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

Taught by: Afra Mashhadi
Instructor Evaluated: Afra Mashhadi-Assist Prof

Evaluation Delivery: Online
Evaluation Form: D
Responses: 30/33 (91% very high)

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
4.4	**6**
(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: 4.8
(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:	30	43%	30%	20%	7%			4.3	5	6
The course content was:	30	33%	40%	20%	7%			4.1	4	5
The instructor's contribution to the course was:	30	57%	27%	13%	3%			4.6	5	6
The instructor's effectiveness in teaching the subject matter was:	30	57%	23%	10%	10%			4.6	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	DECILE RANK College
Do you expect your grade in this course to be:	29	14%	31%	28%	14%	7%	3%	3%	5.3	4	6
The intellectual challenge presented was:	29	14%	28%	34%	17%	7%			5.2	3	2
The amount of effort you put into this course was:	29	17%	31%	24%	21%			7%	5.4	3	3
The amount of effort to succeed in this course was:	29	10%	45%	14%	24%	3%	3%		5.6	4	3
Your involvement in course (doing assignments, attending classes, etc.) was:	29	24%	41%	10%	17%	3%	3%		5.9	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: 10.5 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
	4%	11%	4%	18%	29%	7%	21%		4%		4%

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

Class median: 8.7 Hours per credit: 1.7 (N=27)

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%	22%	7%	22%	30%	4%	7%				

What grade do you expect in this course?

Class median: 3.5 (N=29)

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
17%	34%	24%	7%	7%	3%	7%								

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

(N=29)

In your major	A core/distribution requirement	An elective	In your minor	A program requirement	Other
52%	24%		17%	7%	

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:	29	38%	45%	10%	7%			4.2	5	5
Sequential presentation of concepts was:	28	46%	36%	11%	7%			4.4	6	7
Explanations by instructor were:	29	41%	31%	17%	10%			4.2	4	5
Instructor's ability to present alternative explanations when needed was:	29	52%	24%	17%	7%			4.5	5	6
Instructor's use of examples and illustrations was:	29	59%	21%	14%	3%	3%		4.6	6	7
Quality of questions or problems raised by the instructor was:	29	45%	31%	21%	3%			4.3	5	5
Contribution of assignments to understanding course content was:	29	59%	21%	14%	7%			4.6	8	8
Instructor's enthusiasm was:	29	66%	21%	3%	7%	3%		4.7	5	5
Instructor's ability to deal with student difficulties was:	29	59%	24%	7%	10%			4.6	7	7
Answers to student questions were:	29	55%	31%	10%	3%			4.6	6	6
Availability of extra help when needed was:	28	54%	25%	7%	11%	4%		4.6	5	6
Use of class time was:	29	55%	24%	14%	7%			4.6	6	7
Instructor's interest in whether students learned was:	28	75%	18%	4%	4%			4.8	8	8
Amount you learned in the course was:	29	41%	28%	17%	10%		3%	4.2	4	5
Relevance and usefulness of course content were:	29	52%	31%	10%	3%	3%		4.5	5	6
Evaluative and grading techniques (tests, papers, projects, etc.) were:	29	59%	21%	10%	3%	7%		4.6	7	7
Reasonableness of assigned work was:	29	55%	24%	14%	3%	3%		4.6	6	7
Clarity of student responsibilities and requirements was:	29	52%	31%	7%	7%	3%		4.5	5	6

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STANDARD OPEN-ENDED QUESTIONS

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

1. Yes, the material was presented in a clear fashion, and we were given reasonable timelines to complete the tasks.

2. I'd taken similar coursework before, so I knew a lot of the material to begin with. For this reason, the course wasn't especially stimulating to me; this wasn't for lack of material or quality in the course itself, however.

3. Overall, I think it was intellectually stimulating in that I learned C++ and learned a little more about some old topics I learned in CSS 143. However, I also felt like a lot of the content in the class was a repetition of CSS 143, and that was uninteresting.

4. I found that this class was just a repeat of Java 2. We still learned a lot but the quizzes that we took for the class did not always seem impotent.

6. This class was intellectually stimulating and did stretch my thinking because it reinforced what I already knew and expanded upon that with more detail. It also aided in establishing a more stronger connection between mathematics and computer science.

7. Yes, although the topics were covered in the Java series, Dr. Mashadi did an excellent job instructing us on how to implement the topics we already know in a new language.

8. This class was intellectually stimulating and did stretch my thinking, especially regarding the mathematical induction and propositional logic. I found it good to learn C++, as it is an important language to know for the workforce.

9. This class expanded on concepts I already knew presenting them in a new way or with a new more complex application. I enjoyed learning new things in this class and expanding my knowledge about coding.

10. Yes, because some of the topics that were discussed were easy to get abstractly but to implement took more effort.

11. n/a

12. Yes, there were concepts that I had never seen before and some assignments were very challenging

13. The assignments were given good guidelines but also left open enough that you had to really think and independently explore how to solve issues which was really helpful and challenging in a good way.

14. yes

15. Yes it did because the course material was tough to wrap my head around at times.

16. Yes, we went over math and programming concepts that were difficult.

17. Class exercises

18. I liked this class because it got me back into C++ and programming in general from over a year break.

19. Yes, this class was intellectually stimulating. The course textbook was very well written and often presented a new and interesting perspective on writing good code. The textbook presented many good programming practices and habits that I adopted as my own for programming. The instructor presented good examples in class that challenged us and allowed us to work in groups to solve them.

20. Yes the complexity and structure of different algorithms took a lot of

21. Yes, due to the amount of material covered in just 10 weeks. The challenge was to quickly learn and retain the structures specific to C++ and algorithms.

What aspects of this class contributed most to your learning?

1. I really enjoyed the chapter quizzes, and practice mid-term. Both provided extra practice on material we needed to know.

2. Doing the assignments was most useful in helping me ensure I knew the material.

3. The assignments. I like the hand-on experience with programming, and I think I learn best from that kind of thing.

4. The assignments in the class.

5. I think the parts of the course about boolean algebra and inductive proofs probably contributed the most to my learning, as these concepts were the most unfamiliar to me.

6. The practices and the coding assignments contributed the most to my learning because they allowed me to apply what I learned.

7. Dr. Mashadi's flexibility and availability in and outside of class as well as her implementation of a flipped classroom.

8. The homework assignments contributed the most, because then I had time to apply what I learned myself.

9. Some aspects that contributed most were the in-class exercises and thoughtful illustrations and explanations.

10. The assignments

11. n/a

12. The programming assignments

13. I enjoyed the difficulty of the big assignments as opposed to the less stressed review of reading and quizzes, because I did not have to stress about getting quiz scored right with multiple attempts I was able to focus on the concepts more.

14. Examples

15. The professors thorough and clear explanations were incredibly effective for my learning

16. The programming and math explanations.

17. Chapter quizzes

18. The assignments that had clear expectations and explanations contributed a ton.

19. The most effective aspect of this class to my learning was the in-class collaboration with classmates on problems. The teacher regularly used class time to present problems to the class and allow us to work in groups to solve them. She would help us when we were stuck and give good advice when we asked for it. Practicing course content in class where I can get instant feedback is extremely valuable to my learning, and working with other students to solve problems enhances my learning as well. Dr. Mashhadi made great use of class time and genuinely cared about our success.

20. The homework assignments were very beneficial and helped a lot

21. The reading and the online quiz to check our understanding.

What aspects of this class detracted from your learning?

1. It's in the middle of the afternoon, so therefore nap time. Other than that the class was great.

2. Paired learning wasn't especially helpful to me. I think if the paired learning took the form of a paired assignment, it might present a better opportunity to practiced paired work properly. In class, it tended to be more of a distraction, in my opinion.

3. Having to read chapters in a book on a topic that I know, but it has small details or nuances that you have to pick out to learn what's new.

4. The quizzes would make me think that I already know some of the material form Java 2 and I went into class some days think I already understood the materiel and would not have to listen to closely to what the prof. was saying.

5. I can't think of anything in this course that detracted from my learning.

6. None.

7. Nothing, it was excellently executed.

8. None

9. No aspects of this class detracted from my learning

10. None

11. n/a

12. The quizzes

13. I think that the introduction to the course in Linux was confusing especially because we started not using the Linux labs in the middle of the quarter. Once getting in to the labs and compiling, it was not too difficult but the amount of challenges/troubleshooting that came from it was a little tough.

14. Concepts in assignments were not taught very well in lectures

15. Nothing

16. Coding syntax.

18. Nothing really detracted from my learning. :)

19. Turning in programs through Linux Labs was, in my opinion, an unnecessary challenge. After getting my code to work properly on my own machine, it was quite challenging to chase down vague clangtidy errors. However, valgrind was a very valuable aspect to connecting to Linux labs and it taught me a great deal about finding memory leak. Overall I found connecting to linux an additional challenge that did not have a large impact on my programming skills.

20. The Lectures did drag on at time could benefit from more demos

21. The assignment instructions were sometimes not well-organized and thus, more confusing than leading.

What suggestions do you have for improving the class?

1. None.

2. More programming exercises might help students to quickly and more solidly understand material as they learn it.

3. I would suggest choosing a new textbook or maybe focus more on newer topics in the textbook.

4. Compare some of the material from Java 2 to this class and remove some of the overlapping concepts from the quiz pools on canvas.

6. None.

7. None.

8. None

9. I do not have any suggestions for improving this class

10. None

11. n/a

12. More instructor help

13. I think that the overall structure of the class was very good, and it was really encouraging that the instructor understood the difficulty of the content. Having clear links to the github repository because they were sometimes not the correct link would be good, but otherwise I enjoyed the class as a whole.

14. More explanation of concepts

15. More in class exercises, there were plenty that were effective so having more wouldn't hurt

16. Reduce the amount of assignments, require a design document for all assignments.

18. None.

19. Assignment 5 required me to write a threaded binary search tree. It was supposed to be one of the easier programs but actually ended up being the most challenging for me. If this program was indeed supposed to be easier than the others, I suggest changing the assignment in future classes to require students to simply write a binary search tree rather than a threaded one.

20. More coding as a class

21. Give recommendations for small coding exercises related to the main assignments prior to the assignment itself to give us more tools to use (ex: smart pointers, integrating templates)

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.