

Faculty Self-Evaluation of Teaching

Course: CS 485-003G: Introduction to Computer Networking
Instructor: Benjamin

Semester: Spring
Year: 2015

The student learning outcomes (SLOs) from the course syllabus are evaluated. The last SLO (number 6) in the syllabus is the same as SLO (c) for the program, though it is phrased a little bit differently.

1 Assessment of Learning Outcomes

1. *Describe the operation of common systems and protocols used in the Internet.*

This learning outcome has been assessed in the following assignments:

- Question 4 in the Midterm Exam (M4),
- Question 1(a) in the Final Exam (F1a), and
- Question 8 in the Final Exam (F8).

	M4	F1a	F8
exceeds expectations	4	8	6
meets expectations	4	2	3
almost meets expectations	2	0	0
does not meet expectations	0	0	0
substantially lacking	0	0	1

[exceeds expectations] – 18/30 *

[meets expectations] – 9/30

[almost meets expectations but some elements missing] – 2/30

[does not meet expectations] – 0/30

[substantially lacking] – 1/30

Note: * They are in the format of “the number of students/the number of assessed responses”.

Comments: the % of students who attained the [meets expectations] level or above is 90%.

Suggested improvement actions are: The outcome covers a lot of topics. The students performed better on some of them than others. We can spend more time on those topics (such as TCP congestion control) that the students did not do so well in the future.

2. *Analyze and explain the factors affecting performance (throughput and delay) in systems that communicate over the Internet.*

This learning outcome has been assessed in the following assignments:

- Question 2 in the Midterm Exam (M2),
- Question 2 in the Final Exam (F2), and
- Question 3 in the Final Exam (F3).

	M2	F2	F3
exceeds expectations	6	8	5
meets expectations	4	2	3
almost meets expectations	0	0	2
does not meet expectations	0	0	0
substantially lacking	0	0	0

[exceeds expectations] – 19/30

[meets expectations] – 9/30

[almost meets expectations but some elements missing] – 2/30

[does not meet expectations] – 0/30

[substantially lacking] – 0/30

Comments: the % of students who attained the [meets expectations] level or above is 93%.

Suggested improvement actions are: This is a topic students have difficulties in earlier semesters. We gave them more opportunities to practice on questions with regard to the performance of network systems. It seems that this time the result is better. We should continue to give different kinds of homework questions on the topic.

3. Explain approaches and protocols for implementing reliable data transfer over an unreliable channel.

This learning outcome has been assessed in the following assignments:

- Question 3 in the Midterm Exam (M3),
- Question 1(b) in the Final Exam (F1b), and
- Question 1(c) in the Final Exam (F1c).

	M3	F1b	F1c
exceeds expectations	7	1	4
meets expectations	2	9	4
almost meets expectations	1	0	2
does not meet expectations	0	0	0
substantially lacking	0	0	0

[exceeds expectations] – 12/30

[meets expectations] – 15/30

[almost meets expectations but some elements missing] – 3/30

[does not meet expectations] – 0/30

[substantially lacking] – 0/30

Comments: the % of students who attained the [meets expectations] level or above is 90%.

Suggested improvement actions are: This is a complicated concept. Many students did well on this outcome. We can continue to work on more examples in the class in the future.

4. *Describe the organization of the Internet infrastructure, and explain the principles and algorithms related to routing and forwarding in large-scale networks.*

This learning outcome has been assessed in the following assignments:

- Question 5 in the Final Exam (F5),
- Question 6 in the Final Exam (F6), and
- Question 7 in the Final Exam (F7).

	F5	F6	F7
exceeds expectations	5	9	8
meets expectations	3	0	2
almost meets expectations	0	0	0
does not meet expectations	2	1	0
substantially lacking	0	0	0

[exceeds expectations] – 22/30

[meets expectations] – 5/30

[almost meets expectations but some elements missing] – 0/30

[does not meet expectations] – 3/30

[substantially lacking] – 0/30

Comments: the % of students who attained the [meets expectations] level or above is 90%.

Suggested improvement actions are: Overall the students did fine on this outcome. One minor problem is related to IP forwarding. There are still a small number of students having difficulty in performing binary operations. We can spend a little bit more time on that before discussing IP forwarding in the future.

5. *Describe and explain principles and approaches of sharing a transmission channel among multiple stations.*

This learning outcome has been assessed in the following assignments:

- Question 1(d) in the Final Exam (F1d),
- Question 1(e) in the Final Exam (F1e), and
- Question 1(f) in the Final Exam (F1f).

	F1d	F1e	F1f
exceeds expectations	7	6	6
meets expectations	3	1	3
almost meets expectations	0	0	0
does not meet expectations	0	1	0
substantially lacking	0	2	1

[exceeds expectations] – 19/30

[meets expectations] – 7/30

[almost meets expectations but some elements missing] – 0/30

[does not meet expectations] – 1/30

[substantially lacking] – 3/30

Comments: the % of students who attained the [meets expectations] level or above is 87%.

Suggested improvement actions are: We focused on principles of different approaches of sharing a transmission channel. We got to the details of the CSMA/CD protocol, but did not spend much time on other protocols. If time permits, we can discuss in more detail on those protocols.

6. **(SLO (c))** *Implement an application-level communication protocol from a given specification.*

The SLO(c) has been assessed in the following assignments:

- Programming Assignment 1 (PG1),
- Programming Assignment 2 (PG2), and
- Question 4 in the Final Exam (F4).

	PG1	PG2	F4
exceeds expectations	5	4	9
meets expectations	3	4	0
almost meets expectations	0	1	0
does not meet expectations	2	0	0
substantially lacking	0	1	1

[exceeds expectations] – 18/30

[meets expectations] – 7/30

[almost meets expectations but some elements missing] – 1/30

[does not meet expectations] – 2/30

[substantially lacking] – 2/30

Comments: the % of students who attained the [meets expectations] level or above is 83%.

Suggested improvement actions are: Most students enjoyed the programming assignments and found them interesting. However, some students considered them difficult. One student did not submit the second programming assignment at all. We have seen a big difference in the programming abilities among students. We should continue to improve to accommodate students with a variety of backgrounds.

2 Improvements with regard to the curriculum

When we proposed this course as a new required course for CS majors, we made some adjustments to the previous related course. We also make some minor modifications to the student learning outcomes of the course. We need to update the supplementary questions used in the student evaluation of the course.