MECH/BIOE/CEVE 454/554 COMPUTATIONAL FLUID MECHANICS

Fall 2025

Instructor: Tayfun E. Tezduyar Class Hours: 9:25–10:40 TR MXF 251
tezduyar@rice.edu 236 MEB

Office hours: 10:40-11:30 TR or by email appointment

TA: Jenny Zhang <yz288@rice.edu>
Caesar Coss <crc15@rice.edu> (454 only)

TA hours: **Only for questions related to already-graded homework and tests.** To meet the TAs for that, 554 students should send email to <yz288@rice.edu>, and 454 students to <crc15@rice.edu>, with a copy to <yz288@rice.edu>.

Grading: 20% Homework
40% Test 1
40% Test 2

Tests: **Closed** books, notes, calculators, **smart phones**, tablets, laptop computers, all...

Homework: HW is due **at the beginning of class** on the date due. **Homework submitted after the instructor starts lecturing will be considered late.** Deductions for late homework: 0–2 hrs → –20% 2–4 hrs → –40% 4–6 hrs → –60% more than 6 hrs → no credit.

HW should be solely your work. **You cannot look at the solution from someone else.**

Not necessarily every HW problem will be graded.

Test and Homework Grading Objections: For each test or homework, the deadline for completing the grading-objection discussions with the TAs is the fourth 4:00 PM of the workdays following the email notifying the class that the test or homework has been graded.

Writing: In the HWs and tests, please write neatly and in a good order. Lack of good readability or good order will likely lead to loss of points.

Attendance: The grading system has no points for attendance. However…
1. It is unrealistic to expect success in this class by just reading the lecture notes and doing the HW, without coming to every lecture. **That is from past experience.**
2. Attendance will be recorded. The instructor cannot afford and will be unable to answer questions related to material covered in the lectures you decided to skip, except for medical reasons, personal or family emergencies, and job-hunting travel and appointments that cannot be scheduled to some other time.

Classroom conduct:
1. **Please be on time.** If late, please use the back door. That will be less distracting.
2. **Once the instructor starts lecturing, please avoid talking to your classmates until he stops lecturing**. If you have any questions or comments, please direct them to the instructor.

Required: Class notes: https://www.tafsm.org/MECH454/
You should keep these notes nearby while listening to the lectures for at least two reasons.
1. As the instructor explains the material in them, you can add your own notes to those pages.
2. The instructor will quite often refer to notes covered in earlier lectures.

Reference textbook: Y. Bazilevs, K. Takizawa and T.E. Tezduyar, *Computational Fluid–Structure Interaction*, Wiley, 2013, https://doi.org/10.1002/9781118483565

An album of computational flow analysis
T.E. Tezduyar and K. Takizawa, *Space–Time Computational Flow Analysis*, Springer, 2025, https://link.springer.com/book/10.1007/978-3-031-88727-7

		COURSE SCHEDULE				
SUN	MON	TUE	WED	THU	FRI	SAT
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
		CFM01		CFM02		
31-Aug	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep
		CFM03 (HWA A)		CFM04		
7-Sep	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep
		CFM05 (HWA D) (HWB A)		CFM06		
14-Sep	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep
		CFM07 (HWB D) (HW1 A)		CFM08		
21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep
		CFM09 (HW1 D)		CFM10 (HW2 A)		
28-Sep	29-Sep	30-Sep	1-Oct	2-Oct	3-Oct	4-Oct
		CFM11		CFM12		
5-Oct	6-Oct	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct
		CFM13 (HW2 D) (HW3 A)		CFM14		
12-Oct	13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct
		Midterm Recess		CFM15 (HW3 D)		
19-Oct	20-Oct	21-Oct	22-Oct	23-Oct	24-Oct	25-Oct
		Test 1		CFM16 (HW4 A)		
26-Oct	27-Oct	28-Oct	29-Oct	30-Oct	31-Oct	1-Nov
		CFM17		CFM18 (HW4 D)		
2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov
		CFM19 (HW5 A)		CFM20		
9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov
		CFM21 (HW5 D)		CFM22		
16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov
		CFM23		CFM24		
23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov
		No Class		Thanksgiving		
30-Nov	1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec
		No Class		Test 2		
		HWX A = HWX Assigned		HWX D = HWX Due		