CSS 342 A
Data Structures, Algorithms, And Discrete Mathematics I
Course type: Face-to-Face

Evaluation Delivery: Online
Evaluation Form: A
Responses: 28/32 (88% very high)

Taught by: Yusuf Pisan
Instructor Evaluated: Yusuf Pisan-Assoc T Prof

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	**8**
(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: 5.6
(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:	28	57%	36%	7%				4.6	7	7
The course content was:	28	57%	32%	11%				4.6	7	8
The instructor's contribution to the course was:	28	71%	21%	7%				4.8	7	8
The instructor's effectiveness in teaching the subject matter was:	28	61%	29%	11%				4.7	6	7

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:	28	21%	25%	21%	29%	4%			5.3	5	6
The intellectual challenge presented was:	28	32%	43%	18%	7%				6.1	8	7
The amount of effort you put into this course was:	28	43%	29%	14%	14%				6.2	8	8
The amount of effort to succeed in this course was:	28	39%	25%	21%	14%				6.1	7	7
Your involvement in course (doing assignments, attending classes, etc.) was:	28	39%	36%	11%	14%				6.2	7	7

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: 10.3 Hours per credit: 2.1 (N=28)

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
		7%		29%	36%	11%	7%	7%			4%

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

Class median: 7.9 Hours per credit: 1.6 (N=28)

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
		18%	29%	18%	18%	4%	11%		4%		

What grade do you expect in this course?

Class median: 3.7 (N=28)

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
43%	29%	18%			7%		4%							

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

(N=28)

In your major	A core/distribution requirement	An elective	In your minor	A program requirement	Other
89%	7%			4%	

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:	28	57%	36%	7%				4.6	7	8
Clarity of instructor's voice was:	28	46%	36%	7%	11%			4.4	4	5
Explanations by instructor were:	28	50%	36%	14%				4.5	5	7
Instructor's ability to present alternative explanations when needed was:	28	54%	21%	25%				4.6	5	7
Instructor's use of examples and illustrations was:	28	57%	25%	18%				4.6	5	7
Quality of questions or problems raised by the instructor was:	26	62%	23%	15%				4.7	7	7
Student confidence in instructor's knowledge was:	28	71%	18%	7%	4%			4.8	6	7
Instructor's enthusiasm was:	28	57%	29%	11%	4%			4.6	4	5
Encouragement given students to express themselves was:	28	50%	29%	18%	4%			4.5	4	5
Answers to student questions were:	28	68%	18%	11%	4%			4.8	7	8
Availability of extra help when needed was:	28	71%	18%	7%	4%			4.8	7	8
Use of class time was:	27	48%	37%	11%	4%			4.5	5	6
Instructor's interest in whether students learned was:	28	57%	29%	14%				4.6	5	6
Amount you learned in the course was:	28	57%	32%	11%				4.6	7	7
Relevance and usefulness of course content were:	28	71%	21%	7%				4.8	8	8
Evaluative and grading techniques (tests, papers, projects, etc.) were:	28	61%	29%	7%	4%			4.7	7	8
Reasonableness of assigned work was:	28	71%	14%	14%				4.8	8	8
Clarity of student responsibilities and requirements was:	28	71%	18%	11%				4.8	8	8

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STANDARD OPEN-ENDED QUESTIONS

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

1. Yes, this course definitely pushed me to think harder especially when it came to solving programming problems. I still enjoyed challenging myself with the course material as I learned a lot during the quarter.

2. Yes, I learned a lot about DSA and discrete math

3. Yes, we tackled challenging problems that required me to think in alternate ways. The programs were different enough from previous courses that they required me to think outside of the box.

4. It definitely was intellectually stimulating, as a lot of problem solving was involved for both the leetcode problems and the projects.

5. yes to both questions because this class requries a lot of studying and revision after the lectures to make I understood all of the content that was being explained.

6. It was very intellectually stimulating. There were many challenges presented that made me have to think a lot. Such as applying new concepts to a different example.

7. This class is very interesting. I like how professor Pisan includes the Leetcode challenges, and helps us solve those. I learned a lot just by doing those challenges. Thank you for helping us prepare for the technical interview and understand the overall material!

8. This class was intellectually stimulating. It stretched my thinking through projects done for class. Lots of different ways to think of coming up with algorithms to solve projects.

9. Yes, the class was intellectually stimulating. It stretched my thinking as I learned core concepts and how to apply them.

10. yes - challenging projects and exams

11. Yes, very informative and stimulating

12. Yes, it was very challenging. I'm learning C++ for the first time. However, I think everyone else in the class already worked with it before. So I had to spend much more time trying to understand some topics that all my classmates were acting as it was obvious.

13. Yes, Concepts were tough

14. This class stretched my thinking from apply the class content to interview question

15. Yes and no. Some of the concepts were covered in prior CS courses. Some of the assignments required implementing code in two different ways, which was stimulating as it forced a change of thinking.

16. This class wasn't too intellectually stimulating since a good majority of the content was review from CSS 143 such as the data structures covered. But transitioning from Java to C++ did stretch my thinking as I learned about topics such as pointers and operator overload. Also topics such as mathematical induction and proposition logic stretched my thinking.

17. Yes it was very intellectually stimulating. I had to think logically for each assignment.

18. It was a very difficult class. It tested everything I knew about programming to complete projects.

19. I liked how the class was structured. We learned a concept and then had problems to practice the concept that we learned. The problems required a lot of critical thinking on how to apply what we learned so it definitely stretched my thinking.

20. This class was, compared to my other classes, extremely intellectually stimulating. I believe that this class was the only class that actually forced me to think about the assignment to actually complete it. The topics that Professor Pisan planned to go over each class were explained thoroughly and provided the necessary background to complete the projects assigned to us. However, students still had to do some research of their own and apply what they've learned to the assignments

21. Very intellectually stimulating and stretched my problem-solving skills as it relates to data structures and algorithms.

22. Yes.

23. Yes. It was challenging, but the topics were intellectually challenging as well, but I enjoyed it.

24. Yes, the LeetCodes completed during class allowed me to actively apply my knowledge to practical problems, and clarify questions through the professor's thorough explanations.

25. This class was intellectually stimulating and stretched my thinking by encouraging me to think through and approach problems in new ways.

26. Yes it did, the topics involved were challenging and hard to comprehend

What aspects of this class contributed most to your learning?

1. I think the in-class coding exercises helped me learn and the projects as well which helped me apply my knowledge learned in class.

2. leetcode problems and coding assignments

3. Programs, helping other people, leetcode problems, teacher instructions.

4. The leetcode questions was the biggest factor, as we were able to apply concepts to real problems that we would have to solve. They heavily varied and were very in-depth.

5. Leetcode practices which helped apply concepts from lectures

6. Attending class was very important.

7. I think the lecture, Leetcode, and projects contributed the most to my learning.

8. The projects contributed to most of my learning.

9. The class slideshows, leetcode problems, and review of each concept in class contributed most to my learning.

10. the projects

11. in class leetcode

12. Both classes and projects. Professor Pisan is so organized. He gave us enough time to understand and complete each project.

13. Tests

14. The leetcode problem during the class

15. Coding. Learning a concept and then implementing it. The CSSSkill course helped a lot in preparing me for C++, having come for a Java & Python background.

16. An aspect of the class that contributed most to my learning was the professors engagement. He answered discord messages and emails in a timely manner and many of his suggestions for how to approach a leetcode problem or the homework were very beneficial. Another aspect of the class that I appreciate was the class meetings were recorded and available to students. This allowed me to go back and review parts of the recording where he could cover something important.

17. I really enjoyed doing the leetcodes in class with the professor explaining his own solution after we try it.

18. Explanations in class and office hours

19. The leetcode problems after the lectures contributed the most to my learning.

20. The five projects spread throughout the quarter contributed heavily to my learning. In the projects themselves, I took almost every chance to apply the smallest implementation details to make my program efficient. Additionaly, the in-class LeetCode questions helped quite a bit.

21. Professor Pisan's use of LeetCode as a method of applying data structures and algorithms. If feedback is truly valued, Professor Pisan's method described as above is what truly prepares students for technical interviews. It should be obvious that this approach should be adapted by other professors, especially when it's stated that 342 "prepares you for the technical interview". Though students may be averse to it at first, introducing students to LeetCode if they haven't already is one of the best ways to not only reinforce learning and problem-solving skills needed in the software engineering industry, it's a very necessary item in preparing for technical interviews. Of course, Professor Pisan had projects which also applied data structures and algorithms that had been taught in class, but these were based on practical applications. Professor Pisan's exams were perfect in content and difficulty, not testing some niche C++ functions. I truly believed that all the assignments in this class increased my competency regarding data structures and algorithms in a practical regard. All students would benefit from Professor Pisan's approach as described above, and therefore professors should be encouraged to integrate LeetCode as part of their curriculum.

22. LeetCode problems.

23. Professor Pisan was a great teacher, his approach was very practical and more professors should take from his class structure. Technical interviews these days are very important and it's even more important to get students started on aspects of them like LeetCode.

24. LeetCode problems

25. I found that the projects and the lectures -- which integrated LeetCode questions for hands-on practice -- were most beneficial to my learning due to allowing me to apply the concepts presented in class after they were introduced.

26. The projects

What aspects of this class detracted from your learning?

1. Nothing in particular.

2. it being 3:30-5:30pm

3. I like to see how other people approach problems. Not being able to see how other people code restricts my ability to know other methods of tackling problems.

4. Some lecture days the entire time would be reserved for leetcode

5. Having more outside assignments that would be due weekly could help us stay on track with the content.

6. No aspects.

7. I don't think there is anything that detracted from my learning.

8. None.

9. Sometimes the leetcode problems were difficult which I feel detracted from my learning.

10. too much work

11. nothing

12. A group of men talked during class time because they already knew what was being taught. They whisper loud all the time. I wish they had left the class.

13. None

14. Nothing

15. The table orientation. Craning my neck in class was no fun. Some concepts like propositional logic, were gone over in class, but additional practice material would have helped consolidate the concepts. Pros and cons for a class that already takes a lot of out of classroom time.

16. No real aspect of the class detracted from my learning. I will say however, since no doing the assigned readings didn't have any consequence to my grade, I often procrastinated doing the readings therefore leading me to not be fully prepared for some of the class meetings. But I still appreciate that the readings weren't being graded and that during class, the professor would often touch on what was discussed in the readings.

17. None.

18. There a was a little too much leet code in class.

19. There wasn't anything that detracted from my learning.

20. Somewhat extended from the last question, the LeetCode questions did aid my learning but they got boring really fast.

21. None.

22. N/A

23. None.

24. N/A

25. There were no aspects of this class which detracted from my learning.

26. N/A

What suggestions do you have for improving the class?

1. I think that there should be more leetcode questions during the quarter but other than that I'm overall happy with the class.

2. None, I really enjoyed the class and I think Pisan was a very good instructor, he contributed a lot to my success in the course.

3. The best way that I have learned algorithms is on pen and paper worksheets that walk through the algorithm itself before applying code to it. Other than that, I thought the course was good.

4. While I do think that leetcode helped me understand the concepts a lot more, I think sometimes it would have been better to go over the slides more and talk about specific concepts with examples.

5. Having more exercises

6. No suggestions.

7. I don't have any suggestions.

8. Possibly go over the code examples covered in the book, but the lectures were very good regardless.

9. I suggest more review over class concepts, along with providing more opportunities to practice and learn the concepts with various examples in class.

10. reduce # of projects

11. great class

12. This class needs more time. I would have learned much more if we had stayed longer on each topic.

13. None

14. Nothing

15. Summary material for final and midterm were great. Projects provided a good opportunity to learn. clang-tidy was horrible. There to make the code better, but often took a long time to fix. Output script that goes over code was great. Class is pretty good as is. Maybe consider the flow of "Teaching then Leetcode". Such as first half lecture, break, second half coding?

16. I don't really have any suggestions for improving the class. I found no faults in the professor or class organization when it came to my learning this quarter.

17. none.

18. Spending more time in class with examples and working through code together

19. I honestly think the class is great. I don't have any suggestions for improving the class. Maybe more slides on content we've learned. At least in terms of organization I've struggled to go back and look for slides on concepts I've had some trouble retaining. Aside from that everything is good.

20. The class as a whole was really good. I don't have many suggestions but if I had to provide one I would recommend providing students some worksheets for topics like discrete mathematics and proofs by induction so students can have them as reference

21. None.

22. N/A

23. None.

24. Explanations of concepts could have been more in-depth. Content introduced near the end of the course (binary search trees, propositional logic) felt rushed

25. The only suggestion I have for improving the class is to adjust the pacing somewhat. The class felt very slow towards the beginning, with there seeming to be more LeetCode questions than necessary for some topics (especially binary search), while the class felt much faster and rushed to a degree towards the end. I feel that the class would be improved by shifting the pacing to be more even throughout the quarter.

26. N/A

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).

[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.