

Summer 2020 - Matthew Barry MEMS 0031 - ELECTRICAL CIRCUITS - 1070 - Lecture

Project Title: 2207 - Teaching Survey Summer 2020

Courses Audience: **36** Responses Received: **32** Response Rate: **88.89**%

Subject Details	
Name	MEMS 0031 - ELECTRICAL CIRCUITS - 1070 - Lecture
DEPARTMENT_CD	MEMS
CAMPUS_CD	PIT
SCHOOL_CD	ENGR
CLASS_NBR	13612
SECTION_NUMBER	1070
TERM_NUMBER	2207
COURSE_TYPE	Lecture
CLASS_ATTRIBUTE	
First Name	Matthew
Last Name	Barry
RANK_DESCR	Assistant Professor
TENURE	NT

Report Comments

Student Opinion of Teaching Survey - Instructor Report

Report Guidelines for Spring/Summer 2020

Provost Cudd has provided guidelines for Student Opinion of Teaching Surveys for Spring and Summer 2020.

No copy of this report will be released to anyone other than the individual faculty member. If you choose to provide a copy of this report to your dean, chair, or other administrator, you may download a PDF copy to send.

Additional questions were added at the request of the Office of the Provost in order to gather student input about the remote learning experience.

Included in this report:

- · Responses to Remote Instruction and Learning Questions
- · Numerical results to Likert scaled items Summary and Detailed Result
- · Responses to Comments or Open-ended Questions
- Responses to additional School or Department Questions (if applicable)
- Responses to additional QP/Custom Questions (if applicable)

See our guide - Understanding Your Report - for more details about interpreting your results.

Collect student feedback early next term.

Read more about Midterm Course Surveys and the OMET option.

Creation Date: Tuesday, September 29, 2020



Remote Instruction and Learning Questions

Students were asked to provide feedback about the move to remote instruction and learning as part of the University's response to the COVID-19 pandemic.

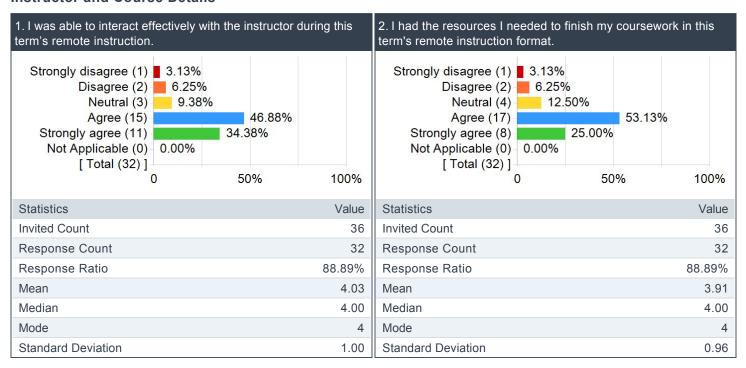
Instructor Interaction - Scale: Strongly Disagree (1) to Strongly Agree (5)

		Results		
Question	Response Count	Mean	Standard Deviation	
I was able to interact effectively with the instructor during this term's remote instruction.	32	4.03	1.00	

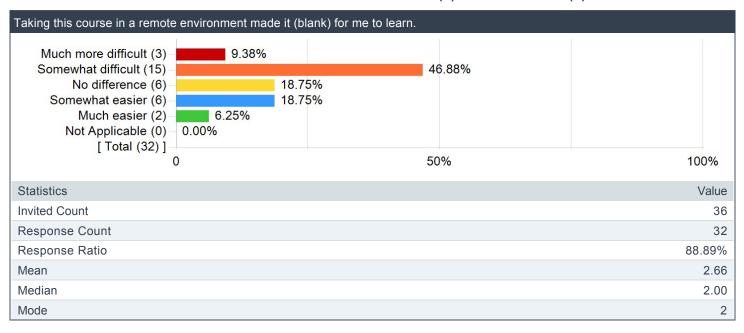
Course Resources - Scale: Strongly Disagree (1) to Strongly Agree (5)

	Results		
Question	Response Count	Mean	Standard Deviation
I had the resources I needed to finish my coursework in this term's remote instruction format.	32	3.91	0.96

Instructor and Course Details



Move to the remote environment - Scale: Much more difficult (1) to much easier (5)



What do you think the University should know about your experience as a student in the current remote learning situation?

Comments

Remote learning is difficult. Staring at computers for 10 hours a day is straining and creates difficulty focusing

I liked being able to go at my own pace in most classes, by watching the lecture videos ahead of time and then having questions answered and doing practice problems in class.

I have found it significantly more challenging to learn the material for courses, especially when taking multiple technical courses that could benefit from dedicated and proctored practice such as a recitation.

It is so much harder to learn over a computer than in a classroom and much more grace should be given for hard classes such as Circuits and Thermodynamics (Taught by Barry)

I have terrible wifi

I like the remote learning it gives me more time to do things

There is a huge adjustment period as we have been students in person most of our lives. There are also a lot of distractions can cannot be avoided

It is not an ideal situation, but with the right professors, it can be possible.

The flipped classroom style of teaching was the best style I had this semester for online classes.

Just because we are learning remotely, does not mean that we have more time to complete more work than normally expected.

My professor did a decent job teaching the course remotely

I took five courses online during the summer term. Of all of those courses, Dr. Barry's Electrical Circuits and Introduction to Thermodynamics classes were the best adapted to the online environment. Other professors should look to his methods in order to improve their own courses.

Take home midterm exams that were designed to test understanding despite being open book were an innovation that should be expanded to in person classes. They were a more realistic assessment than timed exams in class.

Office hours are arguably more important than lectures in the online environment. Frequent office hours made it easy to have questions answered, and to come back with follow up questions. The office hours period was long enough to avoid scheduling conflicts, unlike some classes where commitments made office hours impossible to attend.

Efforts must be made to either improve academic integrity or improve the trust of professors in their students. The attempt to stop cheating on the final made it an extremely poor assessment of the skills actually taught in the class. It was not reflective of homework, quizzes, or previous exams, and the requirements and structure were poorly communicated.

I personally am a very visual and in person, so remote learning isn't exactly that great. Even if I'm able to make it through a class I don't feel like I've really learned the concepts I know. I understand why we're remote and I'd rather be remote considering health risks, but it's been a bit hard to cope with.

Using Dr. Barry's Method was more effective for me across the board, having notes prepared for class and just being able to ask questions was helpful. Though, I feel the lead time on classes was just a lot compounded with the amount of extra coursework some professors felt was necessary to be assigned

Learning from home made it more difficult to ask questions because you cannot easily point to things on a page.

This class would have had a hands—on component to get practical experience that I missed out on and really wish I had been able to have. It's now another case of 'I understand the theory but don't really know how to apply it so I hope I don't have to use it in the future', unfortunately.

I think that I am a skewed piece of data because I enjoy being able to stay at home and feel like I actually went to all of my classes because I did not have to leave

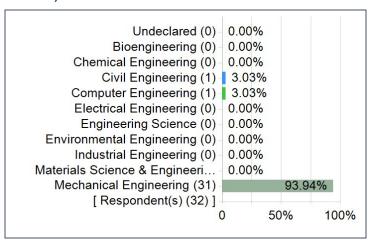
2 and a half hour remote lectures are a challenge to sit through, and I am sure they are a challenge to teach as well.

Nearly impossible to learn over a computer.

just wish the lectures were being recorded so that on our own time we can go and re—watch personally i understand things better re watching than than reading the lecture

Swanson School of Engineering Major/Program Area

Please select the major you are enrolled in. Check at most 2 programs. If you are currently a freshman or an undeclared major, select your anticipated major from the list (or select Undeclared if you are unsure).

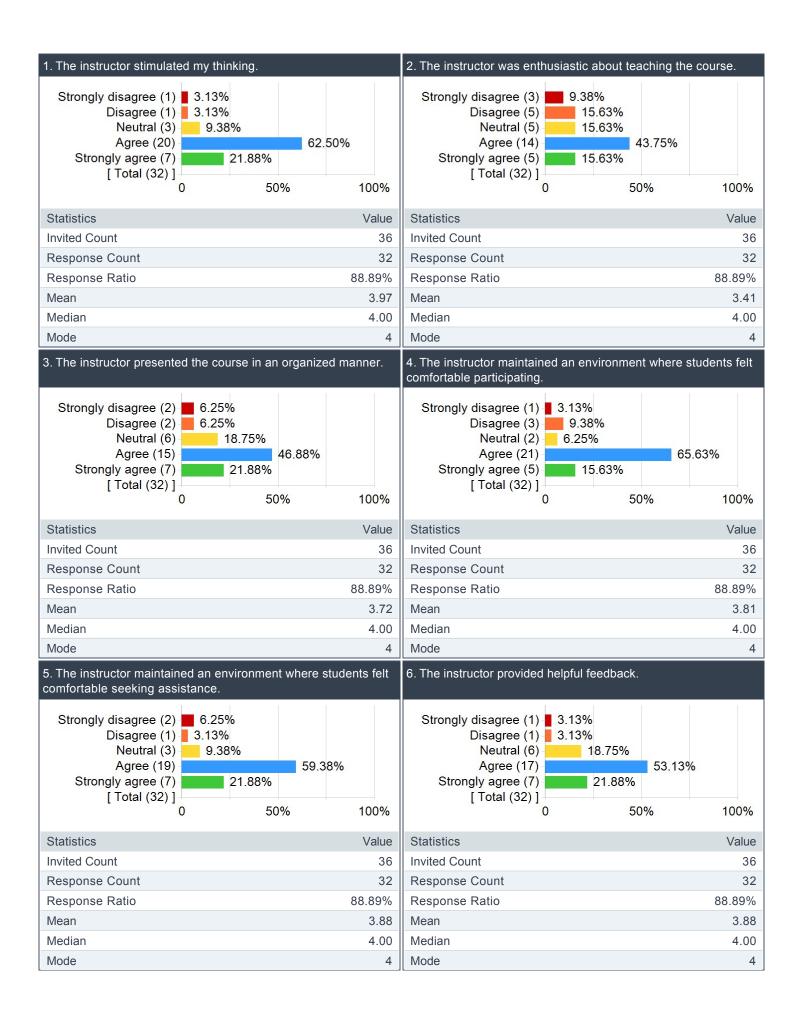


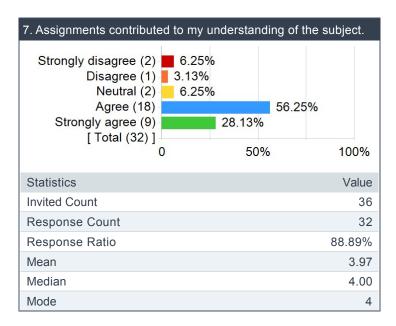
University Questions

Instructor Summary of Results - Scale: Strongly Disagree (1) to Strongly Agree (5)

	F	Results	
Question	Response Count	Mean	Standard Deviation
The instructor stimulated my thinking.	32	3.97	0.86
The instructor was enthusiastic about teaching the course.	32	3.41	1.21
The instructor presented the course in an organized manner.	32	3.72	1.08
The instructor maintained an environment where students felt comfortable participating.	32	3.81	0.93
The instructor maintained an environment where students felt comfortable seeking assistance.	32	3.88	1.01
The instructor provided helpful feedback.	32	3.88	0.91
Assignments contributed to my understanding of the subject.	32	3.97	1.03
Overall	-	3.80	1.01

Instructor Items: Detailed Results

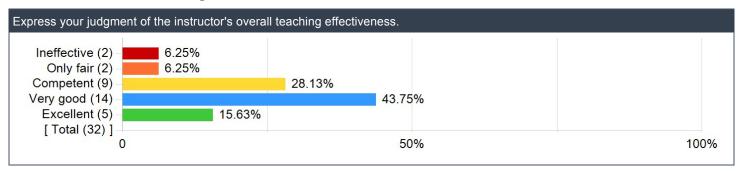




Instructor's overall teaching effectiveness

	F	Results		
Question	Response Count	Mean	Standard Deviation	
Express your judgment of the instructor's overall teaching effectiveness.	32	3.56	1.05	

Instructor's overall teaching effectiveness:



What did the instructor do to help you learn?

Comments

recorded lectures were good but lacked broad explanation.

Lots of office hours and examples.

He posted concise lecture videos with examples that we watched ahead of time, and we had questions answered and did more practice problems in class. The lecture videos were pretty good and got to the point without wasting time like some other classes. I liked TopHat and the breakout rooms as a chance to figure out what we didn't understand with people there to answer questions.

By giving examples in class and answering questions, Dr. Barry provided lots of help to clarify conceptual questions about the material

Good in class examples. Tophat was helpful too.

Good videos. Helpful examples

the homework and online lectures

Quickly replied to emails and held office ours often. Taught the course in an organized, easy to follow manner.

He was very available the entire term and would get back to students quickly regarding their questions.

He was easy to reach for questions on all hw and assessments. The videos were easy to follow and straight to the point.

He made sure we had all of the needed class materials so we did not need to attend class in theory. Class time was used well to further establish connections with the material.

Dr Barry did a really good job bulid a basic knowledge of electric circuit. The class is somehow tough but it could contribute a lot in the future mechaincal learning.

The pre-class videos were very helpful because I was able to look back at them if I missed something the first time or had forgotten a topic. This is something that's not available in a traditional class setting, so that part of remote learning was actually beneficial to me. I also liked the tophat portion of class because there was no way I was going to be able to sit through a 2.5 hour class. Honestly, sometimes I just sat there with zoom open during this time because I was so done, but even when I did this, I was able to go back to it later for review.

Office hours were the best part of the course. The online format should be preserved when classes return to an in person format. Being able to jump into a call made it easy to get a quick answer, where walking across campus to ask an essentially yes or no question makes no sense.

The take home exams were very realistic assessments of the skill taught in the course. They required a high level of understanding and extrapolation from given information. Being open book made them no easier and relected the challenges that real engineers face. The real world is open book, after all.

I think the tophat reviews were very helpful in going through concepts and reviewing for quizzes and exams

good homework assignments

Lots of office hours time and due to the remote learning, he was easier to reach 90% of the time

His lecture videos were very helpful. I also found the in class example problems very helpful.

Rigorous homeworks. Great office hour availability.

Different methods of analysis of circuits, what the heck op-amps are, how to amplify signals (theoretically, anyways)

He offered a lot of office hours which were incredibly helpful and he'd help us through concepts in it

He gave challenging assignments. I thought I knew how to analyze circuits before I came to this class. Another professor would have let me think I knew what I was doing.

On online courses especially, I really appreciated the well organized solutions to previous problems

Basic circuits

He has a lot of office hours and often available plus his teaching Assistant

Provided a clear and structured course and was very available through office hours.

Provided plenty of office hours in case I needed assistance with anything course related

What could the instructor do to improve?

Comments

professors should not approach teaching with the explicitly stated belief that their students are not fit to be there. The overt cynicism Prof. Barry brings to lectures is not something that encourages cooperative students nor does it foster better engineers. Additionally,

if he is going to be so overtly cynical about the quality of work his students put forward, the least he could do is put forward that level of work in his assignments. Most homeworks have spelling and grammatical errors and often need to be updated with corrected variables due to inconsistencies. Further, Prof Barry does not adhere to his own deadlines and is incredibly inconsistent with releasing homeworks and quizzes.

Make examples more similar to homework and exam questions (make the examples more difficult)

Sometimes we deviated from the schedule in the syllabus, which is fine, but there were one or two times where it wasn't clear if we were having class or not, or if we were going to have assignments due that week, so giving us more of a heads up on whats going on when the schedule changes would be nice.

Having a late deadline for assignment submission could improve the experience, not necessarily to promote delaying work, but to help cover for technical difficulties that can arise in electronic submission of work

Additionally, having a larger window for quiz submission than one day would be helpful, as the inconsistent schedule and short submission period led to multiple missed quizzes

Stay consistent and stick to the syllabus more. Was hard to plan ahead when the schedule was basically thrown out 3/4 through the course. Made it hard to recover and learn all the end material when it was not assessed gradually in homeworks.

Although I don't like circuits, I like how this course was taught.

give problems that are a little bit easier, some of the work I understamd but because of the problems given they had certain things in them that you would have to catch to get a good grade but if you missed it all the points were taken off

Have a more consistent grading rubric

Give a fair amount of work. The workload in a remote setting should match the workload in an in person class. There is absolutely no reason to give 5+ hour exams intentionally to students. This was a 3 credit course and I feel some of it was designed to fail me but justified by saying "designed to challenge students". A 3 credit course at Pitt is a 3 credit course at home. Just because you CAN increase the workload does not mean you SHOULD.

The rules on partial credit for quizzes are stupid but he'll never change that. He could reference parts of the book more often or include page numbers in the lecture slides for convenience.

maintain the schedule on the syllabus and release assignments on a regular schedule.

The class is really heavy. I took a full schedule class for the summer session and this class took my majority of study time. The class is well organized until the very end. The final exam switched to online which makes me feel tense and concerned.

The homeworks were a little excessive. I spent hours pulling my hair out trying to make the numbers add up before drifting into a state of apathy. Is this actually worth my time and sanity I mean how many points is this homework even worth? ? It turns out if you do this for 5 homeworks in a row, the answer is a lot.

I also don't think the break out rooms really added anything. Usually no one talked after the first few classes. I think it might be more useful to have everyone stay in the same room, and then we could message questions or you could go over answers periodically.

Communication. Deadlines and requirements were not conveyed in a consistent manner, especially the due dates of quizzes. I am in a different time zone, and I missed deadlines because they changed every week. Having to convert the time made them even harder to keep track of. There also needs to be better communication of when an assignment will be given. Even if homework is not ready at a consistent time every week, there should be some announcement of when it can be expected. I would budget time around no homework from this class, and then it would suddenly be assigned late. That should be easy to improve, and would enhance the class immensely.

The final exam was not well designed in the context of the rest of the course. No other assignment had been multiple choice or timed in the same manner. There was no indication of what to expect from the questions, and the inability to backtrack made time management nearly impossible. There were questions that I was forced to skip even though I knew how to complete them, but I finished with time to spare. I should have been able to return to those previous questions. It was not a true test of my abilities. The exam was designed to prevent cheating, but other strategies need to be developed. This one prevented cheating, but failed to be a well designed exam.

As part of both the previous complaints, the communication around the exam was unclear. Multiple times, the number of questions was given as fifty. There was only one email correcting the number of questions. It was not until I finished the exam that I saw that email. I budgeted my time incorrectly because I was mislead.

take more time on the videos

Good course, Midterms are impossible

After the first midterm I felt really lost in the class due to the lack of homework assignments and quizzes to continually test our knowledge. It felt as though the class lost structure after the first midterm.

Maintain enhuiasm throughout the course. In the early weeks he would say things like "isnt this cool?" but by the end of the class he said things like "I am not allowed to teach you anything interesting". I liked the early weeks better.

Try to have some type of connection to how students might use this in real life. I understand the theory and how you might use it, but even showing pics of what a setup might look like for the various circuits would be nice to see

Honestly I think he did an amazing job

The homework, exams, and quizzes are all difficult and not that related to course work.

Grade homeworks easier, work on teaching core concepts. More example problems. Better lecture videos.

Make assignments just a little bit shorter. This class took up more time than any of my other classes. Especially the exams. Having a whole week to do an exam sounds nice at first, but not when you realize that just means it's going to be 4 times longer than a normal in–person exam.

Record his class session

I know you probably have many students asking you similar questions and it can get tiring, but during office hours it would be nice if you were a bit more interactive. When I asked a question you would answer it quickly but it would've been nice if you asked "how are you initially approaching this?" I think that would help students improve their thought process and approach to problem solving, instead of just providing a quick answer.

Spend a little more time going over more difficult subjects in the class

Do you have any other information that you would like your instructor to know?

Comments

Your students do not deliver work that meets your expectations because you don't want it to. you see what you want to see when it comes to work quality and student dedication.

If you did not condemn your students from the beginning and instead provided feedback to improve them that was more thought out than "get better" you might find your students deliver better work.

He was definitely thought about how to teach effectively remotely the most out of all my professors, and while some assignments seemed excessive, overall I think I learned more in his classes than in the others this summer.

I appreciate how you care about us learning but at times your classes give me the most anger and anxiety I have experienced in my whole life. I will 100% be retaking thermo after my grade on last midterm so ill see you again soon.

Good job with this class.

no

Stop giving lectures on whether or not grades matter. It is not your place to tell a student how they should feel about their grades and if grades don't matter so much, why try to "challenge" students and bring their grades down?? Students' scholarships ride on their grades. Students value their grades. And you know these facts and you know students are going to stress themselves to the point of a harmful mental health state to uphold their grades. I spent the entire semester trying to figure out why you gave such an unfair workload, and I am still confused. This is a PANDEMIC, my circuits grade is not the most important thing in my life right now and there is zero reason I should be more worried about getting my 5 hour assignments and 12 hour exams done compared to my health and if I have time to help my family if they need me.

Have the students preform and online lab that shows them real world applications of the components. This way we are not looking at squiggles on paper all of the time.

Overall, Dr Barry is well prepared for the learning material. He posted lectures and notes online which helped a lot. But it is hard to reach the office time at the very end. Changing the platform of final exams and remaining quizes make the semeter end somehow tense. Combined with the other remaining exams, I feel overwhlemed. It is understandable because the school make the fall begin much earlier. It makes the professor and students really busy at the end. However, Dr Barry did a decent job make the class interesting and organized. It is a successful class.

The final exam format suuuuucked. I spent the first 30 minutes panicking and rushing through because I was so worried about running out of time, and then ended up with an hour left over. I know it was to help prevent cheating, but we should've been able to go back to previous problems.

That aside, thanks for working so hard to give us the best learning experience possible this semester, idk how you do it.

This course is very time intensive. It teaches the material well and to a level of detail greater than other courses, so the amount of work is understandable. There are, however, some areas where it needs to be more respectful of time commitments. If I am taking a full load of classes and am already spending at least 15–20 hours per week on this class, I cannot devote additional time to complete every suggested practice problem. The practice problems are appreciated, but there needs to be better highlighting of which ones are important. Belittling the class for not doing every problem in the book, when most students are taking a full load, is not cool. If those problems are an important part of the instruction, they should be highlighted more carefully and maybe included in lecture or the supplementary material. I do not have time to guess which ones will be on the exam or to complete them all. If this were my only class, I would be able to complete everything suggested; it is not.

I've known some circuits knowledge since high school, but nothing has helped me better than coloring my nodes. Its such a simple trick but it helps visualize the circuit so much better.

As always when I take your class, Im excited to learn during it. Then I proceed to hate you the entire time and then im glad I took and survived your course and learned a lot

No.

The practice problems after answering questions is pretty helpful, I'd keep that for the next online class. I'd spend more time on that than top hat because getting examples helps more down the road when you have to apply it youself

I have really enjoyed taking this class but can guarantee I would not have been doing so well if I was taking it in person

Earlier I had asked him to make the in-class assignments more difficult to match the rest of the course, but now I think he made the in-class assignments too difficult.

Certain things were also graded way too harshly

no

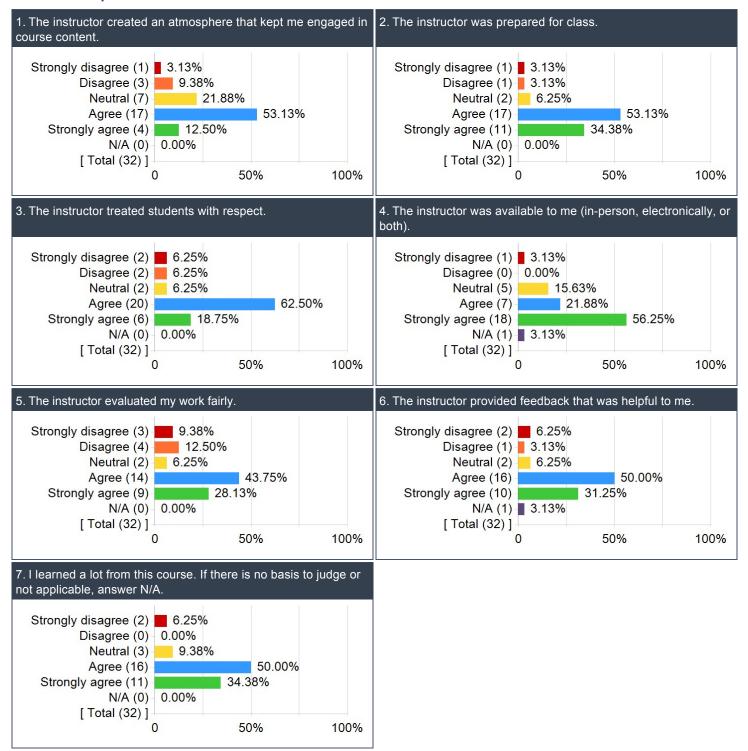
We're just as drained as you, sorry we didn't participate as much in class as you would have liked

Arts and Sciences Questions

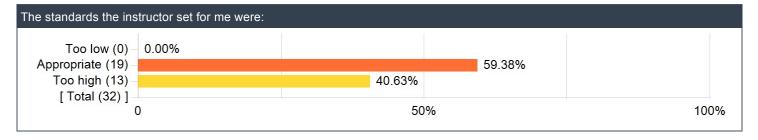
Summary: 5-point scale - Strongly Disagree to Strongly Agree

	Results		
Question	Response Count	Mean	Standard Deviation
The instructor created an atmosphere that kept me engaged in course content.	32	3.63	0.94
The instructor was prepared for class.	32	4.13	0.91
The instructor treated students with respect.	32	3.81	1.03
The instructor was available to me (in-person, electronically, or both).	31	4.32	0.98
The instructor evaluated my work fairly.	32	3.69	1.28
The instructor provided feedback that was helpful to me.	31	4.00	1.06
I learned a lot from this course. If there is no basis to judge or not applicable, answer N/A.	32	4.06	1.01

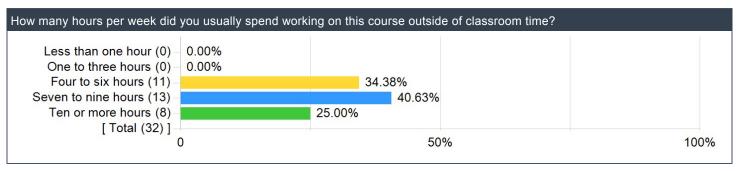
Detailed Responses



The standards the instructor set for me were:



How many hours per week did you usually spend working on this course outside of classroom time?



What did you like best about how the course was taught?

Comments

I liked the format of having the lecture videos to do on our own time, and doing more examples and practice problems during the live class.

The flipped lecture was helpful in exposing students to topics, while Zoom lectures could clarify these topics and provide examples of their implementation

The time for questions and the in class examples were a good format. Still very hard to stay engaged the whole time then so tophat.

I liked the week long tests, gave plenty of flexibility to students.

the online lectures were short and to the point

The example problems covered the necessary material and were solved in an easy to understand way.

The video lectures

The flipped lectures made it easy to go back and review material from early in the course, as well as juggle work and school during quarantine. They also made it easy to repeat confusing sections.

I liked the two and a half hour lectures once a week. This worked really well with the online format. This allowed for a holistic approach to the material. Maybe in the fall if you have to maintain the 3 day a week schedule have one class that is reviewing the lectures, one to go over examples, and the last for a top hat review.

TA is really helpful. Dr Barry is well prepard making the class online. Responsible Professor and TA. It is always easy to track the notes and lectures. Lecture materials are accessible and easy to be reviewed.

The videos!

The homework

Class worksheets and class time was for questions

The lecture videos were clear and easy to follow.

Liked the 5 min breaks in the 2.5 hr class.

Flipped format with practice problems. Keep the flipped format in the future.

I loved the flipped format

I like that we covered material that was outside ABET in order to expand our intuition for circuits

The lecture videos and solutions

n/a

enough time to complete my assignment with less pressure

It was very structured, and having the corresponding textbook sections available was very helpful as well. I really liked the format of the take home exams. Also, all of the review materials (in–class worksheets, top hat) and the homework assignments were great and really helped me practice and feel comfortable with the material.

I like the online video format of watching lectures

If you were teaching this course, what would you do differently?

Comments

Work with my students instead of against them

I think I would try and be more clear when deviating from the schedule, because it can be stressful/annoying to not know if you actually have a homework or quiz due when one is scheduled but nothings been posted or said.

I would consider reducing the work load, as I found myself prioritizing classes over one another as the total workload of a full semester (18 cred) via online learning was particularly challenging and frustrating

Make exams and homeworks easier and give exams during class-time not over weeks.

I would try to make quizzes and HW come a bit more consistently and keep students more informed as to what will be expected of them that week, rather than: there will be a HW/quiz if I get around to it.

give problems that actually could actually show that the student is learning and not a difficult one that with one mistake you get nothing

enforced study groups, this was done too late and never caught on

Give a fair amount of work. 3 credits = 9 hours of work a week...

Barry's pandemic 3 credits (minimum work) = 1 hour of video lectures, 3 hours of class, 3 hours on homework, 12 hours on exams, 1 hour on guizzes...without any extra work or studying, without any office hours

I'd probably add a project or some other way to test knowledge of practical applications.

pick problems that are more "fun" for the students

Make it easier.....

I would give more homework problems that each take less time. I think this would expose us to a broader range of problems

I wouldn't have a system where asking for a regrade requires an argument through an appeal and rebuttal with the teacher, I'd rather be able to just talk to the professor directly through an email or something of the like.

Adapting midterm material so that online learning didnt make them impossible

I would align homework assignments more with textbook problems.

Maintain my enthusiasm during the entire semester.

Release top hat work after a little while for people to see

I'd post the answers to the tophat questions for students to see

Make the assignments, quizzes, and exams more manageable.

Everything.

record my class sessions

death to top hat

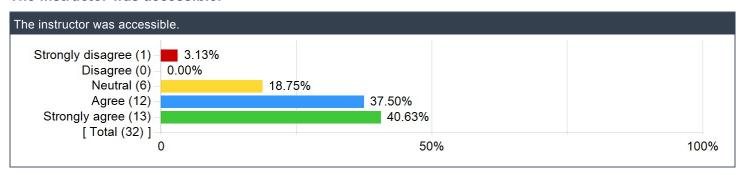
See previous answer about office hours. Also, midway through the semester the homework assignments and quizzes dropped off. I think this definitely needs to be fixed for future semesters. As I mentioned the assignments are really helpful to mastering the material and I feel much less comfortable with the material that was not covered in a HW.

I would spend a little more time explaining concepts in the videos

ENGINEERING

Swanson School of Engineering Items

The instructor was accessible.



Please provide advice to future students: What could you have done to improve your learning in this course?

Comments

Take a different professor.

start homework early and use office hours

Sometimes I didn't finish all the TopHat assignments before class was over, and I didn't always go back to finish them another day, so I would recommend making sure to do so.

Check Canvas and email as often as possible and read the instructor's directions carefully. Also if you struggle to reach the instructor or TA by email, go to office hours to ask your question.

Do everything all the time do schoolwork 24/7 do not have friends, pets, or think about stepping foot outdoors. Do not sleep. Sit at your desk and work all day.

More practice is always good.

look over the lectures more and understand the gritty details

work through all of the tophat questions

Not take Barry. I could've learned the same things with a different professors and maybe have had more time to to also learn the material in my other courses.

Read the textbook and review your work for errors before submitting it. Start work early enough to go to office hours.

do not get behind the material.

Use online lectures as a resource to preview the lecture and don't be left behind the course. Always stay on track. Start MUCH earlier on the assignments, quizzes, and exams. They are hard and don't wait till the last minute or you won't finish them.

Spend the time to get the homeworks right. You might not think they're worth much, but they add up.

Go to office hours even more. Make sure to complete homework early so that you can ask questions. You will need to. From the beginning, check the announcements multiple times per day. There is no rhyme or reason to when things are posted, so stay on top of the most recent announcements. Never assume that one week will be the same as the last. I learned that too late.

Start assignments earlier

Put in the work early on. Its easier material in the beginning and it builds off of itself.

Start homework earlier. Take top hat worksheets seriously. Go to more office hours.

Practice, weird things happen on the exams.

Do all the examples in the lecture and look at those in the book too. Examples are everything.

Who teaches the course is most important

Avoid taking classes taught by professor Barry, especially if the class is online.

Be ready from the begin and don't give up until your done

The textbook sections are very helpful to read either before of after lecture. Also, don't just blow through the HW. For me the HW was when I really learned the material. Start assignments early so you can take advantage of office hours for any questions you have.

Stay persistent and if you are struggling with a concept, GO TO OFFICE HOURS. Its very easy in Barry classes to be crushed under the weight of shit you do not know

ENGINEERING UNDERGRAD

Please rate the degree to which this course has improved...

	Results		
Question	Response Count	Mean	Standard Deviation
Your ability to identify, formulate, and solve complex engineering problems by applying principles of engineering.	32	3.69	0.97
Your ability to identify, formulate, and solve complex engineering problems by applying principles of science.	32	3.53	0.95
Your ability to identify, formulate, and solve complex engineering problems by applying principles of mathematics.	32	3.75	1.05
Your ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare.	32	2.25	0.95
Your ability to apply engineering design to produce solutions that meet specified needs with consideration of global, cultural, and social factors (i.e., sustainability principles).	32	2.16	0.92
Your ability to apply engineering design to produce solutions that meet specified needs with consideration of environmental and economic factors (i.e., sustainability principles).	32	2.16	0.92
Your ability to effectively communicate verbally with a wide range of audiences.	32	2.06	1.11
Your ability to effectively communicate in writing to a wide range of audiences.	32	2.09	1.03
Your ability to recognize ethical and professional responsibilities in engineering situations.	32	2.34	1.18
Your ability to make informed judgments that consider the impact of engineering solutions in global and societal contexts (i.e., sustainability principles).	32	2.06	0.98
Your ability to make informed judgments that consider the impact of engineering solutions in economic and environmental contexts (i.e., sustainability principles).	32	2.19	1.09
Your ability to function effectively on a team whose members together provide an inclusive environment, collaboration, and leadership.	32	2.09	1.20
Your ability to function effectively on a team whose members together establish goals, plan tasks, and meet objectives.	32	2.13	1.29
Your ability to develop appropriate experiments.	32	2.06	1.11
Your ability to conduct appropriate experiments.	32	1.97	1.12
Your ability to analyze and interpret data and use engineering judgment to draw conclusions.	32	3.03	1.23
Your ability to embrace new learning strategies to independently acquire and apply new knowledge to solve engineering problems.	32	3.59	1.19

Personalized Questions

Express your judgment of the instructor's overall teaching effectiveness.

