise at least 20% of the final exam grade. Exceptions to this policy must receive the approval of the department chair and the dean at the beginning of the semester.