CS 4102-001 **Algorithms** - Fall 2019

ENGR (16025)

INSTRUCTORS: **Hott, John (jh2jf)**

Respondents: 45 / Enrollment: 103

Summary: CS 4102-001 Algorithms - Fall 2019 (16025)

Overall Instructor Rating

INSTRUCTOR: Hott, John
    Mean 4.71
    Std Dev 0.52
    Response Count 90

SEAS, 4000-level courses Mean 4.46
SEAS, 4000-level courses Std Dev 0.80
SEAS, 4000-level courses Response Count 5445

~ QUESTIONS AND DETAILS ~	*~ ANSWER MATRICES ~*

1. The activities and assignments helped me learn the subject matter.

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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	4.31	0.73	20 (44.44%)	20 (44.44%)	4 (8.89%)	1 (2.22%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2457	4.20	0.91	1050 (42.74%)	992 (40.37%)	214 (8.71%)	100 (4.07%)	48 (1.95%)	53 (2.16%)

2. There was a reasonable level of effort expected for the credit hours received.

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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	3.56	1.34	16 (35.56%)	8 (17.78%)	9 (20.00%)	9 (20.00%)	3 (6.67%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2460	4.20	0.92	1062 (43.17%)	1014 (41.22%)	202 (8.21%)	109 (4.43%)	50 (2.03%)	23 (0.93%)

3. The course materials (such as textbook, readings, or background materials) increased my learning.

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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	3.27	1.15	9 (20.00%)	7 (15.56%)	17 (37.78%)	9 (20.00%)	2 (4.44%)	1 (2.22%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2462	3.92	1.03	714 (29.00%)	821 (33.35%)	386 (15.68%)	160 (6.50%)	59 (2.40%)	322 (13.08%)

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

4. The course material was well organized and developed.
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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	4.22	0.77	18 (40.00%)	20 (44.44%)	6 (13.33%)	1 (2.22%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2458	3.99	1.06	900 (36.62%)	908 (36.94%)	325 (13.22%)	172 (7.00%)	88 (3.58%)	65 (2.64%)

5. The instructor was well prepared for class.
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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001, Hott, John

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	4.67	0.56	32 (71.11%)	11 (24.44%)	2 (4.44%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2722	4.38	0.85	1448 (53.20%)	910 (33.43%)	176 (6.47%)	81 (2.98%)	37 (1.36%)	70 (2.57%)

6. The grading policy was fair.
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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	3.71	1.18	14 (31.11%)	14 (31.11%)	9 (20.00%)	6 (13.33%)	2 (4.44%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2456	4.22	0.90	1095 (44.58%)	908 (36.97%)	270 (10.99%)	98 (3.99%)	33 (1.34%)	52 (2.12%)

7. The instructor showed respect for students, and created a safe and supportive learning environment.
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Question Type: Likert
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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001, Hott, John

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
45	4.76	0.48	35 (77.78%)	9 (20.00%)	1 (2.22%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
2723	4.54	0.74	1743 (64.01%)	741 (27.21%)	131 (4.81%)	42 (1.54%)	23 (0.84%)	43 (1.58%)

8. What aspects of the course most helped your learning?
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Question Type: Short Answer
~
contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001

Total	Individual Answers
33	*See below for Individual Results*

To be completely honest, taking the exams probably helped my learning the most. They taught me the way to think about solving problems, not necessarily how to come up with a full solution on the spot. I think part of the challenge in applying Algorithms in the real world is the abstract nature of what we are going to encounter. Sometimes, all we really need to do is just take a step back and create a basic, easy to explain solution that can later be picked apart and created to the T.

The homeworks were good at helping me understand the material, since we had to understand the concepts in order to complete the homework.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~
	Online videos to go back and review material.
	Office hours
	Powerpoints and assignments
	The material was very well organized, and you could tell effort had been put into designing the lectures and graphics. The instructors were accessible and cared about my learning.
	The homeworks
	Lots of Office Hours
	Discussing homework questions with other students.
	The lectures were well done; the selected algorithms to study gave us a pretty holistic learning experience in regard to the world of algorithms.
	Going to TA and professor office hours
	the fact that prof hott was accesible
	Homework assignments
	Definitely the in class lectures and the depths at which algorithms were discussed.
	Lecture were by far the most informative part
	Office hours helped when they weren't overly crowded. Exam review sessions also helped. I appreciated that the professors recoded lectures as this helped with reviewing and understanding the concepts later on and was really helpful for studying.
	When Prof. Hott stopped to ask the students if they were able to understand the algorithm we were learning. This helped me understand the algorithm that gave me difficulty.
	the lectures being recorded, the slides and some of the homeworks
	I like how the course is organized. It made it clear
	The collaboration policy allowed us to work with up to 4 people so it helped most that I could learn through working with other people who are either equally as confused or understand it better. It was also helpful that there were practice exams and office hours almost any time of any day. Professor Hott was so nice and he really made himself available to students who needed his help so I appreciated that.
	programming assignments
	The professors and TAs putting in long hours to help us understand material made it a good learning environment.
	the hw assignments
	Homeworks were helpful in learning but were very difficult.
	The homeworks. I feel that algorithms, like so many CS courses, is a topic best taught through experience, practice, learning, and making mistakes. There was plenty of opportunity for this through the course, both with the midterm and the many homework assignments. Furthermore, all work outside of the course were the homework assignments, as opposed to readings or quizzes, which allowed us to focus on learning as opposed to assessment or unnecessary assignments.
	The homework assignments
	The homeworks and plentiful office hours were the most helpful.
	The lectures.
	Attending lectures
	Lecture was good
	Watching lectures at my own pace
	The homeworks and Office Hours
	Assignments

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

9. What changes to the course would most help your learning?
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Question Type: Short Answer
~
contributed by Dean of the School of Engineering and Applied Science

Results for CS-4102-001	
Total	Individual Answers
31	*See below for Individual Results*

Nothing really

Maybe if they did one class at the very beginning of the course about how to write an effective proof, that would be very helpful.

more programming and a little less theory

Release average of the midterm.

Would have preferred more programming assignments over LAtEx. P vs. NP unit could be completely eliminated in favor an industry/Leetcode style interview prep.

I would have appreciated more practice exams or at least more practice questions for exams. Also, I would have liked the homeworks to more closely reflect what we learn in lecture. Often it seemed like we learned about specific algorithms and problems in lecture and then had to figure out completely different algorithms that were only broadly connected on the homeworks. A lot of these algorithms were already from well-known problems with precise solutions, so I feel like we should have just covered them in lecture. Being barely able to understand the concepts from lecture sometimes, having to independently figure out completely different algorithm solutions was extremely difficult.

more time to complete homework assignments

Some of the homeworks felt inaccessible to me. I needed constant help from TAs, and, as a result, feel little confidence in my ability to solve problems and formulate proofs from the class on my own.

A better textbook, better practice exam solutions, and a better set of practice exam questions.

With so much material, it is tough but slowing down and making sure students really understand the material.

Having problem-specific office hours where TAs cover a single problem in-depth/work through the problem on a board would prevent them from repeating themselves to different students over and over and eliminate long queue waiting times.

I think that some homework questions are impossible to answer unless students attend office hours - this forces students to put a lot more time than expected into the course and it is unfair for students who have other obligations or a harder courseload outside of Algorithms.

Explaining the correctness and proving the running time was difficult to do in the homework assignments. The professors explained the process of proving correctness and running time but I feel like they need to spend more time on that. Students usually would seek help for proving the correctness and running time in office hours.

More programming assignments.

More in depth into proving correctness

Giving us more example problems to study.

no coding assignments - not really helpful or relevant to what we learnt. fewer homeworks, or maybe 2 problems a week max.

Maybe shorter assignments and a better textbook.

Make the homeworks a little easier, or provide some kind of guidance toward the solution.

add some more coding problems

Giving hints about which types of algorithms to use for particularly difficult problems.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

The course currently leans heavily on office hours and lecture. To do really well in the course you are expected to have a study group and/or attend office hours regularly. This makes the course a bit more difficult if you don't have time to do the latter, or have trouble making friends for the former. I will freely admit this is partly because I'm just a shy person and, because I'm not a CS major, I didn't know anyone in the class; however, I do wish some provisions were made for students in this position, such as supplementary, optional reading that can help if you're struggling with a particular homework question. The textbook is a fantastic reference but it's a very poor resource for learning. Also, this isn't really a problem with CS4102, but CS2102 does not prepare us for this course. Most

Comments on another course
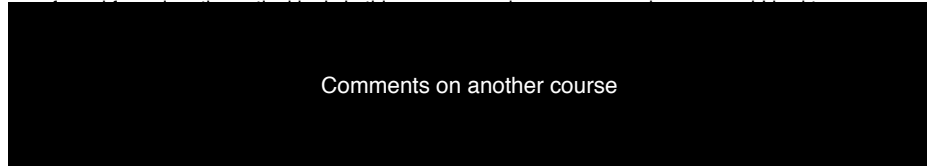
better explanation of how to write a proof

Somehow make the assignments take a little less time to complete

I thought this course was taught way too much like a theory class. Given that the only background in proofs most of us have is from CS 2102 which is taught through Lean, I couldn't quite understand why the instructors for 4102 expected us to do well with written proofs on almost every assignment. The CS curriculum here (up to taking 4102) really only teaches you how to code. Even Discrete was based on code. So it was extremely difficult to not only know what to do but also to do it well for all the proofs we were assigned. Either theory should be made a prereq for this course, Discrete should be changed to teach us proof of correctness and runtime better, or 4102 should teach us how to do them in detail before assigning that sort of work to us.

More programming assignments, less proofs! I did enough of proving in discrete math, and I personally don't see the real world computer science benefit in proving that my algorithm runs in $O(n)$ time, if I already know that it runs in $O(n)$ time, or showing someone that my algorithm is correct, when I know it is correct. It works the same way on the flip side, if I don't know my solution is correct, or if I don't know my runtime is correct, that's it! I don't know! I don't think showing this added anything to my algorithms experience, except for hours wasted debating how much we needed to write to really satisfy the directions of "show that your algorithm is correct and prove its runtime, after telling us the runtime"

More interesting lectures

I think a different lecturing style would be more conducive to learning. It wasn't really useful to go to lecture since Prof. Hott just read the PowerPoint slides, which were available on collab anyways.

The slides could be more clear; I think Robbie gets a little caught up in the visuals :)

I don't know a specific change, but I struggled with this class. To me, it seemed like this wasn't really a skill I could practice and get better at. The problems basically came down to whether or not you had an "aha" moment about a specific question.

Have more TA for office hours or set up a queue system for the TA office hour to be more efficient

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10. The average number of hours per week I spent outside of class preparing for this course was:
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Question Type: Multiple Choice
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contributed by Office of the Provost

Results for CS-4102-001

Total	Less than 1 (NA)	1 - 3 (NA)	4 - 6 (NA)	7 - 9 (NA)	10 or more (NA)
45	0 (0.00%)	1 (2.22%)	7 (15.56%)	18 (40.00%)	19 (42.22%)

Results for SEAS, 4000-level courses

Total	Less than 1 (NA)	1 - 3 (NA)	4 - 6 (NA)	7 - 9 (NA)	10 or more (NA)
2457	114 (4.64%)	773 (31.46%)	1004 (40.86%)	364 (14.81%)	202 (8.22%)

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11. I learned a great deal in this course.
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Question Type: Likert
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contributed by Office of the Provost

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
45	4.31	0.73	20 (44.44%)	20 (44.44%)	4 (8.89%)	1 (2.22%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
2460	4.13	0.91	963 (39.15%)	1045 (42.48%)	294 (11.95%)	117 (4.76%)	41 (1.67%)

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

12. Overall, this was a worthwhile course.
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Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4102-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
45	4.18	0.78	17 (37.78%)	20 (44.44%)	7 (15.56%)	1 (2.22%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
2458	4.15	0.96	1051 (42.76%)	962 (39.14%)	274 (11.15%)	111 (4.52%)	60 (2.44%)

13. The course's goals and requirements were defined and adhered to by the instructor.
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Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4102-001, Hott, John

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
45	4.58	0.58	28 (62.22%)	15 (33.33%)	2 (4.44%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
2709	4.39	0.82	1458 (53.82%)	973 (35.92%)	183 (6.76%)	56 (2.07%)	39 (1.44%)

14. The instructor was approachable and made himself/herself available to students outside the classroom.
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Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4102-001, Hott, John

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
45	4.71	0.51	33 (73.33%)	11 (24.44%)	1 (2.22%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
2718	4.42	0.81	1562 (57.47%)	832 (30.61%)	243 (8.94%)	55 (2.02%)	26 (0.96%)

15. Overall, the instructor was an effective teacher.
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Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4102-001, Hott, John

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
45	4.56	0.69	29 (64.44%)	13 (28.89%)	2 (4.44%)	1 (2.22%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
2722	4.31	0.90	1416 (52.02%)	918 (33.73%)	248 (9.11%)	91 (3.34%)	49 (1.80%)

16. Please make any overall comments or observations about this course:
~
Question Type: Short Answer
~
contributed by Office of the Provost

Results for CS-4102-001

Total	Individual Answers
22	*See below for Individual Results*

Comment on TAs

I believe this was not a worthwhile course for me personally because I am interested in pursuing more creative, design-related CS fields and I felt that being require to take algorithms was really unnecessary for going in that direction, especially given the difficulty of the course. However, it seems like a worthwhile course for people more interested in problem solving and math within CS.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

I wanted to like this course more than I did. But the homeworks were brutal, especially because there was so much latency on receiving feedback; it was almost impossible to determine the right amount of effort to put in, which induces stress

First I want to say that Professor Hott was an incredible instructor and nothing that's wrong about this course reflects on him personally. However, a lot of the times in lecture we focused on proving why an algorithm works, or its runtime etc. I feel like it could have a more application based approach where we learn more in lecture of how to use these algorithms in other given problems. I really appreciate the collaboration policy but really if you don't go to office hours and have huge groups of people working with the TA to understand these problems, it seemed impossible to get them done. The grading was really picky and sort of inconsistent.

Great Job!

Great course

I spent hours on the homework and would hit all the main points, but the graders would find some small detail to take off points.

This course should be more than 3 credit hours, the work required is beyond the level of a 3 credit class. This class being 3 credits is extremely unfair.

Tough, but definitely well run and fair.

useful, overall!

I really enjoyed this course, as difficult as it was I feel like it was very fair and I learned a lot. I think Professor Hott did an excellent job teaching this course and that it was structured really well.

The number of hours I put into this class does not reflect the grade I got and the knowledge I feel like I have. The work was just too much on a weekly basis. One assignment after another gave no time to actually reflect on the information. I felt like I was learning to get work done and never thinking about it again. The staff was great and supportive. The assignments were fun, just really really long.

Comment on TAs

grade everyone's written homeworks, but come on. You have strict deadlines for us to submit homeworks by. It would be nice to get grades back relatively promptly. It would take over three weeks to get some homeworks back....

a time consuming course, but i liked it

Great class

Would highly recommend this class to anyone who wants a job in CS. Concepts in 2150 and 4102 often showed up in my interviews.

I was not prepared for the proof-writing parts of the class and I don't think the course itself did enough to address this. Also, some of the homework algorithms were a bit too complex to reasonably expect that the average person could devise them themselves in a limited amount of time.

The homework portion is be graded more consistent and less percentage of the total grade. Overall, Professor Hott is a great lecturer.

The homeworks were extremely time consuming as they were very difficult. I don't know if it was just me, but there were only a select few homework problems from the ENTIRE semester that I was able to figure out on my own. Perhaps it had more to do with my personal aptitude, but I consistently attended lecture and really put effort into the homeworks. However, I would always find myself in office hours just waiting for the TA to basically spoon-feed us the answer. I think that having some kind of step-by-step walkthrough to lead us to the solution could be more helpful. In the end, we have to truly understand how the algorithm works anyway in order to write about it well, but making us spend countless hours struggling with it on our own provides no extra benefit than simply leading us toward the solution with hints/guiding questions. That being said, Prof. Hott made it clear that he's put a lot of thought into how to best structure the course/homeworks, so I recognize that it is tough. Overall I think I got a lot out of this course. Well done Professor!

This course helped me understand different types of algorithms that are used in computer science. Although it was one of the hardest classes I have taken, it will be a memorable one.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~
	The fact that TA office hours were so spread out was super helpful. I know there was debate over whether or not this was the best way to do things, but I think starting with spread-out office hours and then having TAs who have mostly-empty office hours move their hours to a more populated time (stacking TAs during busy hours) would be ideal. Also, I want to comment on what an absolute champion Professor Hott was. Despite family emergencies coming at a really bad time, Professor Hott tried to give as many lectures as he possibly could, and found good replacements when he couldn't. Professor Hott held way more extra office hours than was required by the syllabus or University policy, both during this time of crisis and afterwards when regrade OH got busy at the end of the semester. He really seems to care about us and tries to give students as many opportunities to succeed in the class as possible, despite the enormous, growing size of the class. He and Professor Wu are doing an amazing job teaching this course and I hope they do for many years to come, if that's what they want to do. This course was really hard but totally worth it. I was kicking myself while taking it, and I felt really stupid when I couldn't figure out certain problems, but looking back on it, I'm glad I took it.