IASystem
The Course Evaluation Standard

COURSE SUMMARY REPORT
Numeric Responses

University of Washington, Bothell
Sci, Tech, Engr. & Math
Science, Tech, Engr. & Math
Term: Winter 2019

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

Evaluation Delivery: Online
Evaluation Form: D
Responses: 25/45 (56% high)

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

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
4.6	**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: 5.8
(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	DECILE RANK College
The course as a whole was:	25	48%	32%	8%	8%		4%	4.4	6	6
The course content was:	25	56%	28%	8%	4%		4%	4.6	7	7
The instructor's contribution to the course was:	25	64%	16%	12%		8%		4.7	6	7
The instructor's effectiveness in teaching the subject matter was:	25	52%	24%	12%	8%	4%		4.5	5	6

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	DECILE RANK College
Do you expect your grade in this course to be:	24		25%	17%	38%	8%		12%	4.3	0	1
The intellectual challenge presented was:	24	33%	38%	8%	17%	4%			6.1	7	7
The amount of effort you put into this course was:	24	42%	33%	8%	17%				6.2	8	8
The amount of effort to succeed in this course was:	24	38%	38%	8%	17%				6.2	7	7
Your involvement in course (doing assignments, attending classes, etc.) was:	24	33%	25%	12%	25%	4%			5.8	4	4

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: 14.2 Hours per credit: 2.8 (N=24)

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
		4%	4%	8%	21%	8%	12%	8%	8%	17%	8%

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

Class median: 9.8 Hours per credit: 2 (N=24)

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
	4%	12%	12%	17%	29%	8%	4%		4%	4%	4%

What grade do you expect in this course?

Class median: 3.5 (N=24)

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
12%	42%	12%	4%	12%	8%	4%				4%				

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

(N=24)

In your major	A core/distribution requirement	An elective	In your minor	A program requirement	Other
58%	38%			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:	23	43%	30%	17%	4%	4%		4.3	5	6
Sequential presentation of concepts was:	24	50%	25%	17%	8%			4.5	6	7
Explanations by instructor were:	24	46%	25%	21%	8%			4.3	5	5
Instructor's ability to present alternative explanations when needed was:	24	46%	33%	12%	4%	4%		4.4	5	5
Instructor's use of examples and illustrations was:	24	38%	50%	8%		4%		4.2	4	4
Quality of questions or problems raised by the instructor was:	24	46%	29%	12%	4%	8%		4.4	5	5
Contribution of assignments to understanding course content was:	24	42%	29%	12%		8%	8%	4.2	4	4
Instructor's enthusiasm was:	24	54%	25%	12%	4%	4%		4.6	4	4
Instructor's ability to deal with student difficulties was:	24	42%	33%	12%		12%		4.2	5	5
Answers to student questions were:	24	54%	25%	8%	12%			4.6	6	6
Availability of extra help when needed was:	24	50%	21%	17%	8%	4%		4.5	5	5
Use of class time was:	24	50%	25%	12%	8%	4%		4.5	6	6
Instructor's interest in whether students learned was:	24	58%	12%	12%	8%	8%		4.6	5	6
Amount you learned in the course was:	24	58%	17%	12%	8%		4%	4.6	7	7
Relevance and usefulness of course content were:	24	58%	29%	4%	4%	4%		4.6	6	6
Evaluative and grading techniques (tests, papers, projects, etc.) were:	24	42%	25%	12%	8%	8%	4%	4.2	4	5
Reasonableness of assigned work was:	24	33%	38%	12%	8%		8%	4.1	3	4
Clarity of student responsibilities and requirements was:	24	46%	17%	17%	17%		4%	4.2	4	5

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STANDARD OPEN-ENDED QUESTIONS

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

1. No, this class was unnecessarily difficult. It was very challenging without really teaching me anything. The jump in difficulty between the class lectures and the assignments was kind of ridiculous and hindered our learning.

2. Yes. I learned that I need to do more self-teaching out of class.

4. i think recreating data structures from scratch is a waste of time and rather maybe using existing libraries (like you would at a job) and creating something using the functionality of those + answering some questions on how the libraries/functions from the library work, would be a better, more interesting approach

5. Yes it was super interesting. 342 and 343 have been my favorite classes thus far

6. Yes, the assignments also boosted the concepts and were challenging.

7. Yes.

8. Yes.

9. Yeah. Had a lot of fun drawing all the data structures. The assignments were difficult and required a lot of time but Pisan is pretty fair with the grading. Lectures were great, in class was very useful and very engaging. More classes should be taught this way.

10. Yes, Learning about datastructure and going into polymorphism expend the understading of OOP style of language.

11. Yes, this class proposed many new concept's and ideas.

12. The coding assignments thoroughly tested our knowledge and understanding of new concepts.

13. This class was challenging and got me thinking abut various aspects of coding related to the more difficult algorithms that we learned about.

14. -

15. Exceedingly intellectually stimulating. I learned so much as well as solidified the fundamentals that I already knew.

16. Yes, lots of algorithms.

17. Yes, this class was intellectually stimulating. The topics covered by professor Pisan were very interesting. He was dedicated to teaching us interesting and useful topics and it was very cool.

18. I think the concepts brought up we're fairly interesting

19. Yes, it was very difficult and the topics were interesting a challenging. Data structures may be dry sometimes, but I feel like it was all valuable information.

20. The assignments weren't really particularly difficult, but the lectures were definitely intellectually stimulating.

What aspects of this class contributed most to your learning?

1. Not much.

2. The assignments.

3. In class exercises, programming assignments

5. Program homework and the activities/examples that we did in class

6. Having an awesome professor and good clarifications of the concepts.

7. The book/quizzes

8. Pisan have clear expectations of what we need to know and I really like that.

9. Pisan himself and his lectures.

10. Exam.. and projects

11. Honestly, the lectures were some of the best I have had at UWB, but the assignments really pulled everything together

12. The programming assignments seemed to be the most practical way of truly understanding the concepts.

13. The coding assignments since they are where I can apply the new things I have learned.

14. -

15. The slides, examples, book, lectures. The teacher was so wonderful in helping me debug an aspect my program and get it working right the day it was due. He also gave an extension which was very much needed, and really cares about his students. Will definitely take his classes again.

16. Everything

17. The lectures and doing the practice problems in class. The practice problems were great to help us practice the concepts. The class was structured in a very efficient manner, I almost never felt like there was time wasted. Professor Pisan's caring personality and kind demeanor towards his students was really nice to experience. He was always willing to answer questions, respond to emails, and help during office hours with lecture topics or homework assignments. TravisCI was awesome! Saved me so much time from having to do the whole Husky onNet/Winscp/Putty login protocol just to test on a Linux environment. (I still did do tests for my assignment on the Linux Lab, but TravisCI helped immensely in not having to use the Linux Labs so often.)

18. In class example problems and practice exams

19. Pisan's lectures and examples, and the homework assignments. The lectures were great, the examples were helpful, and the assignments were challenging. Pisan is great professor, I would gladly take another course with him if my schedule allows (and it doesn't fill up before anyone can even register like 385 did!)

20. Professor Pisan's lectures, and the use of GitHub classroom.

What aspects of this class detracted from your learning?

1. Most everything. The assignments were unreasonably difficult as well as the exams. There is no curve. Also, the assignments were huge and very difficult with a very serious learning curve and the course content did not really teach you how to do the assignments so we had to figure them out on our own. Also, there are a lot of very little nitpicky things in the assignments like using GitHub or cpplint and cppcheck that I find useless to my learning and did not contribute much to what we will be doing in the real world. It was just very difficult extra work for no reason at all. VERY DIFFICULT CLASS.

2. None.

5. None

6. I would have liked to have more worksheets, a canvas discussion based forum for referencing information and similar questions (versus the discord class chat). I think having students able to submit their own discussion posts and receive notifications when other peers respond is beneficial versus being inundated with massive notifications or disabling discord notifications and not receiving important updates is not beneficial to the learning environment.

7. The assignments. Not enough instructions

8. None

9. Difficulty of assignments. They can be quite hard.

10. Other classes and group work.

11. The difficulty of reading the board when sitting on the sides.

12. Perhaps lectures at times were hard to follow

13. For me, the tests of a class always detract since they just stress me out and I don't learn well when I am stressed. Obviously tests still need to be a thing but maybe they could be changed to help ease the stress they can cause.

14. -

15. The issues setting up CLion and everything at the start of the quarter. It was hard to know if I was setting it up right and what I was doing wrong and made me not want to program in it. It became better later on in the quarter.

17. I think the 2nd to last day, TBD day, could have been used for more final preparation. The quarter was cut shorter due to the snow storm, and we could have used more time going over some concepts that would be on the final. The topics covered that day weren't super important to go over, whereas on the final review day, the last day of class, I felt like there wasn't enough time to cover all the questions that students had. The BNF grammar was barely taught on its lecture day so we spent a lot of time "reviewing" it when we really never learned/practiced it before! I also feel very strongly that cpplint and cppcheck are large wastes of time. Most of my coding assignments were bogged down by worrying about cpplint/check errors and trying to fix them or documenting them. I think time spent documenting my code and writing good code was actually diminished because I was more concerned with fixing nagging errors from these plugins. The <= 80 characters line limit is rather ridiculous. Sometimes you might have some lines of code that are longer than 80 characters! It happens! As long as it's not constant and it's always good to keep a visual guide in your IDE of the 80 character limit line. But breaking up function headers and cout statements because they are greater than 80 characters is dumb, in my opinion, and makes code look the opposite of beautiful. I do care about writing clean, beautiful code, but cpplint/check are just annoying nags and the 80 character limit is annoying. Also I felt like using Discord for a class discussion board was not very good at all. I love Discord, but not for school purposes... I would highly recommend using Canvas' built-in discussion boards for this. Canvas' built-in discussion boards allow students to make topics like a forum so things can easily be linked and discussions can be nested based on a thread. In Discord, you just have a long chat history. It's not easy to find information there. Also I felt like the "git gurus" were flippant at times and it felt unwelcoming and it did not encourage me to ask questions on there. Maybe have both the discussion boards and Discord available? But please not only a chat channel.

18. Lack of GitHub explanations. Assignment deadlines

19. My availability to make time for this with my work schedule, though that is no fault of the course or Pisan, the assignments are simply very time consuming.

20. I think there was a disconnect between the nature of the assignments and the nature of the tests. Fortunately the lectures were still a good indicator.

What suggestions do you have for improving the class?

1. Make the assignments more flexible and less requirement heavy. Give the students more freedom in creating their assignments their own way to show how they really think about a problem instead of placing all of these requirements in the assignments and then penalizing the students when they can't solve the problem the professors way. This seems to be an issue with all of the computer science classes but especially 343. This is a very important core class and these nitpicky requirements hindered my learning. All I was worried about all quarter is whether I would pass or not because of these assignments and their jump in difficulty. The first assignment was relatively easy but then they get unreasonably difficult with no extra help. These core classes need to be restructured and reoriented. They need to be less complicated because they can be less complicated with the same level of learning.

2. More coding examples

5. None, which we didn't have the snow days, but there is nothing that can be done about this!

6. See above, but Pisan is an awesome instructor, so add worksheets and a Canvas Discussion board and this class will be amazing.

7. Assignments were distributed in 2 week periods of time and nothing in between. I would like to see in class exercises/labs that can contribute to the assignments and quizzes. The length of the assignments are too long. It would be nice if all assignments could be divided to two parts just like the last assignment. it's better for learning and practicing especially for students who aren't very strong in coding. The setup for computers was a big challenge for me. perhaps one session in the beginning of the class could be dedicated to setting up student's machines so the instructor can make sure that everyone is on the right track to success. Practice for exam would be better if we could solve one or two questions after each lecture by hand and In groups so the exams wouldn't be as intimating.

9. Can't think of any. The class is organized and structured and the use of GIT is really awesome.

10. I understand the purpose of proposing the group assignment, therefore, I have nothing to say.

11. I think this class did something that all the CS classes should do, and that is use a script with software checking tools. I feel like that brought up the quality of my code. I think that getting jolly feedback up and running as a website would greatly help.

12. None, very beneficial and enjoyable course.

13. Please get rid of the cpplint requirement, the way it wants things formatted is so cramped and hard to read, it just detracts from the experience of working on an assignment. Honestly, the code I created to fit cpplint requirements is the worst looking code I have ever created.

14. -

15. Dedicate a class day to setting up the environment. That might make it a lot easier and helpful for students in learning how to setup development environments.

16. Reorganization the testing, from 1midexam to 2mid exam and Final.

17. Let students use Canvas discussion boards to ask questions along with the Discord chat if needed. Provide final exam answer key, because it would be helpful to understand why the answers are what they are. Get rid of cpplint/cppcheck/80-character-hard-limit ewwwwwwwwwwwwwwwwwwwwwwww. Thank you for an insightful quarter, professor Pisan!

18. Spend time in class explaining exact process for using GitHub and things like .hpp files

19. The final assignment was brutally long, at least for me and a lot of those who I spoke to. More time to complete that assignment would surely be appreciated by future students, though it may be that we had less time than normal because of the snow days.

20. I honestly don't know

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.