Math 1421: Preparation for Calculus
Fall 2018
Section 100

Instructor: Dr. Backs

Office: PKH 448

Office phone: (817) 272-7163

Email: kbacks@uta.edu

Faculty Profile: https://mentis.uta.edu/explore/profile/karl-backs

Class Time: MoWeFr 8 – 8:50 am

Classroom: PKH 321

Office Hours: MoWeFr 10 – 11 am,
MoWe 1 – 2:30 pm

Textbook: This course is part of the UTA Mathematics Department Affordability Campaign, making state-of-the-art online mathematics resources available to our students at the lowest possible price when compared to purchasing elsewhere. To receive the discounted price, purchase course materials through the UTA Bookstore. Search by course or use this site: http://bit.ly/2tQ090S

1. **E-text and Direct Access (Required)**: Your course materials include the e-version of the course text as well as MyLabsPlus course access which is designed to enrich student success by providing instant feedback on your assignments plus on-demand access to personalized study plans, a multimedia library, practice tests, and more. The e-texts may be downloaded on multiple devices with long-term access for each student. Every student has trial access to MyLabsPlus course materials as soon as the course is available in Blackboard, so you can start working on your course even before you purchase the course materials! That said, students will need a verified purchase within the first two weeks of classes, otherwise, the access to your digital materials will freeze and your account will stay deactivated until the purchase is confirmed. During the purchasing process, please ensure you enter your name as shown on your UTA records along with your MAVS email address for proper processing.

2. **Loose-leaf Exploration and Notes Textbook (Optional)**: You may choose to enhance your digital purchase and select a loose-leaf text for only $25 from the bookstore. Full details are available in Blackboard.
   Exploration and Notes, 2nd Ed. Schulz, Pearson Ed. Inc., 2019. ISBN: 9780134654973

Course Materials (Required):
ScanTron (form **SC882-E**)
Calculators: TI-30XA or TI-30XIIS. No other calculator may be used on quizzes and tests.

Course Prerequisite: A grade of C or above in MATH 1301, MATH 1302 or MATH 1308, or a minimum score on the Math Placement Test (MPT).

Course Description: This course integrates and builds upon concepts and skills from college algebra and trigonometry that are essential to success in calculus. Problem solving activities form the basis for the establishment of these mathematical connections.

Learning Outcomes: Upon completion of Math 1421:

1. Students will be able to justify and explain their steps in problem solving. In particular, students will be able to construct correct and detailed mathematical arguments to justify their solutions to problems.
2. Students will demonstrate facility with expressing, applying, and combining functions in tabular, graphical, and symbolic forms.
3. Students will be able to identify and analyze the unifying characteristics of functions and their graphs including invariant properties under function transformations, domain and range, asymptotes, zeroes, and end behavior.
4. Students will be able to interpret and define the six trigonometric functions, in terms of both right triangles and the unit circle. They will be able to graph trigonometric and inverse trigonometric functions, without the aid of a graphing calculator, by applying the concepts of amplitude, periods and phase shifts. Students will also be able to verify and use trigonometric identities and formulas and to apply them to solve trigonometric equations and word problems, including problems that require solving a triangle.

Grading Scale:

Score Range	Letter Grade
100-90	A
89-80	B
79-70	C
69-60	D
<60	F

Grade Component	Percentage	Date
Midterm I	20%	Friday, September 21, 6-8 pm
Midterm II	25%	Friday, October 26, 6-8 pm
Final Exam	35%	Saturday, December 8, 12:30-3 pm
Lab/Quizzes	10%	N/A
Homework	8%	N/A
Skills Review	2%	N/A

All students in Math 1421 must pass the *Calculus Gateway Exam* on or before Tuesday, December 4 in order to receive a grade above D in the course. See details under *Calculus Gateway Exam* below.

Exam Location: Note that the location of exams will be announced prior to the exam date. The location will, most likely, **NOT be in our classroom**.

Homework will be completed online using MyLab and can be accessed via the "Math-1421-Lecture" course in Blackboard. **No late homework** will be accepted for any reason. The two lowest homework grades will be dropped at the end of the semester.

Quizzes will be given during the first lab session each week. These in-class quizzes will count for 5% of your grade and will be administered during the last 10-15 minutes of class. Students who are not present when the quiz is handed out will not be allowed to take the quiz and will receive a zero. The lowest in-class quiz grade will be dropped at the end of the semester. **No makeup quizzes will be allowed.**

Skills Review: Over the course of the semester you will be assigned two Skills Review assignments to complete which can be accessed via the "Math-1421-Lab" course in Blackboard. You must complete them by November 4th, and you may continue to attempt the assignments until you have mastered the material. These skills reviews will help solidify skills you will use frequently in calculus (and have seen in Math 1302), but will not be directly discussed in Math 1421.

Calculators: The only calculators allowed for quizzes, midterms, and the final are TI-30XA and TI-30XIIS. You may not use a cellphone as a calculator on exams.

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will take attendance on days when an in-class assignment is not assigned. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Electronics Policy: Students may not use electronics during course meetings without prior consent from the instructor (unless the instructor is using technology to poll the entire class). <u>This includes (but is not limited to): cell phones, tablets, laptop computers.</u>

Midterms and Finals: These exams are departmental, i.e., all sections of Math 1421 will take the same exam and the grades will have the same weight in each section. All of these exams are comprehensive. Each exam will be a mix of multiple choice problems and show-your-work problems. *You must bring a photo ID to each exam; failure to do so may result in you not being admitted to the exam or your exam not being graded.*

Students may bring one 3"x5" note card to use as a formula sheet on only the final exam. Formula sheets are **not allowed** on the midterms.

Make-up Policy: All makeup exams are scheduled through your instructor and must be requested by Census Date (September 7). If you know that you have a conflict with one of the dates listed above you must completely fill out the Make-Up Request form and provide this to your instructor before the Census Date. It is up to the instructor whether or not to grant a makeup exam.

Makeup exams will not be granted after the fact; that is, requesting a makeup after Census Date will result in a denial of makeup unless substantiation of an emergency (i.e. hospital records, etc.) is provided.

Students absent for religious holidays or University events must give notice to the instructor at least 7 days before the absence; substantiation may be requested.

Calculus Gateway Exam: All students in Math 1421 must pass the Calculus Gateway Exam on or before the last class day in order to receive a grade above D in the course. The Calculus Gateway Exam (CGE) will become available under the "Math-1421-Lab" course in Blackboard on November 5th. The CGE can be taken anytime during the eligible time period between November 5 and December 4. Students are allowed up to 3 attempts on the CGE, however these attempts can only be used during the eligible time period. The CGE is to be taken outside of class and is subject to University rules on academic dishonesty. You are allowed to use a non-graphing calculator on the CGE, but you may not receive help from any source. Receiving or providing assistance on the CGE will be subject to discipline for academic dishonesty. It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. Discipline may include suspension or expulsion from the University.

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/).

Drop Date: Friday, November 2 by 4 pm.

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.

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.

Math Clinic: The Math Department operates the **Math Clinic**, a free 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	8 am – 9 pm
Friday	8 am – 12 pm
Saturday	1 pm – 6 pm
Sunday	1 pm – 7 pm

Go to the Math Clinic webpage http://www.uta.edu/math/clinic/ to get more information.

Disability Accommodations: UT 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), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* 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 disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** http://www.uta.edu/disability/ or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

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.

Counseling and Psychological Services (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit* www.uta.edu/titleIX or contact Ms. Michelle Willbanks, Title IX Coordinator at (817) 272-4585 or titleix@uta.edu

Academic Integrity: Students enrolled all UT Arlington courses 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 in their courses by 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. Additional information is available at https://www.uta.edu/conduct/. Faculty are encouraged to discuss plagiarism and share the following library tutorials http://libguides.uta.edu/copyright/plagiarism and http://library.uta.edu/plagiarism/

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.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are 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 via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. 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 take an immediate right or left, walk down the hallway toward the corner of the building and descend the stairs. 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 individuals with disabilities.

Students are encouraged to subscribe to the MavAlert system that will send information in case of an emergency to their cell phones or email accounts. Anyone can subscribe at https://mavalert.uta.edu/ or https://mavalert.uta.edu/register.php

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 http://www.uta.edu/studentsuccess/success-programs/programs/resource-hotline.php

University Tutorial & Supplemental Instruction (Ransom Hall 205): UTSI offers a variety of academic support services for undergraduate students, including: 60 minute one-on-one tutoring sessions, Start Strong Freshman tutoring program, and Supplemental Instruction. Office hours are Monday-Friday 8:00am-5:00pm. For more information visit www.uta.edu/utsi or call 817-272-2617.

UTSI is excited to share that beginning Fall 2018 , University Tutorial will be offering FREE tutoring for UTA students and with no limit on the number of appointments. This expansion will take the largest, one-on-one appointment-based tutoring service to a new pinnacle to student services. Free tutoring is no longer limited to just first year courses with the expansion of course offerings. To sign up, visit UTSI in 205 Ransom Hall/University College, or book your appointment directly using TutorTrac. Regular semester tutoring hours are 7:00am – 10:00pm, seven days a week on the 2nd floor of the Central Library. All tutors receive extensive training. Find out more at www.uta.edu/utsi.

The IDEAS Center (2nd Floor of Central Library) offers FREE tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. http://library.uta.edu/academic-plaza

Tentative Course Schedule:

Date	Topic Covered in Textbook
8/22	1.1 What is a Function?
8/24	1.2 Graphs
8/27	1.3 Linear Functions
8/29	1.4 Combinations of Functions
8/31	1.5 Transformations of Functions
9/5	1.6 Families of Functions
9/7	2.1 Quadratic Functions
9/10	2.2 Polynomial Functions
9/12	2.3 Real Roots and Factors of Polynomial Functions
9/14	2.6 Rational Functions
9/17	2.7 Inequalities
9/19	3.1 Exponential Functions
9/21	3.2 Inverse Functions / **Midterm I, 6-8 pm (will cover material up to 2.7)**
9/24	3.3 Logarithmic Functions
9/26	3.4 Logarithmic Identities
9/28	3.5 Solving Exponential and Logarithmic Equations
10/1	4.1 Angles and Their Measures
10/3	4.1 / 4.2 Unit Circle Definitions of Sine, Cosine, and Tangent
10/5	4.2
10/8	4.3 Sine, Cosine, and Tangent Functions
10/10	4.3 / 4.4 Secant, Cosecant, and Cotangent Functions
10/12	4.4
10/15	5.1 Right Triangle Trigonometry
10/17	5.1 / 5.2 Right Triangles and The Unit Circle
10/19	5.2
10/22	4.5 Inverse Trigonometric Functions
10/24	4.5 / 5.3 Law of Sines
10/26	5.3 / **Midterm II, 6-8 pm (will cover material up to 5.2)**
10/29	5.4 Law of Cosines
10/31	5.4 / 5.5 Applications of Triangles
11/2	5.5
11/5	6.1 Fundamental Identities
11/7	6.1 / 6.2 Sum, Difference, and Double-Angle Identities
11/9	6.2
11/12	6.3 Power-Reducing, Half-Angle, and Product-Sum Identities
11/14	6.3 / 6.4 Solving Trigonometric Equations
11/16	6.4
11/19	7.1 Parametric Equations
11/26	7.1 / 7.2 Polar Coordinates
11/28	7.2
11/30	7.3 Polar Graphs
12/3	7.3

12/8	**Final Exam, 12:30 – 3 pm (will cover all sections)**

"*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course." – Dr. Karl Backs.*

Important Dates

August 22 (Wednesday)	First Day of Classes
September 7 (Friday)	Census Date
September 21 (Friday)	**Midterm I, 6 – 8 pm**
October 26 (Friday)	**Midterm II, 6 – 8 pm**
November 2 (Friday)	Drop Date – by 4 pm
December 8 (Saturday)	**Final Exam, 12:30 – 3 pm**