

MTHK 3370-110, 10214 LINEAR PROGRAMMING

Spring 2019 rev. 01.08.2019

Texas A&M University - Central Texas

COURSE DATES, MODALITY, AND LOCATION

16-week class, 01/14/19 – 5/10/19

This course is designated as an “Online Blended Course” – Online blended courses have most course activity online, but there are some required face-to-face or synchronous instructional activities, such as lectures, discussions, labs, or other in-person learning activities. (85-99% online activity).

This course uses the A&M-Central Texas Canvas Learning Management System

[<https://tamuct.instructure.com/>]. The course also uses other online resources and software, as indicated on the Canvas page.

INSTRUCTOR AND CONTACT INFORMATION

Primary Instructor: Jordan Barry

Email: Please use the Canvas email for course issues.

Office hours: TBA

Secondary instructor: Chris Thron

Email: Please use the Canvas email for course issues.

Contact: hangouts.google.com (ID is chris.thron@gmail.com). You will need a Google account to log in to Hangouts. If you don't have gmail, you can still get a Google account: see instructions at <https://www.wikihow.com/Make-a-Google-Account-Without-Gmail>

Office hours (via Hangouts): Saturdays noon-1 pm and Tuesdays 8:30-9:30 pm. (After you log in to Hangouts, click on “New Conversation”, type in my ID, and then you can message me that you're there.)

COURSE INFORMATION

Course Overview and description: This course provides an introduction to linear programming and operations research. Linear programming involves methods for solving optimization problems to maximize/minimize linear objective functions based on constraints in the form of linear inequalities/equations. The first part of the course will focus on 2 variable problems, graphical solutions, and an introduction to modeling, i.e. translating word problems into math problems. The next part of the course will focus on problems with more variables with a focus on modeling as a solver will be used to get final answers. Additional topics in operations research may be studied as time permits.

Student Learning Outcomes:

Upon successful completion of MATH 3370, students will be able to:

- a) Producing graphical solutions of systems of linear inequalities.
- b) Using graphical solutions of systems of inequalities to solve 2 variable linear programming problems.

- c) Identify all decision variables and objective function of real world linear programming problems.
- d) Identify all constraints of a real world problem as a linear inequality or equation that must be satisfied by decision variables.
- e) Solving higher variable problems step-by-step using a basic version of the simplex method and by using a solver.

Competency Goals Statements (certification or standards):

The student will gain competency in linear programming-related skills that are necessary to pass the Texas teacher certification exam for 7-12 mathematics.

Required Reading and Textbook(s):

All materials are online. Links are given in the Canvas site.

COURSE REQUIREMENTS

- Homework assignments (60%). Written assignments are turned in on Canvas. Programming assignments are submitted on Dropbox.
- Tests (40%). There are 2 tests of weight 20%. Each test will be 3 hours, and must be proctored.

Grading Criteria Rubric and Conversion

Homework	60% (60 points)	90- 100%= A 80- 89%= B
Test 1	20% (20 points)	70- 79%= C
Test 2	20% (20 points)	60- 69%= D
TOTAL	100% (100 points)	Below 60 % F

Partial credit for homework, quiz and test questions will be awarded according to the following guidelines:

- 100% Perfect
- 90% Minor careless or technical mistakes
- 80% Minor procedural error
- 70% Major conceptual or procedural error.
- 60% Makes beginning steps towards a solution
- 30% Some relevant information supplied.

Please note: If your overall grade (on a scale from 0 to 100) is within 1 point of the next highest grade level, Your grade will be increased if you have done all of the assignments. Otherwise you will be graded strictly according to the numbers. That means that if your average is 89.99 and you didn't do all the assignments, then you still get a B.

Posting of Grades

- Grades will be posted on Canvas. Combined grades will be posted on TAMUCT Canvas after each test.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

***NOTE: Although the following should be fairly close to the actual schedule, some adjustments may be made to the schedule to accommodate the students' learning speed.

Week # (Mon.)	New Material
#1(1/14)	Introduction to Linear programming, terminology, and graphical solutions (NCERT)
#2(1/21)	Graphical solutions and applications (NCERT text) / Matrix multiplication
#3(1/28)	Matrix formulation of linear programming (Lecture notes text)
#4(2/4)	Matrix formulation of linear programming problems, ctd. (Lecture notes text)
#5(2/11)	Solution of games using linear programming (Finite Mathematics text)
#6(2/18)	Solution of games (finish) / Introduction to R
#7(2/25)	Introduction to R
#8(3/4)	TEST #1
(3/11)	SPRING BREAK
#9 (3/18)	Linear programming in R (Sallan, Lordon, Fernandez text)
#10 (3/25)	Linear programming in R (Sallan, Lordon, Fernandez text) ctd.
#11 (4/1)	Linear programming in R (Sallan, Lordon, Fernandez text) ctd.
#12 (4/8)	Linear programming in R (Sallan, Lordon, Fernandez text)
#13 (4/15)	TBD
#14 (4/22)	TBD
#15 (4/29)	TBD
#16 (5/6)	TEST #2

INSTRUCTOR GRADING POLICIES

Late work will be accepted only in case of medical or family emergency: in this case, written verification is required, and the maximum makeup grade is 70%. At most 2 late assignments will be accepted.

Missed exams: If you cannot make an exam session, you must schedule an alternative period beforehand. Missed exams must be taken within a week of the actual exam.

Appeals: If the student wishes to appeal a grade, he/she must do so *within 1 week* of receiving the graded paper. Students should save all their work to ensure that no clerical errors are made in grade reporting. Periodically during the semester, I will release a complete record of your grades so far in the class. If I have made a recording error, you may bring the paper to me and I will record it correctly.

The following material is generic for all TAMUCT courses, and does not contain specific information for this course.

911 Cellular:

911Cellular is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in 911Cellular through their

myCT email account.

In an effort to enhance personal safety on the Texas A&M University – Central Texas (TAMUCT) campus, the TAMUCT Police Department has introduced Warrior Shield by 911 Cellular. [Warrior Shield](https://www.tamuct.edu/police/911cellular.html) [https://www.tamuct.edu/police/911cellular.html] can be downloaded and installed on your mobile device from Google Play or Apple Store.

Connect at [911Cellular](https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management) [https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management] to change where you receive your alerts or to opt out. By staying enrolled in 911Cellular, university officials can quickly pass on safety-related information, regardless of your location.

Important University Dates: see <https://www.tamuct.edu/registrar/academic-calendar.html>

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements

This course makes use of several web sites, which are indicated on the course Canvas site. This course will use the A&M-Central Texas Instructure Canvas learning management system *for posting of grades only*. Logon to A&M-Central Texas Canvas [https://tamuct.instructure.com].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail address)

Password: Your MyCT password

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

Other Technology Support

For log-in problems, students should contact Help Desk Central.

24 hours a day, 7 days a week:

Email: helpdesk@tamu.edu

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [http://hdc.tamu.edu]

Please let the support technician know you are an A&M-Central Texas student.

Drop Policy.

If you discover that you need to drop this class, you must complete a [Drop Request Form](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf) [https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf].

Professors cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed, signed and returned. Once you return the signed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled,

FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Academic Integrity.

Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be reported to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the Student Conduct process](#),

[<https://tamuct.campuslabs.com/engage/organization/tamuct-student-conduct-panel>].

If you know of potential honor violations by other students, you may [submit a report](#),

[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Academic Accommodations.

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion at (254) 519-5797. Any information you provide is private and confidential and will be treated as such.

For more information please visit our [Access & Inclusion](#) web page

[<https://www.tamuct.edu/student-affairs/access-inclusion.html>].

Important information for Pregnant and/or Parenting Students.

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are

pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit the [Student Affairs](https://www.tamuct.edu/student-affairs/index.html) web page [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines online](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf), please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring.

Tutoring is available to all A&M-Central Texas students, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic Support Programs at (254) 519-5796, or by emailing Dr. DeEadra Albert-Green at deeadra.albertgreen@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive FREE online tutoring and writing support. This tool provides tutoring in over 40 subject areas. Access Tutor.com through Canvas.

University Writing Center.

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University—Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only hours from 12:00-3:00 p.m. on Saturdays.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may

work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-on-one session with a trained and experienced writing tutor by visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WCOOnline](#). In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC and/or need any assistance with scheduling.

University Library.

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](#) [<http://tamuct.libguides.com/index>].

OPTIONAL POLICY STATEMENTS:

A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/departments/compliance/titleix.php) [https://www.tamuct.edu/departments/compliance/titleix.php].