Graph Course Questions

took this course

Median 3 Interpolated Median 2.89 Mean 2.78 Std Dev 0.54



Dates: 04/26/2017 - 05/04/2017 Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

How did the workload of this course 6 N = 65compare to that of other courses you've taken n Computer Science?

Slightly heavier			
Slightly fiedvici		12 (19%)	
About the same		4 (6%)	
A bit easier	1.1	0 (0%)	
Much easier	1 de 1	0 (0%)	
	About the same A bit easier Much easier	About the same Abit easier Abit easier	About the same 4 (6%) A bit easier 0 (0%)

Median 1 Interpolated Median 1.16 Mean 1.31 Std Dev 0.58

How did the workload of this course 7 N = 65compare to that of other courses you've taken in other departments?

1	Much heavier		54 (83%)
2	Slightly heavier	8 (12%)	
3	About the same	3 (5%)	
4	A bit easier	0 (0%)	
5	Much easier	0 (0%)	

Median 1 Interpolated Median 1.10 Mean 1.22 Std Dev 0.52

Do you feel that the workload of this N=65 8 course helped you learn the material well?

1	I was too busy working to learn	19 (29%)	
2	Yes, I'm glad I was pushed		38 (59%)
3	Yes, it was perfect	7 (11%)	
4	Yes, but I wasn't challenged enough	0 (0%)	
5	The work seemed extraneous	1 (2%)	
Med	lian 2 Interpolated Me	dian 1.86 Mean 1.86 Std Dev	0.73

Interpolated Median **1.86** Mean **1.86** Std Dev

9 Of all the CS courses you have taken, N=65 how does this course rank? Very high 24 (37%) 1 24 (37%) 2 Better than average 3 Average 8 (12%) 4 Worse than average 7 (11%) 2 (3%) 5 Very low Median 2 Interpolated Median 1.85 Mean 2.06 Std Dev 1.10

Title: Spring 2017 COMS Final Evaluation Course: COMSW4118_001_2017_1 / OPERATING SYSTEMS I Instructors: Jae W Lee

Program Evaluation System

Dates: 04/26/2017 - 05/04/2017 Responses: 65/111 - 58.56% Enrollment of Registered Students:111 Enrollment of All Students:111

Comments Course Questions

Q1 Enter any additional comments here

- The course is graded very harshly and has a ton of work but I felt like I learned a tremendous amount. I wish that there was some sort of accountability system for groups though as the course is mainly group projects and I often did 80+% of the projects
- This class should be worth >3 credits. The lectures were helpful conceptually but there was, for me, a huge disconnect between the lecture material and knowledge necessary for the homework. While I know that most of the learning comes from figuring out how to apply the material to the homework, the ability to learn and understand well was at times overshadowed by the stress that came with the lengthy assignments.
- The grading penalizes almost correct and incorrect answers the same. This pushes all grades towards the average. If that approach is kept, then paradoxically, exams could be made longer which would give students more opportunities to demonstrate knowledge.

The workload for this course is well above other advanced CS classes.

- The only critique I have is the all or nothing nature of the tests. You really have to know the material very well to do well on the exams, which is good, but it is pretty disappointing when there are one or two things you don't know on an exam or aren't sure about that makes you lose a lot of points.
- I thought the first third of the class in advanced UNIX programming was great. But I felt unprepared for the daunting challenge of kernel hacking.
- Length of assignments were ridiculous, especially for people with worse teams. If you came into the class not knowing anyone, your grade and stress level will struggle significantly.

- Super rewarding course.

The assignments are for the most part feasible. But they get harder and you have to push hard to keep up.

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Comments Course Questions

- I don't always agree with Jae's grading policy. For example, on the first exam, I was very close to having a fully correct implementation for the bank account thread transfer problem, specifically the last part, but because of Jae's sort of "all-or-nothing" policy, I received 0/10 points. I received 0 points despite the fact that I at least accounted for atomicity and the possibility of deadlock, something that I don't think everybody thought of. So even if my implementation was slightly wrong due to a few details that I would have accounted for had I had a man page in front of me for pthread_mutex_unlock(), I think I should have received more credit than someone who put not much thought into the question and didn't try to account for atomicity or deadlock.

In general, I was not a fan of the format of the exams either. They somewhat seemed to degenerate the class into at least partially a memorization class, something that I don't think any computer science class should be. To be honest, I don't know if I could suggest another way to format exams, however, since this class is aimed to teach about the details of how Operating Systems, and the linux kernel specifically work. This also is part of the reason why I didn't like the format of the lectures too much either. As compared to AP where Jae would often explain things step-by-step on the board, in OS, Jae would just show slides displaying how things work (I think most of them from the textbook). I think in general, most people prefer the first way better. However, as I said before, I think this might be just attributed to what the class aims to teach, so I'm not sure if I have any suggestions.

Overall, Jae is a great professor and I'm glad I took these two great courses with him. Jae definitely knows what he's doing when it comes to what he teaches, can answer pretty much any question you have, and is very approachable in my opinion. Although some people give him a bad rep for being to aggressive at times, especially when it comes to his cheating policy, I actually appreciated this characteristic of Jae. As someone who considers himself a pretty honest person when it comes to completing assignments on my own, I am pretty agitated as well with the amount of cheating that happens in CS programs, especially at Columbia. Not only are people who cheat being unfair to their peers, they're also being unfair to themselves. I take these courses to learn, and if you cheat, you are not learning.

Anyway, Jae is great and these two classes were too (OS not as much).

- A bit excessive on the workload, but I came out feeling that my programming skills vastly improved.
- The course load is so heavy to continue being motivated to learn as the semester progresses. I understand that others find demanding workload to be extremely rewarding at the end, but not for me. This class just requires constant 24/7 time and energy of your entire semester.
- - class is brutal... but it's supposed to be.

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Comments Course Questions

- I don't think the workload was appropriate for a three credit course.
- Would have been helpful if earlier assignments were harder so that Scheduler and File system would be less of a surprise. Could also benefit from having a more cohesive narrative: for example building a stripped down OS that's specialized for a webserver that would have first been built during the systems part of the course.
- Honestly my biggest gripe with this course is the grading. Take for example the second question on the first midterm. I gave an answer which showed that I understood a large amount of what was being asked. Yet because of the way you grouped the rubric I got a 0/20. There is no reason to group the rubric the way you did. Your exams, rather than pushing students to show what they know, punish students for missing small details that quite frankly would be easily found online in any practical project. I'm not complaining about the difficulty of the exams I have no problem with hard exams. My problem is really just in the way you rail students for small mistakes, which make your exams feel more like punishment than a learning experience or fair assessment.
- This course is simply TOO MUCH WORK. Not a few hours of additional work here and there, but an exponentially larger amount of work than any other course I have ever taken in my life. This course should be divided into three courses. Honestly, each homework assignment could practically be its own course. My group and I spent a minimum of 20 hours per week wading through this material, and some weeks up to 40 hours. Putting in energy like this, I still am barely scraping the median grade. In what world is it acceptable to give assignments that quite literally cannot be finished in the allotted time? Maybe if this were my full time job, I would have enough time to do the work for this course. But in fact, I am a college student with two jobs and four other courses. It is simply unsustainable.

I cried many times over this course. Jae explained the material marginally in class, but we were left to figure out the key details necessary for doing well on homework and exams on our own. Thank goodness I was in a group with two people I liked, because I saw them more than any of my friends or my significant other this semester. The TAs tried to help but were overwhelmed. Jae was rarely well-prepared for lecture and didn't even make his own slides. Jae's attitude of "if you don't get it, maybe CS isn't for you" really made me feel hopeless whenever I struggled. I really liked Jae for AP, but OS was much harder and much less clearly explained. Did I come out of OS with some valuable knowledge? Sure. But did it have to be so impossibly difficult and overwhelming that this course swallowed my semester and threatened my emotional stability? Absolutely not.

- Exams did not make much effort to award points for partial understanding, which I thought was quite discouraging.
- The grading is not fair. In a homework, a great number of points was deducted mistakenly.

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Comments Course Questions

- Giving the same score to the members in the same group is probably not fair enough for those doing almost everything.
- Disclaimer: AP has been my favorite class at Columbia. The word around the street is that you are not as good in OS as in AP but I think people who say this are being unfair. Kernel hacking and OS theory are by nature a tougher beast. There is no "easy" way to approach them without severely watering it down. I found AP to be more enjoyable but only because I never felt lost. Yes there were some frustrating debugging moments but I always knew the path the success. OS was different. I felt completely and utterly lost multiple times while doing the hws. I questioned my love of coding, my humanity and my sanity, all while cussing out this class and the kernel documentation. You thrust us into the wild with just the basic necessities (the roadmap for HW7 was generous and appreciated but maybe a bit much) and we were forced to find our way home. Some can consider this bad teaching. I think of it as tough love. It was necessary to push us to the next level. AP was for teenagers, OS is for adults. Once I became more comfortable with the kernel and its ways (around HW7), I found the class just as enjoyable as AP. Overall, great experience. I only refrain from ranking OS among my favorite courses since I am pretty sure it gave me PTSD. Maybe in a few years I will look back at OS with endearment.

The tests....The first midterm was great. The bank transactions was great. The second midterm was a nightmare, especially the T/F multiple choice. There was absolutely no way to prepare for them and I felt didn't test OS theory/ kernel understanding at all. They felt like "do you remember this obscure comment made during lecture" questions. The dup question was good.

Although I ranked appropriateness of workload as almost excellent, I feel there should be a SERIOUS disclaimer at the beginning of this class about the workload so student don't make my mistake. I was taking 6 courses at the beginning of the semester and it was impossible to do well in every class. I ended up dropping one but only after my midterm grades took a serious hit. The work load for this class is insanity. I was warned but I did not heed the warnings since I received the same ones for Data Structures and AP, which I found to be straightforward and very enjoyable classes. OS was different. HWs 3,5,6,7 averaged over 40 hours of work. This class alone was WAY more work than all my other courses combined (4 in total). The fact that this class is only 3 credits is insulting. I actually think there should be more work for this class since I feel there was a lot of material not covered. 40 hours a week of work would be ideal and would leave students with a stronger background. It would be nice if this were the case and the class was made 5 credits so we can focus solely on learning OS well. OS is a truly fascinating subject. maybe have an honors OS class or something.

I hope Jae and TAs could release the solutions to homework as soon as late deadline is passed. If it's released days or even weeks later, I have already forgotten the details. Also the quality of solutions is not as good.
 They seem to be left from earlier semesters and not properly updated.

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Comments Course Questions

- A really ridiculous course load: this class is the equivalent of like three classes. Additionally, I feel like there's a disconnect between lecture and the assignments, especially in the second half of the semester. I feel like I spent way too much time googling things that should probably have been discussed in class. I think the professor should think about giving a lecture about reading Linux source code/other useful tools for the course because I really felt like I was drowning in it

Dates: **04/26/2017 - 05/04/2017** Responses: **65/111 - 58.56%** Number of Participants: **111** Enrollment of All Students: **111**

Instructor Graph Report for: Jae W Lee



Title: Spring 2017 COMS Final Evaluation Course: COMSW4118_001_2017_1 / OPERATING SYSTEMS I Instructors: Jae W Lee **Program Evaluation System**

Dates: 04/26/2017 - 05/04/2017 Responses: 65/111 - 58.56% Enrollment of Registered Students:111 Enrollment of All Students:111

Instructor Comments Report for: Jae W Lee

Q1 If so, please explain why

- Instructor explains material very clearly, and the homework is well designed so that we can learn better.
- no
- I learned a lot
- The course is incredibly well structured and the material is very applicable and interesting. I took this class specifically because Jae was teaching it as I had enjoyed Advanced Programming so much. This has been by far my favorite class at Columbia and one that I have learned the most from.
- Jae knows exactly how much his students are capable of doing and in what time frame they can accomplish the homework assignments.
- I think Jae organized the class in a way that builds on what we learn in AP very well. We do not delve directly into OS kernel code but are given time to have a better understanding of the UNIX ecosystem first (processes, sockets, I/O, threading...). Then, since we want to look at how these things are actually implemented, the transition to the Linux kernel seems very natural. This seamless transition and the fact that the first part of the class prepares us for the very large codebase of the kernel make me feel like I can now look at the most essential parts of the kernel code and know what it is doing in an abstract sense. Additionally, Jae avoided getting too caught up in the exact details of the implementation in class and instead concentrated on giving us a big picture understanding of what was going on. The assignments gave us the opportunity to do this more tedious line-by-line work that was greatly facilitated by the knowledge of the large-scale organization of the system.
- Very talented Lecturer and provides clear and intuitive explanations for all the concepts. Even though, I think exams could benefit from sacrificing some fairness in order to more effectively test content mastery.
- - Outstanding course organization, with a well-curated curriculum.
 - Excellent projects and interesting exams.
 - Commitment to academic honesty.
- Jae is great. But I hope he could do a better job in making pieces into a whole picture.
- Prof Lee is an excellent lecturer and really drives you to learn the material well.
- Jae is a very inspiring teacher. I most likely wouldn't be as interested in taking CS classes at Columbia as I am if not for him.
- It is quite clear from the scope of the homework and the lectures he gives that Jae really cares about pushing his students to the limit of what they can achieve.

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Instructor Comments Report for: Jae W Lee

- I've had Jae for AP and OS and consider him to be the strongest professor in the department. His classes really
 push his student to become better programmers and thinkers. Although he is a great lecturer, his strengths are
 in his homeworks. His homeworks push the students to really learn and exercise the brain. His classes are no b.s.
 classes. They never feel like busy work.
- Really a good teacher. Willing to help and care about students.
- Clear presentation and teaching.
- Excellent design of homework and pretty useful course content
- Great course overall
- I enjoyed the lectures and appreciated Jae's level of knowledge and insight into kernel history.
- Jae is an amazingly meticulous and thoughtful professor when it comes to grading; at the same time, he is very approachable and easy to talk to.
- Excellent lecturer
- Jae's teaching style is pretty good. He delivers complicated things in a clear way.
- Because he was fair, friendly, and always prepared for the class.

Dates: 04/26/2017 - 05/04/2017

Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

TA Graph Report for: Benjamin Whitmore Hanser



5	С	N=8	
	1	Poor	0 (0%)
	2	Fair	1 (13%)
	3	Good	0 (0%)
	4	Very Good	0 (0%)
	5	Excellent	7 (88%)
_	Me	ed Median 4.93 Mean 4.63 Std Dev 1.06	

6		oes th nglish	is TA communicate effectively in ?	N=8
	1	Yes	8	(100%)
	2	No	0 (0%)	
	3	N/A	0 (0%)	
	Μ	edian 1	Interpolated Median 1.00	

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TA Comments Report for: Benjamin Whitmore Hanser

Q1 Comments

- Went to see Ben one time. Although my group was the first one there, we had to wait for one and a half hours for him to actually look at our code. Instead of reading through probably fifty lines of code, he kept suggesting random, vague things that had nothing to do with our problem. When we asked him to be more specific, we didn't receive much information. I don't know if this has to do with the entire TA team being unfamiliar with newly written lab solutions, but it was a really bad experience
- super helpful!!! helped me to understand a lot of the material
- Ben is one of the best TAs. He is smart and nice. He once helps me made a shared folder in five minutes while another TA spent an hour but failed.
- Ben did very well at not giving answers while pausing to think of how to better prompt learning; would go out of my way to his office hours
- great TA, okay group partner :P

Dates: 04/26/2017 - 05/04/2017

Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

TA Graph Report for: Emily Wang Meng



Median 5	Interpolated Median 4.94 Mean 4.70 Std Dev 0.95

6		oes th Iglish?	s TA communicate effectively in	N=10
	1	Yes		9 (90%)
	2	No	0 (0%)	
	3	N/A	1 (10%)	
	Me	edian 1	Interpolated Median 1.00 Mean 1.00 Std D	ev 0.00

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Dates: 04/26/2017 - 05/04/2017 Responses: 65/111 - 58.56% Enrollment of Registered Students:111 Enrollment of All Students:111

TA Comments Report for: Emily Wang Meng

Q1 Comments

- With such a difficult course, I don't know how TAs can know everything about the material. Emily was able to help me out with the problems I had, but if I ever had an issue that was strange or out of the ordinary that she hadn't encountered, she would look into it herself and help me out.

Dates: 04/26/2017 - 05/04/2017

Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

TA Graph Report for: John Zhuang Hui



Median 5	Interpolated Median 4.97 Mean 4.95 Std Dev 0.23

6		oes thi nglish?	is TA communicate effectively in	N=19
	1	Yes	19	(100%)
	2	No	0 (0%)	
	3	N/A	0 (0%)	
	M	edian 1	Interpolated Median 1.00	

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TA Comments Report for: John Zhuang Hui

Q1 Comments

- Really knowledgeable. Also helped me a lot setting up ssh for VM.
- John's very articulate and very clear when he offers help and advice. I especially appreciate when he helps with environment set up and recommendations for good practices.
- Enthusiastic and very knowledgeable. Pleasure to have him as TA for both AP and OS
- John helped not only with the concepts and assignments, but also showed me a lot of cool tools and different ways to tackle problems that really helped improve my efficiency and knowledge of programming in general.
- John is one of the best TAs. He is smart and nice. I really love him.
- John is awesome

Dates: 04/26/2017 - 05/04/2017

Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

TA Graph Report for: Kevin Chen



6		oes th ìglish		municate effectively in	N=33
	1	Yes		3	30 (91%)
	2	No		1 (3%)	
	3	N/A		2 (6%)	
	Me	edian 1	Interpolated	d Median 1.02 Mean 1.03 Std D	Dev 0.18

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TA Comments Report for: Kevin Chen

Q1 Comments

- Patient and clear explanations. Pleasure to have him as TA for both AP and OS
- Kevin was stern TA, but a very fair one. He was very approachable and told us if the issue I had was something I should know already/figure out or if the issue was something he could help with. Over all, a great TA.
- Kevin's an brilliant TA and is always very helpful!
- He's a good'n
- Kevin is one of the best TAs. One thing to mention is that he is a follower of Jae's heuristic teaching style. He always gives hint and makes us think but seldom gives away answer. Sometimes it's frustrating. Because I may have already thought and googled a lot, a hint is not enough, I really need clear clarification to move on.
- Really knowledgeable but not grading carefully for the homework.

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Enrollment of All Students: 111

TA Graph Report for: Andy Lianghua Xu



_	Me	edian 5	Interpolated Median 4.86Me	ean 4.79 Std Dev 0.43
3	A	pproad	chability	N=14
	1	Poor	0 (0%)	
	2	Fair	0 (0%)	
	3	Good	0 (0%)	

4 Very 0	Good	2 (14%)	
5 Excell	ent		12 (86%)
Median 5	Interpolated Me	dian 4.92 Mean 4.86 S	Std Dev 0.36

4	A	Availability			
	1	Poor	0 (0%)		
	2	Fair	0 (0%)		
	3	Good	0 (0%)		
	4 Very Good		4 (29%)		
	5	Excellent		10 (71%)	
	Me	dian 5 Interpolat	ed Median 4.80 Mean 4.71 S	Std Dev 0.47	

5	С	N=14	
	1	Poor	0 (0%)
	2	Fair	0 (0%)
	3	Good	0 (0%)
	4	Very Good	2 (14%)
	5	Excellent	12 (86%)
	Me	edian 5 Interpolate	ed Median 4.92Mean 4.86 Std Dev 0.36

6		Does this TA communicate effectively in N=14 english?				
	1	Yes			14	4 (100%)
	2	No		0 (0%)		
	3	N/A		0 (0%)		
_	Μ	edian 1	Interpolate	ed Median 1.00		

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TA Comments Report for: Andy Lianghua Xu

Q1 Comments

- Really good TA.
- Very approachable and nice individual. Andy's also very patient and will meet you where you are.
- Andy is a good TA, but he seems not very much like me. Maybe I go to office hour too often and am too eager to ask questions. Once he left me alone for an hour till I shouted out frustration. But since then he is much better to me. I just want he could tell me what he expects from me frankly but not let me guess.
- Seems to know a lot about kernel code on the back of his hand!

Dates: 04/26/2017 - 05/04/2017

Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

TA Graph Report for: Mitchell Alan Gouzenko



6		oes th nglish		imunicate e	ffectively in	N=25
	1	Yes			2!	5 (100%)
	2	No		0 (0%)		
	3	N/A		0 (0%)		
	M	edian 1	Interpolate	d Median 1.00		

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TA Comments Report for: Mitchell Alan Gouzenko

Q1 Comments

- Mitchell is one of the best TAs. He is smart and nice. He always stays longer than the official time, once he extend the office hour by another hour. He knows the homework in and out, able to clarify every detail.
- Effective communicator and genuinely wants to help
- Excellent TA! Truly helpful!
- This guy is the man. Quick and really helpful responses on listserve and office hours. Super knowledgeable.

Dates: 04/26/2017 - 05/04/2017

Responses: 65/111 - 58.56% Number of Participants: 111

Enrollment of All Students: 111

TA Graph Report for: Raphael Shai Norwitz



6		Does this TA communicate effectively in N=11 english?				
	1	Yes	1	1 (100%)		
	2	No	0 (0%)			
	3	N/A	0 (0%)			
	M	edian 1	Interpolated Median 1.00			

Program Evaluation System

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TA Comments Report for: Raphael Shai Norwitz

Q1 Comments

- Raphael is always willing to help. But he is not as knowledgable as some of the best TAs, he may fail to solve your problem.

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Comments Course Specific Questions

Q1 Do you have any suggestions for improving the logistics of forming and changing groups?

- Have people clarify a realistic budget or schedule of how much work they can put in the class. Some people are too busy to take this course
- no
- No, it was very clear.
- Better access to which groups are available. It is difficult to leave a group if one wants to, if they are unsure which groups they may be able to join.
- I didn't have a great team but it's my own fault.
- there's no better way to do it, honestly. even though my group changed multiple times, things still worked out for the most part, so i have no qualms with the way it was set up
- So far so good
- I was fortunate to really like my group, and in fact, we all became pretty good friends over the course of the semester. But the group assignment process is certainly based mostly off of pure luck. I do like that there is an option to change groups before every group assignment, which leaves a loophole for those having issues with their group. One thing I would like to see implemented is that every group gets a guaranteed 30 minute time slot with a TA every week, just to talk about their specific questions. Sure, this is a lot of time and scheduling, but if you're going to leave groups to figure everything out on their own, at least give them access to help on a regular basis rather than making them wade through the (often) absolute chaos of office hours.
- No I thought it was fine. Fortunately I was happy with my group from the start and we worked together well so we didn't have to change.
- No.
- I would have benefited from a different setup for groups. At one point, I really felt I needed to change groups as I had done two assignments in a row almost completely by myself, but I couldn't find another group that was willing to take on another person. I was trapped with a group that was not participating. I could either abandon my group entirely and send an email to the listserv hoping that someone was going to reach out, or I could stay with my group and just ask a few people I knew. It was a stressful situation. Jason Nieh has an interesting group policy that I feel would have saved me a lot of time and stress.
- Allow two teammates to kick out the third.

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Dates: 04/26/2017 - 05/04/2017 Responses: 65/111 - 58.56% Enrollment of Registered Students:111 Enrollment of All Students:111

Comments Course Specific Questions

- I think that a system of group accountability or evaluation would be helpful. I ended up doing 80+% of the work in my group because otherwise we wouldn't finish in time but at the same time I don't necessarily feel like my other group members deserved to receive the same grade if they didn't do the work. For example: after assignment 7 I looked at the statistics on github and I had written 880 lines of code, another group member wrote 60, and the third group member did nothing.
- Not all master students have taken AP. A little more warm-up is needed.
- No.
- No, seemed good to me
- Have a social event in the beginning of the semester.
- Absolutely. I was told that in previous semesters, there was potential for review of Git blames for HWs. I understand that it's more work on the part of the instructors, but it does seem unfair to the students that if one or two group members do all of the work on a project, the other(s) receive the same grades.

The switching deadline is also very early on (5 days before the deadline), and given that deadline, it's difficult to get a sense of whether your group mates are going to disappear while you do all of the work on a project.

- I feel like there should be a group lab earlier on in the semester, so you can see if your group actually functions well before the workload gets crazy heavy
- Nope
- No, that was fine.
- Unfortunately not, but I think if it was possible to make the loads a little lighter to have more individual homeworks rather than group projects, it would be more fair.
- It's good now.
- No, this is fine
- No
- Sort students by College/Masters/PhD. I ended up with two College students, and (1) our schedules did not sync up, and (2) their time management habits were very different than someone who has been in the workplace for several years.

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- I was just a little confused by the fact that all group members have to add themselves and that otherwise the group is open to anyone in the class even if one member is already in it. But that's more of a problem with the courseworks tool itself.
- No it was fine.
- No.
- Assign groups randomly, teach students to work with people they don't know

Q2 Was the Arch Linux setup (HW1) a valuable experience, or simply busy work?

- I think that is an extremely valuable experience. I did not think it was so easy to compile your own kernel and I don't think I was the only one thinking that. The Arch Linux setup helped make the daunting task of kernel hacking seem much more accessible and doable. I think this was the main philosophy of the class; from writing our own web server to creating a basic filesystem, we learned that none of these tasks that seem impossible at first are really that undoable if we just work on them consistently and diligently (and seek help when we hit a roadblock). This is a great thing to keep in mind not just when writing software but also in life in general!
- To be quite honest, was mostly busy work, since I didn't understand what was going on at the time. If students could review it again at the end of the semester in class, they would probably be amazed by how much they learned.
- It kinda felt like busy work, but definitely wasn't the most ridiculous assignment for this class
- It is the base of future HW.
- Valuable even though it could have been improved with the emphasis on setting up a good work flow: cscope, bash, and sshd.
- At the time it felt like busy work, but if I ever need to set up Arch Linux or a similar OS in the future, I'm sure it will prove itself to be a useful experience.
- Good experience.
- Fairly useful.
- It's very very valuable!!! Or I couldn't survive the course.
- HW 1 was valuable.

Program Evaluation System

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Enrollment of All Students:111

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- It was valuable.
- It was tedious yet interesting. Unfortunately, I forgotten everything abut the set up already, making it pretty useless. In retrospect, I think that time would be better used for kernel/OS stuff.
- it was a valuable experience.
- Very valuable. I had decent experience with Linux already and this was still very valuable.
- A valuable experience.
- Busy work
- Absolutely useful
- Both, but its obviously necessary to get set up and it was useful to have the guidance.
- I already did it, but it's cool
- I thought it was a valuable experience
- more valuable than not
- good
- It's valuable
- I do not think I understood what was happening then well enough for it to be as valuable as it was expected to be.
- I thought it was fun and interesting, but something I can see myself doing in my spare time rather than for a HW
- I think it was valuable.
- That was very necessary
- It was good to understand how to set up a Virtual Machine but did lean towards the busy work side.
- Valuable.
- Not sure if I learned a lot from that process

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- It was good for people who have never worked with Linux in any detail. I had two frustrations with Arch. One, updating did break things at least once. The move from 4.4 to 4.9-lts cost me 4 hours. The other was that when the reference VM was subsequently released and you were better off directly developing in that. I would not encourage people to put any time into customizing their VM and have them switch to the reference right away. You should try to release the reference the day after HW1 is due.
- I think it was a useful thing to do once.
- I feel it was 90% grind with 10% useful stuff. I felt I was just typing in commands without fully knowing what I was doing. And at the end, I didn't understand what I had done. When errors arose, I had no idea how to fix them.
- I can see how it would've been valuable but simply didn't know enough about OS in the beginning of semester to appreciate/ understand/ retain much of the explanations. Wish I had found about ssh-ing to VM much earlier than literally the last few minutes before finishing HW8!!
- busy work, but not too demanding
- It wasn't exactly valuable, but more of a bragging right
- Valuable experience
- I thought it was a valuable experience because it introduced us to Linux (for those with no experience) and many of the more obscure steps in the setup process would become clearer as the course progressed in essence, it was a valuable starting point to the course.
- I did not find that the Arch Linux setup particularly enhanced my understanding of the course material. It did make navigating my VM easier in the future, though. I think a shorter version of the setup may have been better.
- It is a valuable experience and I am glad I got to use Arch Linux.
- Somewhat instructive, mostly busy work since it didn't really reinforce any kernel concepts, just decent stuff to know about how kernel compilation works.
- A valuable experience.
- Valuable.
- Good experience, but should be something students do before even coming to class

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- It was a good way to get your feet wet and get a taste of C, which was the intention. I saw nothing wrong with it.
- I thought it was valuable. It gave me a feeling of confidence that I could install my own operating system.
- Not bad experience
- I would say it's more like busy work. The setup is important, and time-consuming, but it's very hard to take this as an opportunity to learn all the configurations and personalize things.

Suggestion: Maybe hold a setup session where people do all the download/compiling etc at home but come together to tune the OS where TA can explain why we are doing each step?

Another suggestion: Later on in the semester we need to do kernel programming. It's not easy to install vim bundles like YouCompleteMe, cscope etc. A setup that includes all those will be beneficial for the later part!

Q3 We held review sessions for the HTTP server (HW3) and both exams. Did you find them useful?

- Kind of
- Yes
- Yes, very useful.
- yes
- I didn't find them very helpful
- I think super office hours are more useful than exam review sessions.

But I think it would be useful for there to be a recitation about setting up a good workflow, especially in advance of hw 6. This might include setting up your VM so that you can ssh into it, configuring cscope and YouCompleteMe. Maybe an email, like the one the TAs sent this semester, is sufficient. But improving our workflow proved very valuable for HW 7, and our poor workflow certainly didn't help us with HW 6.

- Neutral feelings about them.

- They were ok. The second session I went to was helpful but there was still a lot of things we had to figure out on our own.

Program Evaluation System

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- Didnt go
- I am a commuter and was unable to attend these. They were held at inconvenient times for commuters and non-traditional students.
- Did not attend so cannot comment.
- The review session for the final was fairly helpful. I did not attend the others.
- Yes, they were useful.
- Was unable to attend.
- I went to the first one it was OK, it mostly consisted of TAs reading from a slide deck
- HTTP server review session is helpful. Exam review not quite. The reason is because Jae's exam is somewhat random (for example, we spent many time on reader/writer lock in both class and homework and review session, but it is minimally tested on exam -- instead, a 15pts question about identifying "dup" was asked)

Suggestion: Jae mentioned in class that he expected the exam to be easy, but it turned out that the mean was not that high. It is a problem and is worth pointing out -- the class in general does not comprehend the knowledge as instructor believes. One reason may be the disconnection between what is being taught and what is being examined. Another reason might be some loose wording in exam (and given the fact that no partial credit for many questions, you get all or nothing). Review session can be designed to let students know what to focus more.

- Not so much for HTTP, but the exam reviews were helpful!
- Yes.
- Exam reviews quite useful. Though I took AP so the HTTP review is not as useful.

But I hope TAs could also answer questions about second midterm. I get an OK score but I really want to understand all questions on it.

- Not quite.
- The midterm review sessions succeeded in giving an overview of all the topics covered, but I wish they had been more detail oriented. I already had general knowledge of the midterm topics coming into the review sessions, so I would have preferred if the TA's had given more test-style questions.

Program Evaluation System

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- Yes absolutely
- Pretty useful.
- They are quite useful.
- I went to both of the exam review sessions. I would give them a 5/10 overall for helpfulness. Each contained a general overview and some valuable nuggets of specific, useful information. Inevitably, both exams would contain a large amount of esoteric knowledge that was outside the scope of the review. I would have liked for the review sessions to basically consist of 1) TAs solving problems step by step for the class, and 2) more specific information about what to study for the exam.
- didnt go
- I did not go to the HTTP review. The exam reviews were useful but a bit shallow. I wish they had actually been several hours long with more questions/participation.
- didn't attend any. but looked over the slides, which were indeed helpful.
- Did not attend.
- While I did not attend the HTTP server session, the exam review sessions were very useful.
- Yes the review sessions were useful.
- Yea
- Could be better, felt rushed and somewhat unprepared.
- Yep. The HTTP server was only helpful for the assignment, not really for any of the concepts learned in class.
- YES
- Yes
- Yes, the slides and review sessions were very helpful
- Useful
- YAS.

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Program Evaluation System

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- Not particularly, a few glances over the code and I was familiar with it again. Reviews for the later group projects (scheduler, file sytem) would have been more useful
- Exam sessions were good.
- nope
- Yep
- Useful
- At the least, the HTTP server one was very helpful. I wasn't able to attend the review for the exams :(