Separation and Mass Transfer Operations Laboratory

ECH4404L Section 7297 / 1991
Class Periods: M/W, Periods 2-5, 8:30am-12:35pm
Location: CHE100/200/300, NRF Teaching Labs
Academic Term: Fall 2024

Instructor:
Name: LiLu Tian Funkenbusch, Ph.D. *You may call me Prof./Dr. Funkenbusch, or LiLu. Remember that calling instructors by their first names must encompass the same level of professionalism and respect as using titles. Please do not call me Miss/Ms./Mrs.
Email: lilu.funkenbusch@ufl.edu ***Do not use Canvas messages***
Office Hours: *Virtual* F 8-12pm (link here) or by appointment (email).

Lab Assistants: Please see the Canvas front page for Lab Assistant information. Note that lab assistants are not expected to answer emails related to course material. All questions should be directed to LiLu.
Course Description: Laboratory work in unit operations involving separation and mass transfer; 2 credit hours.
Course Pre-Requisites / Co-Requisites: ECH 4403 (Separation and Mass Transfer Operations), ECH 4424L (Fluid and Energy Transfer Operations Laboratory), ECH 4714L (Chemical Process Safety)
Materials and Supply Fees: Lab Fee: $270.34

Course Objectives

1. Reinforce classroom theory by the collection and use of data in practical experiments with all their inherent problems and limitations.
2. Gain proficiency in writing technical reports.
3. Gain experience working in teams.
4. Create a sense of professional responsibility for the quality and integrity of engineering work.
5. Learn safe working procedures.
6. Learn equipment, instrumentation, and procedures not covered in lectures.

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Low
3. An ability to communicate effectively with a range of audiences	High
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	High
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	Medium
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	High
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	High

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software: none
Recommended Materials

- Geankoplis, C. J., Transport Processes and Unit Operations [On reserve, Science Library].
- Incropera, F. P. and D. P. DeWitt, Fundamentals of Heat and Mass Transfer [On reserve, Science Library]
- McCabe, W. L., J. C. Smith, and P. Harriet, Unit Operations of Chemical Engineering [On reserve, Science Library]
- Perry, R. H., D. W. Green, and J. O. Maloney, Perry's Chemical Engineers' Handbook [E-book available through UF Library website]

Required Computer: Please adhere to the UF student computing requirement (https://news.it.ufl.edu/education/student-computing-requirements-for-uf/). It is highly recommended that you have a PC computer, not a Mac.

Course Schedule

Week	Date	Monday	Wednesday
1	26AUG/28AUG	Orientation Meeting, HF Safety Training, Lab Tours, Syllabus Quiz, Teams Formed	
2	02SEP/04SEP	Labor Day	Module 1A
3	09SEP/11SEP	Module 1A	Module 1B
4	16SEP/18SEP	Module 1B	Module 2A
5	23SEP/25SEP	Module 2A	Module 2B
6	30SEP/02OCT	Module 2B	Module 3A
7	07OCT/09OCT	Module 3A	Module 3B
8	14OCT/16OCT	Module 3B	Module 4A
9	21OCT/23OCT	Module 4A	Module 4B
10	28OCT/30OCT	Module 4B	Module 5A
11	04NOV/06NOV	Module 5A	Module 5B
12	11NOV/13NOV	Veterans' Day	Module 6A
13	18NOV/20NOV	Module 5B	Module 6B
14	25NOV/27NOV	Thanksgiving Break	
15	02DEC/04DEC	Module 6	Make-Up Labs
16	09DEC/11DEC	Reading Period / Finals	

*Note that this schedule is subject to change due to weather events and other unforeseen circumstances. Notifications of changes will be sent via Canvas announcements.

Attendance Policy, Class Expectations, and Make-Up Policy

- **Students are required to attend all lab sessions.**
  - Excused absences must be consistent with policies (see below) and require documentation.
  - **You must inform me by 10am on the day of the absence**. Failure to do so will result in the absence remaining unexcused.
  - The earlier you tell me, the easier it will be for me to excuse the absence and to figure out make-up sessions.
- Unexcused absences and tardiness will result in a grade reduction.
  - One unexcused absence will result in a 10% total grade reduction.
  - Two unexcused absences will result in failure of the course.
  - More than two instances of tardiness will result in 5% total grade reduction per instance.
- Both unexcused and excused absences require a make-up session.
  - This can be done either by joining another group on a different day (i.e. showing up on Thursday if you're a Wednesday student) or scheduling a make-up lab with other students who missed the same experiment during the last week of the semester.
  - This is so that every student can perform every experiment and **will not remove any grade penalties associated with the absence**.

While this may seem strict, please remember that there are only 12 lab sessions (not including the first day). Missing one or two days means that you miss a large percentage of the course content. Being late or absent also hurts your teammates, who will have to do extra work during lab and spend more time filling you in later.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies:
https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Evaluation of Grades

Assignment	Worth
Module (x6)	150 pts each
Participation^	100 pts
Total	1000 pts

"Main Lab" Experiments	Worth
Pre-Lab	25 pts
Experimental Design	25 pts
First Memo	50 pts
Second Memo	50 pts

SM	Worth
Pre-Lab A/B	25 pts each
Post-Lab A/B	50 pts each

^Participation grade is based on peer evaluations and lab assistant/instructor assessments. Peer evaluations can impact on your grade. Patterns of non-participation and low marks from your teammates can result in grade penalties, up to and including failure of the course.

Safety

Students are expected to follow safe operating procedures of equipment as well as proper handling of hazardous materials. Students are required to attend a safety training at the start of the semester. **Failure to follow safe operating procedures will result in a grade reduction.** Examples of violations are listed below (not exhaustive):

Safety violation	Penalty
Leaving the lab without shutting down an experimental system	Failing grade
Pulling the safety shower without a valid reason	Letter grade reduction
Not wearing PPE required by an experiment	Letter grade reduction
Not disposing of hazardous waste properly	Letter grade reduction
Bringing food or drink into the lab	Letter grade reduction

Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

***For safety reasons, you may not use recording devices in most lab spaces. Please ask the instructor for specifics.**

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or lab assistants in this class.

Cooperation Policy

- Students are expected to work in teams on their experiments and memos.
- Individual assignments, such as pre-labs and post-labs, should be completed by each student individually.

Plagiarism

Students are not permitted to represent as their own work any portion of the work of another person. Plagiarism includes (but is not limited to) submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student. All sources used in preparation of the reports should be cited, including the manuals provided on Canvas. Failure to do so is considered plagiarism. Note that self-plagiarism is also an issue and will be punished as if the student plagiarized someone else's work. You must cite any figures or information taken from other reports. This is the academic standard and is largely due to journal copyright issues when publishing papers.

Falsification of Information

Students are not permitted to use or report any invented or fabricated information or data. This includes both experimental results and theoretical calculations.

Sanctions for Violations of Honor Code

Since ethical behavior in science and engineering is equal in importance to specific knowledge, the instructor will assign a non-passing letter grade to students who violate academic honesty standards, regardless of the violator's grade performance in class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values, including the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information, and veteran status.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: https://registrar.ufl.edu/ferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: https://counseling.ufl.edu, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence
If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://elearning.ufl.edu/.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling; https://career.ufl.edu.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall*,* 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/;https://care.dso.ufl.edu.

On-Line Students Complaints*:* https://distance.ufl.edu/getting-help/; *https://distance.ufl.edu/state-authorization-status/#student-complaint*.