IASystem
The Course Evaluation Standard

CSS 343 D
Data Structures, Algorithms, And Discrete Mathematics II
Course type: Face-to-Face

Evaluation Delivery: Online
Evaluation Form: A
Responses: 16/46 (35% moderate)

Taught by: Yusuf Pisan
Instructor Evaluated: Yusuf Pisan-Other

Overall Summative Rating represents the combined responses of students to the four global summative items and is presented to provide an overall index of the class's quality:

Median	College Decile
4.7	**7**
(0=lowest; 5=highest)	(0=lowest; 9=highest)

Challenge and Engagement Index (CEI) combines student responses to several *IASystem* items relating to how academically challenging students found the course to be and how engaged they were:

CEI: 6.0
(1=lowest; 7=highest)

SUMMATIVE ITEMS

	N	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Very Poor (0)	Median	DECILE RANK Inst	College
The course as a whole was:	16	56%	31%	6%	6%			4.6	7	8
The course content was:	16	50%	31%	12%	6%			4.5	6	7
The instructor's contribution to the course was:	16	69%	19%	6%	6%			4.8	7	7
The instructor's effectiveness in teaching the subject matter was:	16	69%	19%		6%	6%		4.8	7	8

STUDENT ENGAGEMENT

Relative to other college courses you have taken:	N	Much Higher (7)	(6)	(5)	Average (4)	(3)	(2)	Much Lower (1)	Median	DECILE RANK Inst	College
Do you expect your grade in this course to be:	16	12%		31%	44%	12%			4.4	1	2
The intellectual challenge presented was:	16	50%	44%	6%					6.5	9	9
The amount of effort you put into this course was:	16	50%	31%	19%					6.5	9	9
The amount of effort to succeed in this course was:	16	38%	38%	19%		6%			6.2	8	7
Your involvement in course (doing assignments, attending classes, etc.) was:	16	50%	19%	25%	6%				6.5	8	8

On average, how many hours per week have you spent on this course, including attending classes, doing readings, reviewing notes, writing papers and any other course related work?

Class median: 14.4 Hours per credit: 2.9 (N=16)

Under 2	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22 or more
		6%		6%		19%	44%	12%		6%	6%

From the total average hours above, how many do you consider were valuable in advancing your education?

Class median: 12.8 Hours per credit: 2.6 (N=16)

Under 2	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22 or more
		6%	6%	12%	12%	19%	31%	6%			6%

What grade do you expect in this course?

Class median: 3.5 (N=16)

A (3.9-4.0)	A- (3.5-3.8)	B+ (3.2-3.4)	B (2.9-3.1)	B- (2.5-2.8)	C+ (2.2-2.4)	C (1.9-2.1)	C- (1.5-1.8)	D+ (1.2-1.4)	D (0.9-1.1)	D- (0.7-0.8)	E (0.0)	Pass	Credit	No Credit
19%	38%	6%	12%	6%	12%							6%		

In regard to your academic program, is this course best described as:

(N=16)

In your major	A core/distribution requirement	An elective	In your minor	A program requirement	Other
44%	44%			12%	

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STANDARD FORMATIVE ITEMS

	N	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Very Poor (0)	Median	DECILE RANK Inst	DECILE RANK College
Course organization was:	16	69%	19%	6%	6%			4.8	8	9
Clarity of instructor's voice was:	16	31%	38%	12%	6%	12%		4.0	2	3
Explanations by instructor were:	16	50%	31%	6%	6%	6%		4.5	6	6
Instructor's ability to present alternative explanations when needed was:	16	56%	25%	6%	12%			4.6	6	6
Instructor's use of examples and illustrations was:	16	56%	6%	25%	6%		6%	4.6	5	6
Quality of questions or problems raised by the instructor was:	15	40%	40%	13%	7%			4.2	4	5
Student confidence in instructor's knowledge was:	16	69%	25%	6%				4.8	6	6
Instructor's enthusiasm was:	16	50%	31%	12%	6%			4.5	3	4
Encouragement given students to express themselves was:	16	56%	25%	12%	6%			4.6	4	6
Answers to student questions were:	16	62%	25%		12%			4.7	7	7
Availability of extra help when needed was:	15	67%	27%		7%			4.8	7	7
Use of class time was:	16	75%	19%	6%				4.8	9	9
Instructor's interest in whether students learned was:	16	62%	19%	12%		6%		4.7	6	7
Amount you learned in the course was:	16	62%	12%	19%		6%		4.7	7	8
Relevance and usefulness of course content were:	16	56%	25%	12%		6%		4.6	6	6
Evaluative and grading techniques (tests, papers, projects, etc.) were:	16	56%	19%	12%	12%			4.6	6	7
Reasonableness of assigned work was:	16	56%	25%	19%				4.6	6	6
Clarity of student responsibilities and requirements was:	16	75%	6%	12%	6%			4.8	8	8

COURSE SUMMARY REPORT
Student Comments

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The Course Evaluation Standard

University of Washington, Bothell
Science, Tech, Engr. & Math
Term: Winter 2022 (COVID)

CSS 343 D
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STANDARD OPEN-ENDED QUESTIONS

Was this class intellectually stimulating? Did it stretch your thinking? Why or why not?

1. No. The class is too fast-paced and does not cover in-depth. It was very hard to follow the lecture without prior knowledge and illustrations.

2. The material is new and challenging to understand

4. Yes, to all questions above. It is very challenging for me and really made me think in every assignment and tests.

5. Yes, the information taught was challenging and the projects were sometimes difficult. And the LeetCode questions were great warm ups or end of class exercises.

6. The class was intellectually stimulating when we were introduced to many different algorithms and unique data structures that were used in the field of CS. It was also interesting seeing their applications and drawbacks and what made them unique. Encouraging the class to do leetcode is a great step for preparing people like myself who have never been exposed to it fully to now embrace it in preparation for the technical interview. The class is difficult, but I found it more stimulating than my previous 342 class.

7. There was a lot of new information introduced that was beyond actual coding stuff, but more in depth information.

8. Yes, this class was intellectually stimulating. I think this class is the most important class to go to further steps on CS major. Professor has tried to convey all good lectures. Those were really hard to understand and to make clear in my head, but this class was worth learning.

9. yes, I learned a lot in this class

10. This class was very interesting and very intellectually stimulating. It broadened my conceptual understanding of a lot of oop.

11. The material in the course was stimulating. The areas of graphs and finite state machines were challenging and forced me to think in new ways I had not considered before.

12. The last project, the Movies project, really required us to come up with a creative solution. Forcing us to de-couple our classes as much as possible and use a factory class was an effective way of teaching that concept. However, we had to think through it ourselves, which resulted in myself devising a solution I thought was very creative.

13. Yes, the different algorithms and data structures really made me think. The graphs and recursion stuff was hardest.

What aspects of this class contributed most to your learning?

1. Drawing at times. Drawing on a separate screen like Microsoft Paint would help students who learn best visually.

2. The class exercises and project done by pair helped me a lot.

3. Visual aids in lecture

4. The lectures and the projects contributed the most to my learning.

5. I think all aspects contributed, the way of teaching the material, LeetCode, and the projects were important aspects in my learning.

6. The professor is pretty good at breaking down concepts and making them understandable to follow. The assignments mostly have clear expectations and guidelines to follow. The ability to work with partners and working with github repositories on assignments is a huge plus in this class. Not only you get to learn from others from pair programming but you also learn a valuable skill on how to develop remotely and work with github alone. I think other 343 classes can learn from this and better prepare students for their careers by teaching them version control.

7. The lectures and examples were incredibly helpful, especially when it came to making the diagrams.

8. Overall, I'm so satisfying the way how the professor teaches and deals with the problem of students. He was so flexible to accommodate students' opinions. Actually, having exams online with an open book and open source helped me so much focus on reviewing the contents without anxiety. Even though I didn't get a good grade in the Midterm because I made some mistakes, this really worked well for me.

9. The leetcode practice is really helpful

10. Hardwork, reviewing lectures, and going to class. Leetcode exercises were helpful for syntax issues and helped with honing problem-solving techniques

11. The aspects of the class that helped me learn the most was working with a partner at projects. It helped me see another way of finding solutions. Sometimes we would have ideas that we struggled to implement and the other person was able to see the error.

12. The professor's explanations. They were very thorough, well thought out.

13. The lectures, HWs, and leetcode questions where the best aspects

What aspects of this class detracted from your learning?

1. Explaining concepts by pure words and assumption of our knowledge regarding materials present during the lecture detracted from my learning.

2. Nothing

4. I think the workload of this class detracted from my learning. It is really easy to feel lost and get behind.

5. Struggling with completing the project would distract me from learning new stuff in class sometimes.

6. As much as I like the leetcode exercises, I feel that a simple explanation is not enough for these problems because in order to truly understand some of these advanced problems, they must be diagrammed. Some of the problems we have done in class are pretty complex and I think simply explaining step by step is not enough. Another criticism I have with this class as we focus a lot on algorithms but not enough with the application in code or have practice to truly understand them. I think if I was given practice with leetcode and both material in the class, I would probably have done better in the class. The material is interesting in the class, but I would like if we had practice sheets and small assignments that were similar to leetcode exercises except they delved deep in the material we were also doing in class. I think it would help struggling students like myself who didn't do exactly as well in the midterm.

7. I felt that there were a good amount of examples for diagrams in the second half of the class, but also not a lot of leetcode problems in the second half. For the first half of the quarter, there weren't a lot of diagrams examples but there were a good amount of leetcode examples.

8. At the beginning of this quarter, I got a positive on COVID. This made me so hard to focus on the class and to keep in the flow of the class. I'm not a morning person, so class time was a little bit hard to manage well. I hope we can have more various time slots to choose from.

9. N/A

10. The way this whole quarter started was very distracting. I don't believe I am a very good distance learner and so the virtual aspect of the beginning of the quarter made things very difficult

11. The class was well structured, there wasn't anything that detracted from my learning.

12. Clang-tidy. The professor's sentiment is that it is more of a guideline than a rule. If that's the case, then why do we lose points over it? I don't think we should. The Linux lab was very unreliable. Even after troubleshooting steps, it didn't work most of the time. The create-output script required the Linux lab to run, so we couldn't just do it locally. This was annoying.

13. The readings were not helpfull

What suggestions do you have for improving the class?

1. Please draw out the concepts, especially the ones that require lots of steps in its algorithm. Also, coding samples are only helpful if you go over line by line and walk through with students on an IDE from scratch.

2. Nothing

4. Maybe assign study groups in the beginning of the quarter so we can have that encouragement and other people to talk to when we are struggling.

5. With the amount of class time and required material to cover in such a short time, I can not think of any way to improve the class.

6. Implement breaks middle in the class. We kinda have a bad habit using breaks last minute. Two hours class can be extensive on the mind. Implement more assignments or exercises that focus on material as much as the leetcode exercises. Maybe with these worksheets they can be weekly and you can elaborate on the solution end of the week to give the reinforcement students have. Additional resources that related with class material clearly and assignments would help a lot. Hopefully if the next set of students take your class, they won't feel too lost sometimes on certain algorithms or class exercises. I feel as if the class is more comfortable once more people talk and not the occasional few people give out answers. But due to the nature of being a COVID quarter first half, I think it explains why there's some struggles.

7. In relation to the previous question: Maybe try adding at least one leetcode / one coding example for the second half, like with hashtables, and the first half would have more diagram examples with the new trees and such.

8. I think it would be better to implement a big project like Movies as a group, not only as a pair or alone. This will help all the students, who are still lost on the assignment like me, can get help more on how to go through. I remember 342 in last quarter; we had a big project as a group for both design & even implementation parts.

9. Professor could give us some reading homework before the class so we can preview what will be covered in class

10. I am not sure how improve on some of the dryer aspects of the knowledge based required to be taught in the class. For example, the reading and the lecture about state machines was pretty dry, but actually working through examples was very interesting to follow the logic.

11. The class was exceptional. A possible way to to improve the class is incentivize students to come up with creative solutions or solutions are that go above and beyond.

12. Please, PLEASE, teach an alternative way to compile our create-output script. Teach us how to use a local VM, or how to write a windows shell script, anything to remove reliance on the Linux lab.

13. Less readings more leetcode

IASystem Course Summary Reports summarize student ratings of a particular course or combination of courses. They provide a rich perspective on student views by reporting responses in three ways: as frequency distributions, average ratings, and either comparative or adjusted ratings. Remember in interpreting results that it is important to keep in mind the number of students who evaluated the course relative to the total course enrollment as shown on the upper right-hand corner of the report.

Frequency distributions. The percentage of students who selected each response choice is displayed for each item. Percentages are based on the number of students who answered the respective item rather than the number of students who evaluated the course because individual item response is optional.

Median ratings. *IASystem* reports average ratings in the form of item medians. Although means are a more familiar type of average than medians, they are less accurate in summarizing student ratings. This is because ratings distributions tend to be strongly skewed. That is, most of the ratings are at the high end of the scale and trail off to the low end.

The median indicates the point on the rating scale at which half of the students selected higher ratings, and half selected lower. Medians are computed to one decimal place by interpolation.[1] In general, higher medians reflect more favorable ratings. To interpret median ratings, compare the value of each median to the respective response scale: *Very Poor, Poor, Fair, Good, Very Good, Excellent (0-5); Never/None/Much Lower, About Half/Average, Always/Great/Much Higher (1-7); Slight, Moderate, Considerable, Extensive (1-4).*

Comparative ratings. *IASystem* provides a normative comparison for each item by reporting the decile rank of the item median. Decile ranks compare the median rating of a particular item to ratings of the same item over the previous two academic years in all classes at the institution and within the college, school, or division. Decile ranks are shown only for items with sufficient normative data.

Decile ranks range from 0 (lowest) to 9 (highest). For all items, higher medians yield higher decile ranks. The 0 decile rank indicates an item median in the lowest 10% of all scores. A decile rank of 1 indicates a median above the bottom 10% and below the top 80%. A decile rank of 9 indicates a median in the top 10% of all scores. Because average ratings tend to be high, a rating of "good" or "average" may have a low decile rank.

Adjusted ratings. Research has shown that student ratings may be somewhat influenced by factors such as class size, expected grade, and reason for enrollment. To correct for this, *IASystem* reports **adjusted medians** for summative items (items #1-4 and their combined global rating) based on regression analyses of ratings over the previous two academic years in all classes at the respective institution. If large classes at the institution tend to be rated lower than small classes, for example, the adjusted medians for large classes will be slightly higher than their unadjusted medians.

When adjusted ratings are displayed for summative items, **relative rank** is displayed for the more specific (formative) items. Rankings serve as a guide in directing instructional improvement efforts. The top ranked items (1, 2, 3, etc.) represent areas that are going well from a student perspective; whereas the bottom ranked items (18, 17, 16, etc.) represent areas in which the instructor may want to make changes. Relative ranks are computed by first standardizing each item (subtracting the overall institutional average from the item rating for the particular course, then dividing by the standard deviation of the ratings across all courses) and then ranking those standardized scores.

Challenge and Engagement Index (CEI). Several *IASystem* items ask students how academically challenging they found the course to be. *IASystem* calculates the average of these items and reports them as a single index. *The Challenge and Engagement Index (CEI)* correlates only modestly with the global rating (median of items 1-4).

Optional Items. Student responses to instructor-supplied items are summarized at the end of the evaluation report. Median responses should be interpreted in light of the specific item text and response scale used (response values 1-6 on paper evaluation forms).

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[1] For the specific method, see, for example, Guilford, J.P. (1965). Fundamental statistics in psychology and education. New York: McGraw-Hill Book Company, pp. 49-53.