University of Michigan
Winter 2021 Instructor Report With Comments
EECS 440-001: SysDes Search Engine
Nicole Hamilton

19 out of 93 students responded to this evaluation.

Responses to University-wide questions about the course:

	SA	A	N	D	SD	N/A	Your Median	Univ-wide Median	School/College Median
This course advanced my understanding of the subject matter. (Q1631)	13	5	1	0	0	0	4.8	4.6	4.4
My interest in the subject has increased because of this course. (Q1632)	13	5	1	0	0	0	4.8	4.3	4.1
I knew what was expected of me in this course.(Q1633)	7	5	6	0	1	0	4.0	4.6	4.2
Overall, this was an excellent course.(Q1)	8	8	2	1	0	0	4.3	4.4	4.1
I had a strong desire to take this course.(Q4)	12	5	2	0	0	0	4.7	4.1	3.9
As compared with other courses of equal credit, the workload for this course was (SA=Much Lighter, A=Lighter, N=Typical, D=Heavier, SD=Much Heavier). (Q891)	1	0	0	10	8	0	1.7	2.9	2.8
How did you participate in this course? (SA=Attended most synchronously, A=Attended most asynchronously, N=Attended most in person, D=Attended some in person and some online) (Q1854)	10	8	0	1	0	0	4.6	4.8	4.4

Responses to University-wide questions about the instructor:

	SA	A	N	D	SD	N/A	Your Median	Univ-wide Median	School/College Median
Overall, Nicole Hamilton was an excellent teacher.(Q2)	9	9	0	0	1	0	4.4	4.7	4.6
Nicole Hamilton seemed well prepared for class meetings.(Q230)	8	8	1	1	1	0	4.3	4.8	4.7
Nicole Hamilton explained material clearly.(Q199)	8	8	2	0	1	0	4.3	4.7	4.6
Nicole Hamilton treated students with respect.(Q217)	13	4	1	0	1	0	4.8	4.9	4.7

Responses to questions about the course:

	SA	A	N	D	SD	N/A	Your Median	University-Wide Median
Prerequisites provided adequate preparation for this course. (Q61)	7	6	4	2	0	0	4.1	4.4
The textbook made a valuable contribution to the course. (Q64)	4	2	5	3	3	1	3.0	3.8
The laboratory was a valuable part of this course. (Q331)	6	9	2	1	0	0	4.2	4.4
Laboratory assignments required a reasonable amount of time and effort. (Q336)	6	4	2	1	0	5	4.4	4.2
Laboratory assignments were relevant to what was presented in class. (Q337)	9	6	0	0	0	3	4.7	4.4
I developed confidence in my abilities as an engineer. (Q1769)	9	7	1	0	0	1	4.6	4.1
I developed the ability to solve real world engineering problems. (Q1770)	12	5	0	0	0	1	4.8	4.1

The medians are calculated from Winter 2021 data. University-wide medians are based on all UM classes in which an item was used. The school/college medians in this report are based on classes that are upper division with enrollment of 75 or greater in College of Engineering.

Written Comments

How did the teaching techniques (e.g., certain technologies used, specific approaches to testing and assignments, asynchronous or synchronous teaching methods, instructor flexibility, class interaction, small group work, other teaching methods) of this course serve the aims of this course/ or serve your learning in this course? (Q1872)

Comments
Synchronous lectures walking through all the pieces we need for the search engine were useful.
The Crabster exam worked well for me! I appreciated being able to use the midterm grade as my final exam grade.
Everything worked well
The homework assignments were extremely helpful for forming the basis of our project.
– Online exam is very suitable to this course – The midterm/final policy (having finals be optional) is a very attractive and useful part of this course. It let me fully focus on finishing up the project. – Professor Hamilton's flexibility was very helpful (dropping/pushing back homework in the interest of ensuring groups finish their engines)
Im not too sure–but the lectures being geared to online made rewatching super easy and nice, which was a plus

Given your experience in this course, what teaching techniques do you think the instructor should continue to use in the future (e.g., certain technologies used, specific approaches to testing and assignments, other testing methods, asynchronous or synchronous teaching methods, instructor flexibility, class interaction, small group work, other teaching methods)? (Q1873)

Comments
I think giving more examples of how things work would have been helpful. For example, I found the quick brown fox example for ISRs really helpful. Were this extended to how a frontier/crawler work, or how an index might look like, I would have enjoyed that very much.
Giving code on slides and breaking it down is certainly useful, but I think additional clarity could be added by building the code up a few lines at a time instead of showing the whole thing on the screen from the start.
Homeworks with autograder tests are great. More assignments for more components (esp robots.txt stuff) would be even better
Having midterm score count for final score (optionally) is very nice and makes the class feel less exam–oriented.
Homework assignments.
– I think all relevant teaching techniques should be kept as is, they are good
I think the classs should stay as is, it was awesome!

Comment on the quality of instruction in this course. (Q900)

Comments
Prof. Hamilton is a shining example of EECS professorship among a throng of terrible examples. She is enthusiastic, energetic, and passionate beyond any professor I have had, and she truly, truly cares for her students.
Prof. Hamilton is a pretty good professor. There are probably some areas that she breezes by that could use some more discussion, however. Some of these would have been useful for the midterm (although I probably should have had the intuition myself). What factors make a query faster or slower comes to mind.
Overall, good quality of instruction. Prof. Hamilton knows the material in great detail. However, she has a habit of interrupting students right before they finish their questions, and the end of the question can be important in communicating the meaning fully.
Wish lectures made more distinction between parts we needed to know and parts that were optional.
The instruction is derived from years of industry experience, so very valuable.
Nicole provides an interesting perspective on search engines with her own time at Microsoft but also is willing to learn new material to teach to the class (see shingling)
Great course overall. I think some topics could be taught more clearly like index layout, but overall I left with knowledge that feels purposefully hidden away by search engine companies and felt I had a deep insight into the magic behind these engines.
It was awesome.

How might the class climate be made more inclusive of diverse students? (Q910)

Comments
N/A
For non–482 veterans it's still nasty trying to pick up multithreading. I think there's a big psychological factor (imposter syndrome–ish) that plays in there, because 482 vets can cruise through the multithreading parts of lecture much easier than other students.
Some final presentation recordings can be shared with the larger college of engineering community to show the interesting aspects of this project course.
I think it's pretty good as is, COVID just made everything difficult.
N/A

What were the strengths of the course ? (Q953)

Comments
Project focused
The experience that comes from building a system as big as the ones we're building and the team management/organization that comes with it makes for a really great experience
Throwing students into a large project and making them keep up with milestones is a really great way to show them what they are capable of if they work together with consistency over time.
Great project. Assignments were helpful for building the engine
Very open–ended and lets you pour yourself fully into a project.
A great project experience.
– Competent and helpful IAs – Professor Hamilton's extensive OH schedule – Freedom in implementation and design – Freedom in teammates
Being fun, interesting, and taught well.

What suggestions would you make for improving the course ? (Q955)

Comments
It went great. The only thing that could be improved I think is the group forming at the start. There is probably a better method of creating the groups.
It seemed like most teams (including mine) had a big crunch at the end as far as progress on the search engine goes. I think more frequent meetings with staff to check up on our progress could have prevented this. Either that, or when we met with Prof. Hamilton in late February, if we had set soft deadlines, we might not have as big of a crunch.
Build up code on slides a few lines at a time, or show a simple version and increase complexity over several slides. Showing a big block of code is overwhelming to me, even if it gets broken down one line at a time.
Create a custom domain which links only to itself for students to test robots.txt obedience
Midterm rubric was very strict and felt unfair. Others in my group had the same opinion. I hate not knowing deadlines for final project beforehand and I hate having deadlines pushed back. I get that it's good for us to get more time to develop, but it is very stressful in combination with end–of–semester workload from other classes. I'd have preferred to be forced to finish earlier. Communication is slow/unspecific sometimes, particularly towards the end of the course about final presentation/paper stuff.
More assistance on cloud environment setup.
– I would really heavily recommend dropping the "STL is heavily discouraged" policy. Our team during a debrief felt that we had wasted most of the semester trying to get our implementations done, and then had to throw them in the garbage anyways since they were bugging out when used in our actual engine modules. It's really demoralizing at the end to realize how much better our product could've been had we spent more than the last 2 weeks on the actual engine. * Despite us just using the STL anyways, we still learned a lot about designing our own targeted data structures for performance where necessary. I didn't think it hindered our learning, at all. – I don't think pushing the style guide is helpful. It adds a lot of stress and anxiety around "getting it right", and holds us back from just making progress on the product. – The homeworks were not useful, and took away valuable time from the project. I'd say a better way to organize this course is have "hard" deadlines (not actually rigid, but make them appear that way to push students) on when they should be done with their crawler, indexer, constraint solver, etc. The deadlines should be spaced out where crawler and indexer take the most time (by far), and then increasingly faster deadlines towards the end to wrap up the modules. – After teaching some of the more implementation–heavy parts of the course (like indexer), it would be nice to get an idea of how other teams in the past have approached these modules. For example, it would be cool to see the folder/file structure for other teams' indexes, and maybe even have the IAs or other former students come in and give quick tips/experience talks. – It would be really cool to learn from previous teams' logistical/design choices and outcomes (along with things they believe are mistakes). I feel like we made a lot of mistakes in terms of distributing work across the semester, and we couldn't have been the first ones to have made these mistakes.
No optional HWs––make them all mandatory

Among the courses you have already taken, which proved the most (or least) effective in preparing you for this course, and why? (Q1098)

Comments
EECS 485's overlap with this class was useful for understanding certain concepts. Also, EECS 482 was really great for the concurrent programming stuff.
EECS 281. Large projects, considering program performance, working exclusively in C++, and thinking about data structures all came into play.
EECS 482. Sockets and threads. EECS 381, writing maintainable & good C++
Only 281. I feel like 485 and 482 would have helped a lot with parts that required server communication or heavy multithreading, but I was useful on index and ISR which didn't really require either.
EECS 482
– EECS281: was important for reasoning about how to design/implement/utilize advanced data structures & algos effectively. Also for understanding how to profile and speed up code with perf. – EECS370: helpful in terms of working with bitmasks and shifting – (Currently taking) EECS 482: this course and 482 reinforced each other nicely. Learning about concurrency and threading from 482 allowed me to write complicated setups that parallelized work safely. Learning about paging and memory helped me understand how mmio works, and what the impact of page faults are.
EECS482 was the best prep for this course.