



## ChEE 301A Chemical Engineering Lab I; Fall 2018

Lecture: Gittings 201 • M 2:00-2:50 pm

Lab: Harshbarger 1 • Tu/W 2:00-4:50 pm

### Instructors, Office Hours, and Contact Information

**Instructor:** Dr. Adrianna Brush, [adriannabrush@email.arizona.edu](mailto:adriannabrush@email.arizona.edu), Harshbarger 134b

**Office Hours:** Monday 11am-12pm, Tuesday 10am-11am, and by appointment. I will also be either in lab with students or in my office during the lab times, however my priority will be assisting students with the lab.

**Laboratory Director:** Dr. Gregory Ogden, Harshbarger 105E, [gogden@email.arizona.edu](mailto:gogden@email.arizona.edu)

**Teaching assistants:**

Margarita Acedo (Heat Exchange Labs): [acedom@email.arizona.edu](mailto:acedom@email.arizona.edu)

Mengling Li (Aspen): [mengling@email.arizona.edu](mailto:mengling@email.arizona.edu)

### Topics

- 1) Heat Exchange Experiments – Two one-week labs: a glass and a metal heat exchanger. You will work in lab groups of 4 and submit a group lab report. We will be reviewing the concepts related to these labs during lecture.
- 2) Introduction to Aspen – You will be learning Aspen, software for unit op and process design. There will be online modules, and a final project that you do individually.
- 3) Quantifying Uncertainties in Experimental Measurements – We will be exploring concepts related to measuring and quantifying uncertainties and error in experiments and measurements.

### Grading

Heat Exchange Laboratory: 30% - Grade based on one lab report for both weeks of lab and associated assignments. Timely completion of D2L Safety Course is required. An electronic copy of the group report will be turned in to the appropriate assignment submission folder on D2L. A rough draft lab report will be due at 5:00 pm one week after the second lab. The final report will be due at 5:00pm the week after that. 10% will be deducted from the lab report grade if it is late. Note: Box submission will close at 11:59pm on the due date.

Aspen: 30% - Grade based on completion of chapter tasks and project report. An electronic copy of the individual report will be turned in to the appropriate assignment submission folder on D2L.

Statistical Analysis of Experimental Data: 30% - Grade based on in-class work, homework and a series of quizzes.

Central Facilities Plant Tour: 4% - Exposure to utility-scale applications of heat exchange

Participation: 6% - Portion of grade for being on time and actively participating in class and lab.

### Software

You can use the computers in room 10 of Harshbarger to access Aspen Plus. Aspen Plus is also

installed in the OSCR lab in ENGR 318. Alternatively, you can use the College's RemoteApp server, <http://app.engr.arizona.edu>, to access Aspen Plus from your personal computer. The instructions for accessing Aspen Plus are posted on the D2L site.

## Lab Protocols

Prior to the beginning of lab, review all documentation. Bring a printed copy of the lab instructions and data sheet for writing down data. You **MUST** wear long pants and closed toed shoes to lab. You **MUST** wear the provided safety glasses and hard hat (if needed) when completing laboratory experiments. If you are not wearing appropriate clothing and PPE to lab, you will **NOT** be able to participate in lab.

There is a General Laboratory Chemical Safety Training course that must be completed prior to performing the Heat Exchange Laboratory. This is accessed through D2L > Self Registration > Laboratory Chemical Safety. Complete prior to 9/10/18.

## Course Format and Teaching Methods

I will primarily use active learning strategies in this course. This is not a class where you only come each day, listen, watch, and take notes! The primary method you will use for learning new engineering concepts and methods will be by reading any provided materials before class, participating in class activities and discussions, and working through assignments and quizzes.

In class, I will spend very little time lecturing, and you will spend little time taking notes. In some senses, this class is more like an art studio in which you do art or an aerobics class or gym in which you exercise or lift weights. In the same way that you can't learn how to paint without painting or get in shape without exercising, you can't learn engineering problem solving without solving problems.

Developing your ability to effectively work in teams is an important aspect of this course, so you will regularly work in small groups in class, and you will complete a team report worth approximately one-third of your grade.

## Absence and Class Participation Policy

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures. We may have unannounced in-class assignments or quizzes for credit. Students who miss class due to illness or emergency are required to bring documentation from their health-care provider or other relevant, professional third parties. Failure to submit third-party documentation will result in unexcused absences.

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <https://deanofstudents.arizona.edu/absences>

If you miss class for any reason, check D2L to review the course announcements as well as the lecture slides and other materials from the class that you missed. Once lab teams are formed, it is also important to check in with your teammates if you ever miss a class.

## Course Communications

Online communication will occur using the Announcement feature of D2L and the official UA email system, when appropriate. Please always contact me using your university email address.

## Required Materials

Turning Technologies clickers (or ResponseWare) will be used in this course on a regular basis. Be sure to bring your clicker to each class. The clickers will be used to track attendance and participation. Please see the D2L Announcements for instruction on how to register your clicker. You will need access to a laptop for in-class working days (can be borrowed from the U of A library: <http://new.library.arizona.edu/tech/borrow/pc-laptop>)

## Submission of Work

All work for this course will be submitted or completed online via the University of Arizona's Desire 2 Learn (D2L) system. D2L is the only method by which assignments will be accepted. Your submissions will be checked with D2L's plagiarism tool. See the Code of Academic Integrity section for UA's plagiarism policy. You are responsible for keeping up to date on the requirements of the course. All schedules, documents, lecture slides, assignments, and other materials relating to the course will be maintained on the D2L website. Check D2L often for information related to assignments, including adjustments to due dates.

## Grading Scale and Policies

Letter grades on reports or assignments will not be determined; a final letter grade will be given at the end of the semester instead. This course will be graded on a straight scale as follows:

<u>Total Percentage of Points Earned</u>	<u>Grade</u>
90 – 100%	A
80 – 89.99%	B
70-79.99%	C
60-69.99%	D
< 60%	E

University policy regarding grades and grading systems is available at <http://catalog.arizona.edu/policy/grades-and-grading-system>

**Dispute of Grade Policy:** If you have questions how a problem was graded on your report, please write a note describing the issue, attach the note to your report, and give the report and note to me. Resubmissions must be done by the next class period after a report is returned, otherwise I will not regrade your report.

**Requests for incomplete (I) or withdrawal (W)** must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

## Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them

during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

### **Threatening Behavior Policy**

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

### **Accessibility and Accommodations**

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let Professor Muscat know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <http://drc.arizona.edu>.

If you have reasonable accommodations, please plan to meet with Professor Muscat by appointment or during office hours to discuss accommodations and how the course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

### **Code of Academic Integrity**

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at <http://new.library.arizona.edu/research/citing/plagiarism>.

*Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.*

### **UA Nondiscrimination and Anti-harassment Policy**

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

### **Additional Resources for Students**

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

Student Assistance and Advocacy information is available at <http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

### **Confidentiality of Student Records**

<http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy->

[act-1974-ferpa?topic=ferpa](https://www.ferpa.gov/act-1974-ferpa?topic=ferpa)

## **Subject to Change Statement**

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.