

Student Perspectives on Program Evolution

Electrical Engineering & Computer Science

MS Computer Science

Nadeem Ghani | Assistant Teaching Professor | ECS

Introduction

The MSCS program is large, well-established and with no obvious problems related to assessments. The results for the last few years are shown at top right.

However, the curriculum map is a very tight loop. While the assumptions underlying the choice of core classes hold, our assessments are an excellent indication of program health.

As a pilot study, student feedback was collected to use as indirect measure of program health. Results are shown on bottom right.

Program At-A-Glance

- 26 Faculty members

- 220 students/yr
Almost all are foreign nationals

- 30 classes offered every semester

Curriculum Map

Course	Title	PLO measured
CIS 623	Assured Programming with Formal Methods	3
CIS 655	Computer Architecture	5
CIS 657	Principles of Operating Systems	4
CIS 675	Design & Analysis of Algorithms	1 & 2

Program Learning Outcomes

1. Analyze algorithms in terms of correctness as well as time and space complexity.
2. Apply key data structures and algorithm design techniques to synthesize efficient computational solutions.
3. Use formal methods to specify and reason about program and system behavior.
4. Apply concepts of abstract machines and protection mechanisms to analyze, design, and develop system-level components that meet functional specifications.
5. Apply knowledge of computer architecture (including parallelism) to achieve software performance goals.

Outcomes Assessed in 2022-23

SP 23 CIS 675: Students exceeded the criteria for two measures (75 and 83%).

FA 22 CIS 657: Students exceeded the criteria for three measures (93, 75 and 89%).

Student Feedback:

Students who had taken all four core classes, were ranked by cumulative GPA, and contacted by email. Respondents were asked questions as if in a focus-group.

- Which of the four core classes was most useful?
- If one of the core classes were to be made an elective, which one?
- Which elective class was most useful?
- If an elective were to be made a core class, which one?
- What skills do you most want to acquire now?
- If one class were to be added to the program, what would you recommend?

Results

CIS 675 is the most useful core class.

Students question the value of CIS 655 and CIS 623.

Practical skills (hands-on AI/ML, software at scale etc.) are most desired.

Students want classes on Distributed/Cloud Computing and Blockchain.

Action Plan

Results have been communicated to the Program Director and Dept Chair and presented to the faculty at the annual retreat.