

# FINA 4356 : Energy Risk Management

Fall 2020

## COVID-19

*Typical policies that govern excused student absences in courses for student illness are relaxed for this term. Guidance from health departments and the CDC require anyone testing positive for COVID-19 to self-isolate and monitor symptoms. This guidance also requires anyone who has been exposed to COVID-19 to quarantine, monitor symptoms, and seek medical attention. Further, this guidance recommends that anyone experiencing COVID-19 symptoms (fever, cough, tiredness, difficulty breathing, etc.) stay home, monitor symptoms, and seek medical attention.*

*Students testing positive for COVID-19, those who have been exposed to COVID-19, and those experiencing COVID-19 symptoms must also contact your instructor, me and the COVID-19 hotline, 903.565.5999 as soon as possible unless incapable due to illness. Student absences due to COVID-19 illness, exposure, or symptoms, with or without documentation, will be excused and students given a flexible timeline for make-up and/or delivery of missed assignments. After reviewing the specific circumstance for student absence, the instructor and student will discuss makeup of missed assignments and mutually agreed upon deadlines.*

### Face Coverings

UT Tyler will require face coverings in public settings. Given the nature of campus operations (i.e., large groups in common areas, physical distancing difficult to control), you are required to wear face coverings when inside University buildings. Accommodations will be available for individuals with religious, medical or other concerns, which will be processed through the Office of Student Accessibility and Resources (students).

### Testing

To the extent COVID-19 testing is available, UT Tyler will make testing available to students who exhibit symptoms or who believe they have come in contact with someone diagnosed with COVID-19. If possible, testing will be available at the University Health Clinic.

### Reporting Positive Test Results

Students who test positive for Covid-19 will immediately self-report this information via the COVID-19 hotline, 903.565.5999 or by completing the reporting form [uttyler.edu/coronavirus](http://uttyler.edu/coronavirus). If you have recently been on campus, please immediately report via the hotline so that steps can quickly be taken to prevent a possible spread. Student self-report forms will be received by the Office of Student Success, Office of Human Resources and the Chief of Police.

### Voluntary Self-Isolation: Symptomatic Without Test Results

Individuals who feel they may be experiencing symptoms, but have not been tested, will self-report and immediately begin a voluntary self-isolation process at home until testing can be accomplished. You are required to inform me your self-isolation as soon as possible unless incapable due to illness. Remember that you schedule a medical appointment for a test right away.

UT Tyler Honor Code

**I embrace honor and integrity. Therefore, I choose not to lie, cheat, or steal, nor to accept the actions of those who do.**

**CLASS MEETING: M,W,F 10:10 – 11:05 A.M, Soules Coll of Business 00121**

**TEACHING METHOD:** Lecture

**OFFICE & TELEPHONE NUMBER:**

Office: SCOB 350.3 Phone: 903-565-5806

**EMAIL ADDRESS:** [hshin@uttyler.edu](mailto:hshin@uttyler.edu)

**OFFICE HOURS: M,W 11:10 A.M – 12:10 P.M; I will be holding Virtual Office Hours by staying at the Class Discussion Board from 11:10 am to 12:10 pm every Mon and Wen.**

**FACULTY-STUDENT COMMUNICATIONS:** I generally respond to email messages within two working days. Response time may be a little longer on weekends and holidays. Email messages should be sent to me at [hshin@uttyler.edu](mailto:hshin@uttyler.edu) rather than through Patriot email. If you'd like to arrange a phone call at another time, just send me an email and I'll schedule a time that works for both of us. Please note that assignments will be returned within three days of the assignment's due date. When I cannot meet that deadline, I will notify you with an alternative timeline. For exams, it will probably take me a few days to get all grades recorded, depending upon how many problem/essay questions are on a particular exam. If you have any questions about what you missed, I will be happy to meet with you to go over your exam. I do not make the graded exam available for viewing online.

**COURSE DESCRIPTION:**

This course covers topics on how firms related to energy production/use manage the risks associated with their business operations. Topics include: (1) the concept of risk and its relationship to uncertainty in energy (primary oil and natural gas) industry, (2) the severity and consequences of a given risk in the energy industry and appropriate risk measurement techniques, and (3) managing risk faced by energy firms, especially associated with fluctuating oil/natural gas prices.

**PREREQUISITE:** FINA 3330 (Investment)

**LEARNING OUTCOMES:**

Upon completion of this course, the student will be able to:

1. Identify and categorize the types of risks faced by energy firms, especially oil & gas firms.
2. Explain risk taxonomy and its application to different risk frameworks.
3. Assess the severity and consequences of a given risk in energy industry.
4. Suggest the various hedging techniques specific to oil & gas firms in energy risk management.
  - a. Explain how derivatives (e.g., forward contracts or options) are used to manage financial risk faced by energy firms
  - b. Access the economic rationale for risk management
  - c. Apply hedging techniques specific to oil & gas firms to “real world” practice, especially price risk of oil & natural gas

5. Assess challenges related to technology, investment and regulation in energy industry, and suggest potential risk management solutions.

### **COURSE STRUCTURE:**

This course is designed to familiarize students with the terms and applications of various risk management techniques used for the energy industry. The course begins with a general overview in the risk management topics, including the concept of risk and its relationship to uncertainty. Then, it examines the analytical tools/process to improve risk management (focus on derivatives) and how energy firms make related decisions in energy industry businesses. Thus, this course is divided into three segments that correspond with course objectives; the survey on the need of risk management by energy industry, identification and risk and application of hedging tools, and the valuation of hedging tool (derivatives). To achieve the goal of course, students will be required to:

1. Visit class Canvas every day.
2. Don't miss any assignments (tests).
3. Participate in class activities and share insights with classmates by participating discussion in class.
4. Use technology tools.

### **REQUIRED TEXT:**

- Fundamentals of Futures and Options Markets, 9th Edition John C. Hull,. ISBN-13: 978-0-13-408324-7
- StockTrak -- a virtual trading program- is required for this course. Specific details about StockTrak project will be shared in the second week of the semester.

### **TOPICS COVERED:**

<b>Week</b>	<b>Topic Covered</b>	<b>Chapter Covered</b>
Week 1 (Aug 24)	Syllabus  Introduction	Hull:Ch1
Week 2 (Aug 31)	Futures markets and central counterparties	Hull:Ch2
Week 3 (Sep 7)	Hedging strategies using futures Trading Begin	Hull:Ch3 StockTrack
Week 4 (Sep 14)	Mechanics of options markets Interest rate Trading strategies involving options A 2-page group paper outlining your strategy	Hull:Ch9 Hull:Ch10 StockTrack

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(Sep 18)

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*Review (Sep 21) & Exam #1 (Sep 23)*

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Week 6      Interest rates      Hull:Ch4  
(Sep 28)

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Week 7      Interest rate futures      Hull:Ch6  
(Oct 5)

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Week 8  
(Oct 12)      Swaps      Hull Ch7

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Week 9  
(Oct 19)      Swaps      Hull Ch7  
A 2-page group paper reviewing your strategy      StockTrack  
(Oct 23)

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*Review (Oct 26) & Exam #2 (Oct 28)*

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Week 11  
(Nov 2)      Value at risk and expected shortfall      Hull Ch20

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Week 12      Credit derivatives      Hull CH 23  
(Nov 9)      Trading End (Nov 13)      StockTrack

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Week 13      Weather, energy, and insurance derivatives      Hull Ch 24  
(Nov 18)      Short Paper Due (Nov 22)      StockTrack

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Week 14      Students' Presentation via Zoom      StockTrack  
(Nov 30)

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*Final Exam Dec 9 – On-line*

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**REGULAR QUIZZES**

To ease the digestion of heavy load of materials at one time in examination I may give homework assignments at frequent and regular intervals but will **not** collect any assignments. Instead I will produce quizzes questions (including pop-up quizzes) on the basis of homework assignments. The quizzes will be designed to encourage the student to keep up with the material on an on-going basis and to motivate good class attendance. If a student is absent, no second chance will be given unless the absence is anticipated and the instructor is

notified in advance, or if there is a reasonable excuse for the absence under the university rules. You are allowed to drop the lowest score in the quizzes.

### **THREE MAJOR EXAMINATIONS**

The format will be combination of multiple choices, short essays, and quantitative problems. The examinations will cover all material covered in readings, assignments, class discussions. You are required to bring a Scantron (Form # 882-E) and a #2 pencil to each exam for multiple choice section of the exam. The final exam will be administered in on-line format with ProctorU while two mid-term exams are in class. Ordinarily I do not curve exam scores. Instead, as a way of boosting class grade, I may put extra questions for bonus points to exams if I feel necessary.

### **StockTrack Simulation Game**

We will use StockTrak as a means of gaining practical experience in risk management issues faced by Oil & Gas related companies. StockTrak is a core component of the class. Using StockTrak, which is a global portfolio simulation tool that works like any other stock brokerage platform, you are required to form portfolios using Oil & Gas related securities. On top of the grade you earn from the simulation, 150 points, your activities for Stock Trak can also be used as part of class participation for the course.

Your account will be provided with \$1,000,000 of hypothetical investment funds. These funds are to be invested only in the Oil & Gas related securities, including stock/bonds for Oil & Gas firms. Specific details about StockTrak project will be shared in the second week of the semester. Specific details about StockTrak will be announced in the second week of the semester.

### **SHORT PAPERS -- StockTrack**

A short-paper will be assigned with the intent being to expand and enhance your understanding of risk management in energy industry. The paper should explain the strategic underpinnings of your risk-management portfolio. Your paper should explain how and why you are investing as you are and what action you take to manage the risk involved in the investment.

This short-paper assignment is an individual project. The expected length of the text part of the paper is approximately 1,000 words (roughly four pages, double spaced) and no longer than five pages. Figures, graphs and charts do not count toward the required pages. Your paper must have at least ten outside references from journals, books and periodicals in the library and other Internet sources if you wish. For style of your paper, please look at journals in the library (the Journal of Finance) to see the appropriate way to reference articles. However, you may use any other style (i.e., MLA style) you are familiar with, so long as you are consistent in its use. Specific details about short paper will be announced in class.

### **PRESENTATION -- StockTrack**

You will be required to make a short presentation on your StockTrack portfolio. Grading of presentations will be based on three considerations: the quality of discussion and defense of your StockTrak portfolio (including strategy and rationale of your fund); ability to identify and communicate the relevant risk management issues; and style and quality of the presentation. I expect that every student stay current with the materials presented and actively participate in discussing and questioning the presenting team. I also expect that all presented team members stay in class until the end of the last team's presentation. You will be penalized if you miss any of the presentation or leave the session earlier prior to the end of last team's presentation. A typical presentation will last about 20 minutes. The presentation has total points of 30.

### **MAKE-UP POLICY:**

Every student is required to take exams during the announced times. Exceptions are made only under very special circumstances (e.g., conflict with another class, serious illness) and with the instructor's prior

**permission.** A **job conflict or commuting inconvenience** is not a sufficient excuse for missing exams. Written evidence of special circumstances is expected. Furthermore, there will be **no makeup exams.**

**EVALUATION:**

The primary method of instruction in this course is lecture. Your class grade will be determined by a weighted average of three mid-term examinations, the final examination, and assignments. It is possible that a student who sustains “A” up to the third exam may end up with “B” or “C” in final letter grade after the final and the project graded. You **must** allocate extra study hours for the final to achieve the letter grade of your goal. I’ll not take any blame for downgraded letter grade if the poor performance is caused by the spoiled final and (or) quizzes.

Exam 1	100
Exam 2	100
Final	180

Quiz	90
StockTrack Simulation	150
StockTrack Presentation	30
StockTrack Short-Paper	50
<b>Total</b>	<b>700</b>

The approximate grading scale is:

A 90% or above
B 80% or above
C 70% or above
D 60% or above
F Below 60%

All grades beginning Spring 2007 must be a "C" or better for the University Lower Division Core, Business Field of Study, Upper Division Business Core, and Major Area. The only "D" allowed will be in General and Business Electives. Thus, if you are taking this class as your fulfillment of upper division core for degree in business, you should achieve a "C" or better grade.

### Writing Center

The UT Tyler Writing Center has locations in BUS 202. I encourage you to access the tutoring services offered by the UT Tyler Writing Center. The Writing Center also offers online consultations for students who live at a distance or who cannot visit during our operating hours. The tutors in the Center can help you brainstorm ideas, structure your essay, clarify your purpose, strengthen your support, and edit for clarity and correctness. But they will not proofread, edit, or write your paper for you. More information about the UT Tyler Writing Center hours can be found at the website:

[www.uttyler.edu/writingcenter](http://www.uttyler.edu/writingcenter)  
<https://owl.english.purdue.edu/owl>

### APPEAL

To appeal the grading of the exams make a photocopy of your answer and write out a brief explanation of why you believe that you deserved more points. **You should appeal no later than one week from the date you receive the exam result.** I will respond you within one week of appeal and save all grade appeals until the end of the semester. **I won't accept any late appeal for grade.**

### CLASSROOM CONDUCT

- **You must attend all regularly scheduled classes**, except for those occasions warranting an excused absence under the policy detailed in the catalogue.
- You should **arrive prepared for class and on time**, and remain in class until the class is **dismissed**. If you arrive late or need to leave early, please try not to disturb other students. You could be penalized significantly by chronically coming late or leaving early.

- You should **maintain an appropriate academic climate** by refraining from all actions which disrupt the learning environment (e.g., making noise, ostentatiously not paying attention, and leaving and reentering the classroom inappropriately).
- The use of cell phones or other communication devices is disruptive, and is therefore prohibited during class except for emergency use.
- Students are permitted to use their laptop computers during class for note-taking and other class-related work **only**. Computers will not be allowed during exams.
- Food and drink are not allowed in classrooms

#### **COLLEGE OF BUSINESS STATEMENT OF ETHICS:**

The ethical problems facing local, national and global business communities are an ever-increasing challenge. It is essential the College of Business and Technology help students prepare for lives of personal integrity, responsible citizenship, and public service. In order to accomplish these goals, both students and faculty of the College of Business and Technology at The University of Texas at Tyler will:

- Ensure honesty in all behavior, never cheating or knowingly giving false information.
- Create an atmosphere of mutual respect for all students and faculty regardless of race, creed, gender, age or religion.
- Develop an environment conducive to learning.
- Encourage and support student organizations and activities.
- Protect property and personal information from theft, damage and misuse.
- Conduct yourself in a professional manner both on and off campus.

#### **STUDENTS RIGHTS AND RESPONSIBILITIES**

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www2.uttyler.edu/wellness/rightsresponsibilities.php> .

#### **GRADE REPLACEMENT/FORGIVENESS AND CENSUS DATE POLICIES**

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions that students need to be aware of. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.



- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a “W” grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

### **STATE-MANDATED COURSE DROP POLICY**

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

### **DISABILITY SERVICES**

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychiatric disabilities. If you have a disability, including non-visible disabilities such as chronic diseases, learning disabilities, head injury, PTSD or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources office and schedule an interview with the Accessibility Case Manager/ADA Coordinator, Cynthia Lowery Staples. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to [cstaples@uttyler.edu](mailto:cstaples@uttyler.edu)

### **STUDENT ABSENCE DUE TO RELIGIOUS OBSERVANCE**

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

### **STUDENT ABSENCE FOR UNIVERSITY-SPONSORED EVENTS AND ACTIVITIES**

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

### **SOCIAL SECURITY AND FERPA STATEMENT:**

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

### **EMERGENCY EXITS AND EVACUATION:**

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services

### **CAMPUS CARRY STATEMENT**

In accordance with Texas legislation SB 11, which goes into effect on August 1, 2016, we respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.

### **UT TYLER A TOBACCO-FREE UNIVERSITY:**

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit [www.uttyler.edu/tobacco-free](http://www.uttyler.edu/tobacco-free).

#### **State-Mandated Course Drop Policy**

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

#### **Student Accessibility and Resources**

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychiatric disabilities. If you have a disability, including non-visible disabilities such as chronic diseases, learning disabilities, head injury, PTSD or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the [Student Accessibility and Resources](#) (SAR) office and schedule an interview with the Accessibility Case Manager/ADA Coordinator, Cynthia Lowery Staples. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an [email to cstaples@uttyler.edu](mailto:cstaples@uttyler.edu)

#### **Student Absence due to Religious Observance**

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

#### **Student Absence for University-Sponsored Events and Activities**

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

#### **Social Security and FERPA Statement**

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

### **Emergency Exits and Evacuation**

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not reenter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

### **Student Standards of Academic Conduct**

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;

- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
  - substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
  - paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
  - falsifying research data, laboratory reports, and/or other academic work offered for credit;
  - taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
  - misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.
- ii. "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.
- iii. "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.
- iv. All written work that is submitted will be subject to review by SafeAssign™, available on Canvas.

#### **UT Tyler Resources for Students**

- [UT Tyler Writing Center](mailto:writingcenter@uttyler.edu) (903.565.5995), [writingcenter@uttyler.edu](mailto:writingcenter@uttyler.edu)
- [UT Tyler Tutoring Center](mailto:tutoring@uttyler.edu) (903.565.5964), [tutoring@uttyler.edu](mailto:tutoring@uttyler.edu)
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- [UT Tyler Counseling Center](tel:903.566.7254) (903.566.7254)