Calculus II

MATH 2425 - 100 Summer 2014

11 - week Session

NOTE: You cannot receive credit for this course unless you are registered for the following pair of lecture and lab:

1) Lecture 2425-100(50694)
2) Lab 2425-101(50685)

Please double-check your schedule to make sure that your registration reflects this.

Class Time: Lecture Sect. 100 PKH 319; MW 6:00 - 7:50 pm

Lab Sect. 101 PKH 319; MW 8:00 - 8:50 pm

Instructor: Andrew Cavaness **Email:** andrew.cavaness@mavs.uta.edu

Office hours: PKH 404; MW 5:00-5:50 pm; or by e-appt.

Faculty Profile: https://www.uta.edu/mentis/profile/export/export/id/10652

Teaching Assistant: Hassan A Al-dujaly ; hassan.aldujaly@.uta.edu

Office hours: PKH 455; MW 4:00"5:00 pm; or by e"appt.!

Required Textbook and Electronic Access*:*

CALCULUS, EARLY TRANSCENDENTALS, CUSTOM EDITION FOR UT-ARLINGTON, BY SOO T. TAN
(WebAssign is REQUIRED for this course) Register for WebAssign at http://webassign.net/, and click on the "I Have a Class Key" link.

NOTE the Class Key is : **uta 5043 6899**

Course Content and Prerequisite: Applications of integration, techniques of integration, parametric equations, polar coordinates, sequences, series vectors, dot product, cross product, planes and quadric surfaces.

Prerequisite: A grade of C or better in MATH 1426 (Calculus I).

Student Learning Outcomes: Upon completion of MATH 2425, the student should be able to:

1. Compute the area between two curves, in both rectangular and polar coordinates; compute volumes and surface areas of solids of revolution, in both rectangular and polar coordinates; compute arc length of both polar and rectangular curves

2. Compute the value of integrals by the methods of integration by parts, trigonometric substitutions and partial fractions

3. Compute the value of improper integrals

4. Compute limits of sequences and series

5. Determine the radius of convergence of power series; differentiate and integrate power series

6. Represent a known function as a Taylor series; approximate a known function with a Taylor polynomial and determine the error involved

7. Compute the standard representation of a vector in 3-space, compute the dot product and cross product of vectors

8. Write equations of lines, planes, and quadric surfaces in 3-space

9. Justify and explain their steps in problem solving. In particular, students should be able to construct correct and detailed mathematical arguments to justify their claimed solutions to problems.

Grading Scale: 90-100 A; 80-89 B; 70-79 C; 60-69 D; 0-59 F

Grading components:

Online Homework	5%
Quizzes	5%
Class/Lab Attendance and Worksheets	10%
Midterm 1 (Mon. Jun. 16; 6-8 pm)	20%
Midterm 2 (Mon. Jul. 7; 6-8 pm)	25%
Final (Mon. Aug. 11; 6-8 pm)	35%

Online Homework: A student must have access to WebAssign for this course since part of your grade will be based on the completion of homework assignments online. The problems will be similar to those off of the assignment sheet. While your homework grade is only based on the online homework, you are responsible for problems on WebAssign and on the assignment sheet.

Quizzes: Quizzes will be administered during your lab section each Wednesday. They will consist of 1-3 problems similar to those on the assignment sheet. I will average the top *7* quiz grades that are completed by the student (quizzes that are skipped will not be dropped without an official excuse). You must be present for the entire lab session in order to take the quiz.

Lab Attendance and Worksheets: Each day your lab section will consist of a problem solving worksheet. These are intended to be more in-depth than the problems on the assignment sheet and are meant to be worked out in groups. Therefore, you will turn in lab worksheets in groups of 2-4 (no more, no less). The lab assignments will be due **at the end of lab that day**. I will average the top ***10*** lab grades. Again, you must be present for the entire lab session in order to turn in the lab assignment with your group. Because the labs are due at the end of the hour, the previous week you will receive a **Pre-Lab assignment**, which will constitute 20% of your lab grade for that day. These must be done before you get to lab as they will help you complete the lab on time. If you need help, you must do so before the lab, hence the name "Pre"-lab assignment.

Midterms and Finals: All of these exams are comprehensive. Each exam will be a mix of multiple choice problems and show-your-work problems.

NOTE: Any student who scores below 50 on the final exam cannot receive a grade higher than D in the course.

Make-up Policy: If you have a conflict with either midterm or final, you must contact your instructor no later than Census Date (June 19). Delays in submitting a make-up request may mean that your request cannot be approved by the instructor. Otherwise, Midterms will only be excused due to extreme circumstances.

There will not be any make-up Quizzes.

Calculator Policy: You must ONLY use nonprogrammable calculators with basic computational features, such as arithmetic and transcendental functions. You may NOT use any calculator with the following capabilities: graphing, equation solving, differentiation, integration, QWERTY keyboard, and any device that has internet or email capabilities (This means NO Cell phones). I would suggest the TI-30XIIS or the TI-30XA. **If you would like to use another calculator, you must get it approved by me before the exam date.** The same calculator policy applies to labs and quizzes.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

The Math Department operates the **Math Clinic**, a tutoring service staffed by upper level undergraduate students. The Math Clinic is on the 3rd floor of Pickard Hall; the phone number is 817-272-5674; and the hours of operation for fall and spring are

Monday – Thursday	8am to 9pm
Friday	8am to 1pm
Saturday	1pm to 6pm
Sunday	1pm to 9pm

Go to the Math Clinic webpage http://www.uta.edu/math/clinic/ to get more information or to access assignment sheets for the courses for which tutoring is offered.

All previous midterm exams and some previous final exams are available to students in the Science Education and Career Center (SECC), 106 Life Science Building. The fall and spring hours of operation are

Monday-Thursday	9am - 6pm
Friday	89am - 1pm
Saturday	Closed
Sunday	Closed

You need a Mav ID Card to check out these exams. A copy machine is available for you to make copies. There are also video tapes of lectures on calculus topics that can be viewed in the SECC. For more information, go to https://www.uta.edu/cos/SECC/login.php.

You can also access the previous midterm exams and some finals online at the following websites:

https://mavspace.uta.edu/xythoswfs/webview/_xy-698342_1

Solutions to the multiple choice questions are available at

https://mavspace.uta.edu/xythoswfs/webui/_xy-1084452_1-t_BulwoeEK

The Math Department maintains a list of people who have expressed an interest in tutoring. These persons are not necessarily recommended by the Math Department and they set their own fees. You may obtain a copy of the tutor list in the Math Office, 478 PKH.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/). Any student who drops this course on or before Friday, July 17 will receive a W.

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and

policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Student responsibility primarily rests with informing faculty **before Census Date (Jan. 29) and in providing authorized documentation through designated administrative channels.**

If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first week of the semester, to make sure you are appropriately accommodated.

Academic Integrity: Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not

required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located immediately to the right when exiting the classroom. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Grade Replacement and Grade Exclusion Policies: These policies are described in detail in the University catalog and can also be founded online at

http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#10

(Scroll about half way down the page).

Student Disruption: The University reserves the right to impose disciplinary action for an infraction of University policies. For example, engagement in conduct, alone or with others, intended to obstruct, disrupt, or interfere with, or which in fact obstructs, disrupts, or interferes with, any function or activity sponsored, authorized by or participated in by the University.

Drop for Non-Payment of Tuition: If you are dropped from this class for non-payment of tuition, you may secure an Enrollment Loan through the Bursar's Office.

Important Dates:

June 2	First Day of Classes
Monday, June 16	Midterm 1, 6:00 – 8:00 pm
June 19	Census Date
	Deadline for makeup requests for <u>all</u> exams
Monday, July 7	Midterm 2, 6:00 – 8:00 pm
July 17	Last Day to Drop Classes
August 7	Last Day of Classes
Monday, August 11	Final Exam, 6:00 – 8:00 pm

Course Schedule: The next page outlines a tentative schedule for this course along with the assignment sheet. "As the instructor of this course, I reserve the right to adjust this schedule as needed in any way that serves the educational needs of the students enrolled in this course."

-Andrew Cavaness-

MATH 2425 Calculus II Tentative Course Schedule/Assignment Sheet
Calculus: Early Transcendentals by Soo Tan

"As the instructor of this course, I reserve the right to adjust this schedule as needed in any way that serves the educational needs of the students enrolled in this course." –Andrew Cavaness-

Jun. 1: 6.2: Trigonometric Integrals 2, 4, 7, 13, 15, 16, 18, 23, 27, 32, 37, 40, 46, 48, 49
6.1: Integration by Parts 1, 6, 10, 12, 17, 18, 20, 22, 30, 37, 42, 58, 67

Jun. 3: 6.3: Trigonometric Substitutions 4, 6, 8, 10, 11, 13, 15, 16, 20, 22, 24, 26, 30, 31, 35, 47
6.4: Partial Fractions 3, 6, 11, 14, 16, 22, 24, 26, 32, 34, 37, 42, 44, 45

Jun. 9: 6.6: Improper Integrals 7, 12, 14, 16, 20, 21, 23, 24, 27, 28, 29, 30, 33, 35, 38, 45, 46, 48
8.1: Sequences 1, 4, 6, 8, 11, 14, 15, 16, 20, 21, 23, 25, 28, 30, 34, 35, 37, 38, 49, 54, 55, 58, 68

Jun. 11: Review

Jun. 19: Midterm 1 (Covers Sect. 6.1, 6.2, 6.3, 6.4, 6.6, 8.1 tentatively)

Jun. 18: 8.2: Series 2, 3, 6, 8, 10, 14, 20, 22, 32, 33, 38, 39, 42, 43, 46, 47, 48, 51, 63
8.3: The Integral Test 2, 4, 6, 7, 8, 10, 12, 16, 18, 19, 20, 24, 25, 26, 27, 33

Jun. 23: 8.4: Comparison Tests 1, 3, 4, 6, 7, 9, 10, 11, 12, 18, 20, 23, 24, 26, 28, 31, 33, 34, 35, 37
8.5: Alternating Series 2, 3, 6, 8, 9, 10, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 27, 29, 32, 34

Jun. 25: 8.6: Absolute Convergence and the Ratio and Root Tests 4, 6, 9, 11, 12, 13, 15, 19, 20, 21, 24, 25, 28, 29, 32, 34, 35
8.7: Power Series 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 17, 18, 22, 23, 24, 25, 29

Jun. 30: 8.8: Taylor and Maclaurin Series 1, 5, 9, 12, 13, 17, 18, 21, 25, 26, 27, 28, 33, 37, 39, 50, 60, 61, 63, 66
8.9a: Approximation by Taylor Polynomials 4, 6, 7, 9, 11, 13, 17, 20, 21, 25, 27, 33, 34, 35, 36

July 2**: 10.1: Vectors in the Plane 3, 8, 12, 14, 18, 22, 24, 28, 30, 42, 46, 56, 62, 64
10.2: Coordinates and Vectors in 3-Space 8, 16, 21, 24, 26, 30, 34, 36, 39, 42, 56, 57, 60, 65, 70, 74, 78
Reiview

Jul. 7: Midterm 2 (Covers Sect. 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, plus above sections)

Jul. 9: finish sections 8.9, 10.1, 10.2, 5.1

Jul. 14: 5.2: Volume, Disk Method 2, 4, 6, 10, 11, 17, 19, 20, 23, 25, 27, 32, 50, 53, 57, 59, 60
5.3: Volume, Shell Method 3, 5, 6, 9, 10, 14, 20, 26, 30, 35, 44
From previous sections: 6.1.52, 6.1.55, 6.2.55, 6.2.56, 6.2.60, 6.2.61, 6.3.37, 6.4.66, 6.6.53, 6.6.54

Jul. 16: 5.4: Arc Length and Surface Area 2, 4, 7, 8, 12, 14, 16, 17, 20, 22, 23, 24, 29, 37, 39, 40, 42, 51, 57
From previous sections: 6.3.39, 6.6.58
9.2: Plane Curves and Parametric Equations 2, 3, 7, 9, 11, 20, 23, 31, 32, 51

9.3: Arc Length and Surface Area with Parametric Curves 2, 4, 8, 12, 16, 19, 21, 31, 33, 34, 38, 40, 53, 56, 59, 62

Jul. 21: 9.4: Polar Coordinates 2, 6, 10, 13, 20, 23, 27, 32, 38, 47, 51, 54, 55, 58, 63, 68, 70, 71, 74

9.5: Areas and Lengths in Polar Coordinates 5, 10, 12, 22, 23, 26, 27, 33, 36, 42, 43, 46, 49, 50, 56, 57, 61

Jul. 23: 10.3: The Dot Product 1, 4, 8, 15, 20, 22, 26, 30, 31, 34, 40, 42, 47, 48

10.4: The Cross Product 1, 6, 10, 12, 14, 18, 20, 22, 24, 28, 30, 34, 39

Jul. 28: 10.5: Lines and Planes in Space 4, 8, 11, 12, 13, 14, 16, 18, 19, 24, 30, 31, 34, 37, 40, 45, 48, 52, 56, 62

10.6

Jul. 30*: Review

Aug. 4*: Review

Aug. 6: Review

May 3: **Final Exam** (Covers Sect. 5.2, 5.3, 5.4, 9.2, 9.3, 9.4, 9.5, 10.1, 10.2, 10.3, 10.4, 10.5, plus above sections)

* May be absorbed into other lessons.

** May be moved to another day.