MEMORANDUM FOR STUDENTS ENROLLED IN

CHEN 3320 Mass transfer – Section 01

Lecture times: MWF 10:10 am -11:05 am, RBN 2007

Instructor: Shuhao Liu

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Office hours: MW 1:30 – 3:00 pm

Welcome to CHEN 3320 – Mass Transfer. This course will introduce the basics of mass transfer processes, which are essential tools for the separation of components in mixtures for chemical processes. Mass transport by diffusion and convection will be covered, including their combination that results in a mass transfer coefficient. These concepts will be applied to the analysis of essential components of chemical processes, such as evaporators, cooling towers, flow through porous media, leaching, and extraction.

Mode of delivery: This is a face-to-face course.

Course Objectives:

1. Discuss the concepts of Molecular diffusion, diffusivity, and mass fluxes
2. Apply Fick's law and material balances for the analysis of mass transfer processes
3. Use the differential species balance to solve steady and transient problems
4. Discuss the concept of convective mass transfer and mass transfer boundary layer
5. Apply literature correlations to estimate mass transfer coefficients
6. Analyze mass transfer between phases

These course objectives will be used to evaluate the student learning outcome (SO4, SO5, and SO6) for ABET:

SO4 - an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

SO5 - an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

SO6 - an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

Recording of Class Sessions

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

The course has three prerequisites which must be completed with a minimum grade of "C" prior to taking this course:

- CHEN 2320 (Chemical Engineering Mechanics)
- MATH 3305 (Differential Equations)
- CHEN 3302 (Chemical Engineering Thermodynamics II)

1. Q&A

Our goal is to be commonly available to you for assistance, so you are encouraged and expected to seek **additional instruction (AI)**. Take advantage of AI, it's FREE and really will help! There are several ways you can seek AI:

- ✓ You are welcome to stop by the instructor's office at any time. However, for your own satisfaction, you can ensure the instructor is available at the office by using the following options:
  - o Come to Office hours (#). This is the time the instructor has set aside to answer your questions;
  - o E-mail instructor to set up a mutually agreeable time to meet with the instructor,
- ✓ E-mail your questions to the instructor.

2. Class Room Procedures:

a. Bring study notes, **textbooks**, note-taking material, and calculator to every class. You may not borrow or exchange calculators during graded events. If your calculator fails during a graded exercise, I am not responsible to furnish a substitute. Class preparation is your individual responsibility.

b. Textbook:

- o Required:

Welty, J.R.; Rorrer, G.; Foster, D.G.; "Fundamentals of Momentum, Heat, and Mass Transfer", John Wiley & Sons, New York, 2014, 6th Edition (WRF).

Reference textbook:

"Transport Processes and Separation Process Principles", 4th ed., Geankoplis, Prentice Hall, 2003. (G)

"Separation Process Principles with Using Process Simulators in Chemical Engineering", 4th ed, J. D. Seader, 2015.

"McCabe, Smith, and Harriott: "Unit Operations of Chemical Engineering", 7th edition. McGraw-Hill Inc. (2005) (MS)

"Transport Phenomena", 2nd ed, Bird

c. Recitations:

Each lecture will contain at least one recitation session. These will be the students' opportunity to practice problem-solving skills by applying the concepts learned in lectures. These skills will be needed for solving homework, quizzes and exam problems. Please bring your textbook for the recitation sessions.

3. Evaluations:

a. *ACADEMIC DISHONESTY:* Representation of other's work as your own will not be tolerated. Cheating on examinations, quizzes, and homework and the false representation of work will be interpreted as academic dishonesty. Academic dishonesty will be subject to disciplinary action as outlined by the UT Tyler Student Guide on Conduct and Discipline.

b. *Homeworks:* A set of homework problems will be assigned approximately every two weeks. All homework is mandatory and becomes part of your grade. As an engineer, your goal is to make a clear, logical, and professional presentation of your work, which is both accurate and correct. As such, both the presentation and the accuracy of your work are important, and both will be graded. It is critical that you show all of your work and leave "footprints" so that it can be easily followed. No guesswork should be required to see what you did. For each homework problem, the corresponding topic and numerical answers will be provided. You are encouraged to work in groups, but the work that you turn in should be your own. **Homeworks are *due* at the 5 pm of the assigned date, and they must be submitted online via Canvas.**

c. *Open-ended project (**presentation and peer-evaluation needed**):* One group open-ended project will be assigned for the semester as a teamwork (3~4 people per group). The instructor will assign groups in the first two weeks, and the groups will need to submit the topic for the project at the end of Week 6 for approval from the instructor (**One page 200 words summary needed to be submitted for approval, you can send the draft anytime for instructor to review before the deadline of the submission)**. Open-Ended projects are characterized for not having a unique, single answer/solution. Instead, they are creative exercises in which you are encouraged to apply the concepts learned in the course and search your own resources. They must be informative and then may be qualitative or quantitative. In either case, make sure your **presentation** are clear and detailed because you will be evaluated by the approach and thought process you use in these exercises. A key aspect of this project is recognizing and addressing ethical and professional responsibilities within engineering contexts. You are expected to make informed decisions that thoughtfully consider the broader implications of your engineering solutions, including their global, economic, environmental, and societal impacts. The slide needed to be **submitted.**

For this project, each group will explore one or two research topics or regions related to transport phenomena, with a specific focus on mass transfer. The goal is to analyze, understand, and communicate the relevance and advancements of your chosen topic while considering its broader implications in global, economic, environmental, and societal contexts.

1) Introduction: Clearly explain the reasons behind your topic selection.
    1. Provide background information to demonstrate your understanding of the subject matter.
    2. Highlight the significance of the topic by discussing its **global, economic, environmental, and societal impacts**. This section should help establish the relevance of your research topic within the larger context of engineering solutions.
2) Analysis of Recent Technology or Techniques:
    1. Identify recent technological advancements or techniques related to your chosen topic.
    2. Focus on at least **one specific research or case study** for detailed discussion:
    3. Explain the fundamental principles behind the technology or technique.
    4. Compare it to traditional or outdated methods, emphasizing how it has improved performance, efficiency, or applicability.
    5. Discuss any ethical/professional responsibilities associated with the development or application of this technology.
3) Future Outlook:
    1. Provide insights into the **future expectations** for the technology or techniques in your topic.
    2. Suggest potential areas for improvement or innovation based on your research findings.

3. Reflect on the broader impacts of these advancements on global, societal, economic, and environmental contexts

The tentative grading for the open-ended project will be given combining if including required information (50%) with the rubric (50%) (**The final rubric will be updated in the Canvas, please see the updated Rubric in canvas, here is just for your reference**):

Rubric Outcome 4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts					
Performance Indicators	**1 Unsatisfactory**	**2 Below Satisfactory**	**3 Satisfactory**	**4 Commendable**	**5 Superior**
Recognizing Unethical Situations	Students are unable to recognize elementary ethical dilemmas.	Students can recognize basic ethical issues; however, they fail to grasp all of the relevant aspects of the scenario at hand.	Student can recognize basic and obvious ethical issues and grasp (incompletely) the complexities or interrelationships among the issues	Students show a proficient grasp of the ethical points of a given scenario, and they can accurately evaluate the tradeoffs between direct stakeholders.	Students demonstrate a complete grasp of the ethical points of a given scenario. There is a proper understanding of all the relevant trade-offs between direct and indirect stakeholders.
Action Choices	Students are unable to articulate a rational approach to dealing with an ethical dilemma. Their justifications involve erroneous assumptions, fallacious argumentation, or factual errors.	Students can present a valid rationale for choosing among alternative actions; however, there are some clear errors regarding the perceived consequences of their actions.	Student can apply ethical perspectives/concepts to an ethical question, independently and the application is mostly accurate	Students present a well-reasoned rationale for their chosen alternatives; and, they can defend their choices in a logical manner. Some of their reasoning, however, may be less than persuasive.	Students demonstrate precise judgment in selecting among the alternative courses of action in ethically complex situations. They are able to defend their actions with persuasive reasoning.
Consideration of the Impact	Student does not consider the impact of engineering solutions in global, economic, environmental, and/or societal contexts.	Student took little consideration of the impact of engineering solutions in global, economic, environmental, and/or societal contexts.	Student took some consideration of the impact of engineering solutions in global, economic, environmental, and/or societal contexts.	Student took into consideration with minor error the impact of engineering solutions in global, economic, environmental, and/or societal contexts.	Student took into consideration the impact of engineering solutions in global, economic, environmental, and/or societal contexts

For the teamwork and peer-evaluation will also needed for this open-ended project. Rubric will be used for it (**The final rubric will be updated in the Canvas, please see the updated Rubric in canvas, here is just for your reference**):.

Rubric Outcome 5: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives					
Performance Indicators	**1 Unsatisfactory**	**2 Below Satisfactory**	**3 Satisfactory**	**4 Commendable**	**5 Superior**
Create a collaborative and inclusive environment	Does not communicate or share knowledge, argues without resolution	Communicates poorly. Rarely demonstrate respect and positive attitude, and willingness to help	Communicates with the team. Most of the time, demonstrate respect and positive attitude, and willingness to help	Communicates clearly. Demonstrate respect and positive attitude, and willingness to help	Communicates highly effectively and share knowledge. Always demonstrate respect and positive attitude, and willingness to help
Leadership	Always relies on others to do the work	Rarely does the assigned work - often needs others to ensure completion	Does the assigned work, provides little support and vision, and works well with others	Supports other member, helps with vision and collaborative goals	Pick up other team member's work, provide vision, setting collaborative goals and consensus builder
Peer evaluations	Poor evaluations	Below satisfactory evaluations	Good evaluations	Commendable evaluations	Excellent evaluations
Accomplish and meet objectives	Irresponsible, uncooperative, always relies on others to complete objectives	Little responsibility, insufficient contribution, often needs reminded, overly relies on others	Responsible, cooperative, few times needs reminders, works toward group goals	Very responsible, cooperative, rarely needs reminded, self-motivated, works toward group goals	Highly responsible, takes initiative, exhibits leadership, coordinates efforts, encourages others

d. *Open-ended experimental design* ***(experimental report, appropriate image/video record, and peer evaluation needed)*** *(For SO5/6 assessment):* One group open-ended *experimental design* will be assigned for the semester as teamwork (3~4 people per group). The instructor will assign groups in the first two weeks, and the groups will need to submit the topic for the planned experiment at the end of Week 8 for approval from the instructor (**One page 200 words summary needed to be submitted for approval, you can send the draft anytime for instructor to review before the deadline of submission)**. Open-ended *experimental design* are characterized by not having a unique, single answer/solution. Instead, they are creative exercises in which you are encouraged to apply the concepts learned in the course and search your resources. They must be informative and **then may be quantitative**.

A key requirement of this project is the development and execution of an appropriate experimental procedure. Your experiment must include the following:

i. Selection and justification of measurement equipment and techniques.
ii. Conducting the experiment systematically to ensure reproducibility and accuracy.
iii. Detailed data analysis using appropriate tools and methods to identify trends and relationships.
iv. Interpret the results to draw meaningful conclusions, applying engineering judgment.

Your presentation and report must be clear, detailed, and well-structured. You will be evaluated on your approach, the execution of the experiment, the analysis and interpretation of the data, and your ability to use engineering principles to draw conclusions.

To be fully graded the following submissions are needed:

1. Appropriate image/video or other visual information needed for your experiments, you teamwork.
2. Peer evaluation according to the Rubric Outcome 5 in the above section
3. A detailed lab report follow the below details:
    a. Cover page, including title, names of group members, and the date.
    b. Introduction. This section should explain the reasons for doing the work, give some background and your knowledge of the project, and clearly state the key goals and objectives of the assignment.
    c. Objectives
    d. Experimental Procedures. Outline in detail both the experimental work performed and any special data-processing techniques or fundamental concepts for calculation employed.
    e. Results. Results should be presented in tables and/or graphs, as appropriate. A brief description on your presentation of results should be included. Each table and graph presented here should be clearly explained in the text, in such a way that the reader should be able to understanding their meaning and how they were constructed.
    f. Discussion of results. The discussion should give a critical appraisal of what you have discovered. Also include comments on the major sources of error and any suggestions for improvements
    g. Conclusions and Recommendations. A conclusion summarizes to the reader what was accomplished and the findings of the project. This should include recommendations for future trials.
    h. References. These should include all pertinent information, for example: Perry, R.H., and Chilton, C.H., eds., Chemical Engineers' Handbook, 6th. ed., McGraw-Hill, New York (1984).
    i. Acknowledgement. This should include the resources or assistance received from others during the whole project. **Also contribution to other team members needed to be stated in this section.**

The rubric will be applied to the report grading (The final rubric will be updated in the Canvas, please see the updated Rubric in canvas, here is just for your reference):

Rubric Outcome 6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions					
Performance Indicators	**1 Unsatisfactory**	**2 Below Satisfactory**	**3 Satisfactory**	**4 Commendable**	**5 Superior**
Equipment selection and Procedure	No apparent understanding of the selection and use of the measurement equipment and procedures	Some understanding of the selection and use of the measurement equipment and procedures but not sufficient to conduct the experiment	Adequate understanding of the selection and use of the measurement equipment and procedures but some errors when conducting the experiment	Good understanding of the selection and use of the measurement equipment and procedures but minor errors when conducting the experiment	Complete understanding of the selection and use of the measurement equipment and procedures resulting in correct and usable results
Conduct Experiment	Cannot conduct a meaningful experiment	Conducts an experiment, but it has serious errors or is missing major components or is inappropriately constructed	Conducts an experiment that is mostly correct but some details are missing or inappropriately included	Conducts an experiment that is basically correct and reasonably complete, but some minor details are missing or inappropriately included	Experiment was correctly conducted and shows a good understanding of the engineering problem
Analyze data	Analysis not attempted or shows no understanding of necessary operations and/or analysis tools	Shows some understanding of necessary operations and/or analysis tools but makes significant omissions or errors	Shows adequate understanding of necessary operations and/or analysis tools and is correct except for some computational errors	Shows understanding of necessary operations and/or analysis tools and is correct except for minor computational errors	Understands the necessary operations and/or analysis tools and executes and documents all computations correctly
Interpret data	Shows no understanding of the relevance of the results	Misses major points of significance of the results	Shows adequate understanding of some major points of the results	Shows some understanding of most major points of the results	Shows understanding of all major points of the results

e. Late Submissions. It is a basic principle of professionalism that "Professionals are not Late." A "COORDINATED LATE" submission occurs when you will miss the due date for a graded assignment and you contact me in advance. Notification immediately before the submission will not suffice. Point cuts up to the amounts below may be assessed for a "COORDINATED LATE" submission:

1. 0-24 hours late — a deduction of 25% of the earned grade
2. 24-48 hours late — a deduction of 50% of the earned grade
3. More than 48 hours late — No credit.

Obviously, there are circumstances that will occur and make a timely submission impossible and I will work with you when and if they occur.

f. *Quizzes:* Quizzes will be administered throughout the semester with prior notice. <u>They will take place at the beginning of a new topic. The quizzes will only cover concepts or questions of examples/homework (value may be modified) from previously covered topics.</u>

g. Mid-Term Exams and Final Exam: **<u>There will be two Midterm Exam and one Final exam processed in classroom</u>**. The Midterm will be fifty-five minutes long, and the Final will be one hour long. The dates for Exams are included in the course schedule. Official reasons for missing an exam are outlined in the "Student Handbook". You are required to take a make-up Exam, regardless of your reason for missing the scheduled Exam. Report any conflict to me as soon as possible before the Exam. You can use a **TI-30 calculator** (or FE equivalent)**. *A single side of a note sheet by handwriting or printing could be allowed in the exams with a size smaller or equal to the letter size.*** *A take-home part may be applied to the exam with no more than 30% of the exam's grade.*

h. The HW, quiz and exams will be graded based on the rubric (**The final rubric will be updated in the Canvas, please see the updated Rubric in canvas, here is just for your reference)**:

Rubric Outcome 1: an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics					
Performance Indicators	**1 Unsatisfactory**	**2 Below Satisfactory**	**3 Satisfactory**	**4 Commendable**	**5 Superior**
Identify Problem	Shows no understanding in identifying the problem	Shows little understanding in identifying the problem	Shows adequate understanding of the major facets of the problem	Shows understanding of most facets of the problem	Shows understanding of most or all facets of the engineering problem
Formulate Problem	Cannot create a mathematical model to solve the engineering problem	Creates a mathematical model, but it has serious errors or is missing major components or is inappropriately constructed	Mathematical model is mostly correct, but some details are missing or inappropriately included	Mathematical model is basically correct and reasonably complete, but some minor details are missing or inappropriately included	Mathematical model was correctly created and shows a complete understanding of the engineering problem
Solve Problem	No apparent sequence to solving the problem or significant steps missing	Several steps in the solution technique are present but it is incomplete, or the order is incorrect	Some solution steps are present, and the solution sequence is almost correct with some errors	Most solution steps are present, and the solution sequence is generally correct with minor errors	All solution steps are present, and the solution sequence is readily apparent and correct
Complexity - involving many components parts or subproblems	No complex solution attempted or shows no understanding of necessary components parts or subproblems	Shows little understanding of complex solution, misses major points and makes significant errors – some components, parts or sub-problems	Shows adequate Shows adequate understanding of complex problem and is correct except for some errors all major components parts or subproblems	Shows understanding of Shows understanding of complex problem and is correct except for small errors all major components parts or subproblems	Shows understanding of complex problem Creates a complex solution – all major components parts or subproblems

4. Grading:

a. Grades will be based entirely on the student's demonstrated ability to develop detailed, neat, organized, and correct solutions to the problems presented. Correct answers accompanied by incorrect, incomplete, or untidy solutions may receive no credit. Incorrect answers with clear step, partial correct explanation, steps and solutions will be considered for partial credit. Answer is important, but how to get the correct answer is also significant.

b. The presentation of open ended reports are group work and each member must present partial of it.

c. The report of Open-ended experimental design are required to include the contribution of each member

d. The course points will be assigned as shown below:

Course Points	
Open-end project (Presentation + Slide)	(9%)
Homework	(25%)
Quizzes	(15%)
Mid-term	(28%)
Final exam	(14%)
Open-end experimental design (report + visual)	(9%)
	Total 100 (100%)

Grade Scale based on points	
A	88~100
B	73~87
C	60~72
F	<60

5. Collection of Student Work:

Throughout the semester I will collect student work (best, average, and worst) for the ABET course and outcomes notebooks. This will require me to make a copy of your work, keep your original and return a copy of the graded work to you. I will not draw attention as to what level of work you accomplished.

6. Use of Generative AI in This Course

Generative AI tools (such as ChatGPT or Copilot) are permitted only for specific assignments or situations, and appropriate acknowledgment is required. This course includes open-ended assignments where the use of generative artificial intelligence (AI) tools is permitted. When AI use is allowed, it will be clearly stated in the assignment directions, and all uses of generative AI must be properly acknowledged and cited.

Copying and pasting from AI-generated content or using AI to generate entire reports, presentations, or slides is strictly prohibited. Generative AI tools are to be used only as a supplementary resource to help you quickly understand new concepts that may be involved in your open-ended topics. It is important to cross-check AI-generated information with other reliable sources, as AI can sometimes produce incorrect or misleading information.

In all other cases, including homework, quizzes, and exams, the use of generative AI is not allowed at any stage of the assignment.

7. Assigned readings:

The class schedule will include assigned reading for every lecture. Students who read the corresponding sections of the book *before each class* will certainly make the most of the lectures, so this is highly recommended. In addition, the instructor will periodically post the lecture notes on the course website. Doing the assigned reading prior to class will help you to understand the material presented during the instruction and will fill in gaps for things we do not cover (***I will not cover everything***). It will also make you more familiar with terms and concepts to be covered.

8. **UT Tyler Honor Code** - Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

9. **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://www.uttyler.edu/wellness/rightsresponsibilities.php.

10. **Campus Carry** - 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.

11. **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.

12. **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 of which students need to be aware. 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

13. **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.

14. **Disability/Accessibility Services** - In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit https://hood.accessiblelearning.com/UTTyler and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at http://www.uttyler.edu/disabilityservices, the SAR office located in the University Center, # 3150 or call 903.566.7079.

15. **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.

16. **Student Absence for University-Sponsored Events and Activities** - Revised 05/19 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.

17. **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.

18. **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.

19. **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 instructors 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 plagiarism software.

20. UT Tyler Resources for Students

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), 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 (903.566.7254)

Schedule:

	week		Date	Material	Reading	Evaluation due (5:00 pm)
Jan	1	M	13	Syllabus		
Jan	1	W	15	Fundamental of mass transfer	Chpt 24	
Jan	1	F	17			
Jan	2	M	20	Martin Luther King, Jr. Holiday		
Jan	2	W	22			
Jan	2	F	24			Group assignment
Jan	3	M	27	Differential Equations in Mass Transfer	Chpt 25	
Jan	3	W	29			
Jan	3	F	31			
Feb	4	M	3			
Feb	4	W	5			
Feb	4	F	7			
Feb	5	M	10	Steady State molecular diffusion	Chpt 26	
Feb	5	W	12			
Feb	5	F	14			
Feb	6	M	17			
Feb	6	W	19			
Feb	6	F	21	Mid-term 1		Topic of project design
Feb	7	M	24	Unsteady State molecular diffusion	Chpt 27	
Feb	7	W	26			
Feb	7	F	28			
Mar	8	M	3			
Mar	8	W	5			
Mar	8	F	7			Topic of Experimental design
Mar	9	M	10	Convective mass transfer	Chpt 28	
Mar	9	W	12			
Mar	9	F	14			
Mar	10	M	17	Spring break		
Mar	10	W	19	Spring break		
Mar	10	F	21	Spring break		
Mar	11	M	24	Convective mass transfer between phase	Chpt 29	
Mar	11	W	26			
Mar	11	F	28			
Mar	12	M	31	Mid-term 2		
April	12	W	2			

April	12	F	4			
April	13	M	7			
April	13	W	9	Convective mass transfer correlation	Chpt 30	
April	13	F	11			
April	14	M	14			
April	14	W	16			
April	14	F	18	Open-ended project presentation		Open-ended project
April	15	M	21	Mass transfer equipment	Chpt 31	Open-ended experimental design
April	15	W	23			
April	15	F	25	No classes, office hour for final		

Tentative Dates for Assessments and Deliverables: There will always be more than one week to complete homework after it is assigned. Assignments due for the week will be announced in canvas, please make sure to check canvas for announcements regularly.

Open-end project presentation and experimental report due dates will not be changed.

Mid-term: tentative date may changed based on progress

Final Exam: TBA University Schedule

Note: This is a tentative syllabus. As the instructor, I reserve the right to modify this syllabus as needed throughout the semester.

The Rubric attached to each task is for tentative use, I reserve the right to modify those rubric when uploading the assignment