



CMPE450 Capstone I

Dr. LaBerge (CMPE)



Administrative Stuff

- **Who's here – who should be here?**
 - **CMPE Seniors CMPE450 2 credits + CMPE451 2 credits**
- **Contact information (all on Blackboard)**
 - 1. E-mail: chuck.laberge@umbc.edu**
 - 2. Phone contacts**
 - Office: 410-455-5684**
 - Mobile: 410-241-8940 ← it's ok to use this!**
 - Home: 410-821-8934 ← it's ok to use this!**
 - 3. Office ITE358**
 - If I'm there, you're welcome (with certain limits)**
 - Modified open door policy (posted on Blackboard)**
 - I'm generally on campus Monday – Thursday, occasionally on Friday**

Dr. LaBerge's schedule, UMBC Fall 2014

Dr. Chuck LaBerge ITE325M (New!) Campus Phone: 410-455-5684 Mobile Phone 410-241-8940 e-mail chuck.laberge@umbc.edu
Fall 2017

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00					
8:30					
9:00	Office Hours	Prep/Grading No Appointments	Office Hours	Prep/Grading No Appointments	CMPE323-03 ENGR231
9:30					
10:00	CMPE450-01 ENGR231	Office Hours (might be late)	CMPE450-03 ENGR231	Office Hours (might be late)	CMPE459-02/-04 ENGR231
10:30		Office Hours	CMPE323-02 ENGR231	Office Hours	CMPE450-02/-04 (ENGR231)
11:00	ENES101-01 ENGR027				ENES101 (ENGR027)
11:30		Office Hours		Office Hours	
12:00	Lunch	Lunch	Lunch	Lunch	Lunch
12:30		Office Hours		Office Hours	
1:00	Office Hours	UMBC Camerata	Office Hours	UMBC Camerata	Call, text, or e-mail first I might be off campus especially later in the semester
1:30					
2:00		Office Hours		Office Hours	
2:30	CMPE323-01 ENGR231		CMPE323-01 ENGR231		For late Friday afternoon Appointments Call 410-455-5684 (UMBC) or 410-241-8940 (mobile) or e-mail chuck.laberge@umbc.edu
3:00					
3:30	Office Hours		Office Hours		
4:00	e-mail for appointment		e-mail for appointment		
4:30					
5:00					
5:30					
6:00					
6:30					
7:00					

Legend:

Usually On Campus
Usually Off Campus
Office Hours
Primary Course
Secondary Course
302/306 Lab

Office Hour Conventions

- 1) If I'm here, I'm generally available to help you out
- 2) If my door is **shut**, I'm busy, please come back later
- 3) If my door is **ajar**, please knock. I'll be with you shortly
- 4) If my door is **open**, come on in.

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Professional Practice

- This is really a professional practice course
- ...meaning that **I** have 30 weeks to get you ready for a (paid) position as a practicing engineer,
- ...and **you** have 30 weeks (actually only about 25 weeks) to get your projects designed, working and demonstrated
- ...and **we**, together, have some time to figure out if UMBC did a good job with your education.
- I run this as a experience in professional practice, meaning
 - **ON TIME** all the time
 - **EVERYTHING** counts
 - **OVERLOADING & MULTITASKING** are the norm
 - **NOT EVERYTHING MAKES SENSE**
 - **CHANGE** is constant

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CMPE450/451 Course outcomes

- 1. Working in teams, students will **design, document, integrate, test, and demonstrate** a working model of the project that was initiated during CMPE450.
- 2. Students will accumulate experience in **written, oral, and presentation-based** technical communications in an environment that approximates industry practice.
- 3. Students will demonstrate **awareness of contemporary ethical and professional issues** related to the engineering profession.
- 4. Students will **develop experience in skills that support the direct practice of engineering** in an industrial environment.
- 5. Students will be exposed to and given practice to develop the **key attributes of the entrepreneurial mindset in the categories of curiosity, connections and creating value.**

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Three major topics

- **Professional practice:** Skills you need for the practice of engineering within the workplace
- **Laboratory skills:** Skills you need for the actual activities of engineering within the workplace
- **Project experience:** The experience of creating and implementing a design from scratch.

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Grades, etc. See Syllabus for details

Fall 2017

Individual		46%
CATME Survey	1%	
ISR#1 (all or none)	1%	
ISR#2 (all or none)	1%	
ISR#3 (all or none)	1%	
Participation & Engagement	2%	
Attendance (0%/5%/10%)	10%	
Challenger Paper (7% draft, 3% final)	10%	
Individual Presentation Skills	10%	
Teamwork (2.5 ISR#1/3.5 ISR#2/4.0 ISR#3)	10%	
Team		54%
TSR 01 - 04	4%	
SRR (oral presentation rubric, team items)	10%	
PDR (oral presentation rubric, team items)	10%	
System Specification (3% draft, 7% final)	10%	
Project Plan (3% draft, 7% final)	10%	
Demonstration	10%	
		100%

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Weighted Team Based Grading

- The team-based element of your overall grade will be **weighted** by your teamwork score
- Example: Your team scored all 54 of the available team points,...
 - ...but, your weighted ISR scores from CATME were 0.8 out of 1.
 - Your individual team score is $0.8 \times 54 = 43.2$...
 - ...a drop of more than 10 points!! You already won't get an A.
- It's relatively easy to score very well on ISR CATME by being a good, contributing, productive team member
- So this is rarely (but not never) an issue. If you don't see your CATME scores within a week after the survey, remind me to release them!

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Staying Eligible for CMPE451

- CMPE450/451 is the only “whole year” course sequence in the curriculum.
- The prerequisites for CMPE 451 are
 - A “C” or better in CMPE 450
 - **A “C” or better in CMPE311 !!**
- ***Concentrate on this! You will not be permitted to move forward without these prerequisites...***
- ***...except....***

“ABI” Grading for CMPE450

- With the approval of Dr. Knapp in OUE, I will use “ABI” grading for CMPE450 in Fall 2017, as I did in Fall 2016
 - An “A” means you have applied appropriate design practices and exhibited professional behaviors in all aspects of your project
 - A “B” means you have applied appropriate design practices and exhibited professional behaviors in most aspects of your project
 - An “I” for incomplete means that you
 - Aren’t applying good design practices, or,
 - Aren’t exhibiting high quality professional behavior, or,
 - Aren’t pulling your weight, or,
 - Your design is not progressing
 - An “I” will automatically be resolved to an A, B, C, D or F based on CMPE451 performance

Weighted Teamwork

- Your total score for teamwork for Fall 2016 will depend on the weighted teamwork score...
- Your total teamwork (nominally $10+10+10+10+10+4 = 54$ will be **multiplied** by a factor of 80%-105% computed from your weighted ISR scores
$$0.8 \times 54 = 43.2 = \text{a } 10.8 \text{ point loss} = \text{not an A}$$
- This can wreck your grade if you don't fully participate in your team!...
- ...Throwing you into an "I" or worse as described above.

UMBC Policy on Academic Honesty

- I typically make students sign the academic honesty document
 - ...sometimes that doesn't work and we still have problems (yes, it happens)
 - As you leave here, you're supposed to have
- Student Outcome (f):**
- An understanding of professional and ethical responsibility**
- **Do the right thing – all the time!**
 - **Enforcement is also your responsibility!**
 - So: The UMBC policy is in effect. It's your responsibility to know what the policy is and to comply with it
 - EVERY employer will have a series of ethics and conflict of interest policies
 - It's **your responsibility** to comply!

Cooperation and Ethical Behavior

- Most, but not all, of the assignments are team based, and you must provide a team response
- It's an ethical violation to not pull your weight
 - Even if you don't like the subject
 - Even if you think the assignment is dumb
 - Even if you think the requirements are stupid
- You're being paid (grade) to participate
- Some of the assignments are individual...
- ...and I will be clear which is which
- In this case I'm looking for YOUR value added
- Research is fine, as long as it is attributed.

Engineer in Residence

- This semester, we are lucky to have Mr. Gary Bonadies, Program Manager for Advanced Concepts & Technology Division of Northrup-Grumman as an Engineer-in-Residence
- He will be available for appointments (late afternoon/evening by mutual agreement) for project planning and progress advice and professional practice and team work issues
- And he will be taking part in some of our assessment activities...
- ...like reviewing your formal presentations

Project Managers



- We're trying something new in Fall 2017
- This Fall, your team will be assigned a project manager (PM) from Prof. Toby Guker's ENMG659 Strategic Management course
- The PM will assist you in developing your SOW, Schedule, and Specification Documents...
- ...and will, in general, *manage* your project over this semester.
- Pay attention, *you* (collectively) will have to shoulder the PM responsibility in S18.
- This is a work in progress! We'll see how it goes.

Research and Attribution



- Some assignments will expect you to look up other opinions, information, etc.
- Such material **must be credited to its source**
- ...see ReferenceExamples.pdf in /Background folder on Blackboard
- **WIKIPEDIA is an encyclopedia**
- It is useful, but **not** an acceptable reference. Use wikipedia to find out where to look for real information, or to get background information. Always check your content!
- **WIKIPEDIA is not a reference!**
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- **WIKIPEDIA is not a reference!**

Code of conduct

- Class starts **promptly** when scheduled...
- ...I hope that it's like a well-run corporate meeting!
- Class is over when we're done, or 50 minutes.
- Attendance is required unless otherwise notified.
- Cell phones should be silenced or turned off
 - If it rings, you sing the UMBC alma mater "Our UMBC"!
- **Texting and web surfing are never appropriate**

Prerequisites

- There are firm prerequisites for this course, which the Undergraduate Committee has instructed me not to waive
- 1) A "C" or better in CMPE314
- 2) A "C" or better in CMPE315, or CMPE320, or CMPE323, or CMPE330 or CMPE415
- 3) A "C" or better in CMPE311, or, concurrent enrollment in CMPE311
- You may now take one course in 2) concurrently with 450
- If you don't meet these requirements, you must see me immediately
- **A "C" or better in CMPE311 is required to move on into CMPE451! Pay attention to this because I have to enforce it!**

Rules for ENGR231 ACTIVE Center

- **No food! I have to enforce this**
- **No drinks except water! I have to enforce this**
- **Laptops are welcome, but there will obviously be a crush if we have 5 laptops on each table. Let's plan on using 2/table, when we need them.**
- **We've received 10 new chairs, 2 new whiteboards, and the 2 new tables are on order...**
- **...This will bring the room capacity to its maximum of 60...**
- **But with the two sections, we should be very comfortable at 28-40.**

Director of Engineering

- **OK down to the nitty gritty**
- **We structure this course as though we are a small research and product development section, possibly within a larger company.**
- **I'm the Director of Engineering**
- **You will be the development teams**
- **We will have roughly 12 projects to work on...**
- **...and it will take all year to get the project done...**
- **...but that doesn't mean there isn't work due this semester!**
- **Your job is to make your project successful!**

We're actually running two sections

- Once we have teams made and projects selected, we will split into two roughly equal sections *by team*
- ...*not* by individual
- These identical "lecture" sections will meet Monday and Wednesday in ITE231
- The "other" section will have time available for your own team-related activities
- ...**Don't waste it!**
- I'll try to find you a room to use.
- On Fridays, once we get rolling, we'll do standup meetings in the 9-10 hour.
 - Each team provide 1 representative.

Class Date	SECTION	Day	Topic	Lecturer
8/30/17	01	Wednesday	Course Administration	LaBerge
9/1/17	03	Friday	Course Administration	LaBerge
9/4/17		Monday	Labor Day No Class	
9/6/17	01	Wednesday	Project and Team Selection	LaBerge
9/8/17	03	Friday	Project and Team Selection	LaBerge
9/11/17	01A	Monday	Teamwork Contracts	LaBerge
9/13/17	03A	Wednesday	Teamwork Contracts	LaBerge
9/15/17		Friday	Lab cleanup	TBD
9/18/17	01A	Monday	Intro to Project Managers	LaBerge
9/20/17	03A	Wednesday	Intro to Project Managers	LaBerge
9/22/17		Friday	Open (Rosh Hashana)	LaBerge
9/25/17	01A	Monday	Challenger as an discussion of Engineering Ethics	LaBerge
9/27/17	03A	Wednesday	Challenger as an discussion of Engineering Ethics	LaBerge
9/29/17		Friday	Open	LaBerge
10/2/17	01A	Monday	Work on Draft Spec, SOW & Schedule	LaBerge
10/4/17	03A	Wednesday	Work on Draft Spec, SOW & Schedule	LaBerge
10/6/17		Friday	Stand Up F01; 1 rep, all teams, 10 AM Friday; also, TSR01 due @ 12 Midnight	LaBerge
10/9/17	01A	Monday	First Class Technical Presentations	LaBerge
10/11/17	03A	Wednesday	First Class Technical Presentations	LaBerge
10/13/17		Friday	Technical Presentation Working Session	TBD
10/16/17	01A	Monday	System Requirements Review (SRR) (3)	LaBerge + Staff
10/18/17	03A	Wednesday	System Requirements Review (SRR) (3)	LaBerge + Staff

	10/16/17	01A	Monday	System Requirements Review (SRR) (3)	LaBerge + Staff	
	10/18/17	03A	Wednesday	System Requirements Review (SRR) (3)	LaBerge + Staff	
	10/20/17	01A/03A	Friday	System Requirements Review (SRR) (6)	LaBerge + Staff	
	10/23/17	01A	Monday	SRR Debriefing What went well/not so well	LaBerge	
	10/25/17	03A	Wednesday	SRR Debriefing What went well/not so well	LaBerge	
	10/27/17		Friday	Standup F02; TSR02 Due		
	10/30/17	01A	Monday	Stuff CMPEs need to know: ADC Analysis	LaBerge	
	11/1/17	03A	Wednesday	Stuff CMPEs need to know: ADC Analysis	LaBerge	
	11/3/17		Friday	Open	LaBerge	
	11/6/17		Monday	Stuff CMPEs need to know: DAC Analysis	LaBerge	
	11/8/17		Wednesday	Stuff CMPEs need to know: DAC Analysis	LaBerge	
	11/10/17		Friday	Standup F03; TSR03 Due	LaBerge	
	11/13/17	01A	Monday	Engineering Economics 1	LaBerge	
	11/15/17	03A	Wednesday	Engineering Economics 1	LaBerge	
	11/17/17		Friday	PDR consultations/Demo Expectations	LaBerge	
	11/20/17		Monday	PDR consultations/Demo Expectations	LaBerge	
	11/22/17		Wednesday	PDR consultations/Demo Expectations	LaBerge	
	11/23/17		Thursday	Thanksgiving		
	11/24/17		Friday	Thanksgiving		
	11/27/17		Monday	Engineering Economics 2	LaBerge	
	11/29/17		Wednesday	Engineering Economics 2	LaBerge	
	12/1/17		Friday	Open	LaBerge	
	12/4/17		Monday	Preliminary Design Review (2)	LaBerge + Staff	
	12/6/17		Wednesday	Preliminary Design Review (2)	LaBerge + Staff	
	12/8/17		Friday	Preliminary Design Review (6)	LaBerge + Staff	
	12/11/17		Monday	Preliminary Design Review (6)	LaBerge	
	12/13/17		Wednesday	Reading Day		
	12/18/17		Wednesday	Demos any time 12/7 through 12/18	LaBerge	

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Homework

- Complete the CATME survey
- Complete the project survey on gdocs at
- <https://goo.gl/forms/Y28bnhGF3pKHQIPq1>
- Get a copy of the Feynman book (used is fine, any edition is fine) and read part II.
- Talk with your classmates and get your teams formed
- Don't worry about "super teams". I'll expect more from them and they won't "wreck the curve".
- Because Monday is Labor Day, we'll meet in the same sections next week Wednesday and Friday.
- We should be able to get to team-based sections the following week (Sept 11)