

Part I: Assessment Plan

College of Liberal Arts & Sciences

Department of Computer Science

Master's Program

M.S. Degree in Computer Science

Assessment Plan

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Submitted to the University Assessment Panel by:

Nicholas Karonis, Chair

1. Introduction

Begin the assessment plan with a brief introduction describing the relevant history/evolution of the program and the program goals as they are now. Describe significant factors that help in placing the assessment plan in context (e.g., a new minor, shifting demand, market forces, the need for revised student learning outcomes, the need for more appropriate/valid information, new accreditation standards, department organizational changes, retention issues, and the like). Readers of the assessment plan will benefit from knowing how the degree program is evolving and how the new assessment plan will strategically provide the program with actionable data.

The Master's degree program in Computer Science prepares students for advanced positions in the computer field well above those positions suitable for people credentialed only with baccalaureate degrees in the discipline. By its nature, computer science is a rapidly changing field. Our program must be agile to keep pace. In 2019, the department welcomed four tenure-track Assistant Professors. These strategic hires purposely sought talent in contemporary and competitive foci to introduce artificial intelligence, machine learning, and advanced software engineering to our program. The department then quickly changed our graduate curricula through significant changes in the courses offered and reorganizing the course requirements for the degree. The much-improved program teaches contemporary topics in high demand in the labor market while providing flexibility for students to choose between a broader exposure to many topics versus focusing more narrowly for a deeper understanding of a select few.

2. Student Learning Outcomes (SLOs)

85% of the graduates of the NIU Master of Science in Computer Science will be able to perform the following at a satisfactory or higher level:

1. Demonstrate the ability to evaluate and analyze a complex business problem and decide whether or not it is amenable to a computer solution.
2. Demonstrate the ability to design a practical computer software system to solve a complex business problem.
3. Demonstrate the ability to design, implement, and integrate a family of computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.
4. Demonstrate the ability to test software systems for correct output.

3. Curriculum Map

Course	Program Student Learning Outcomes			
	1. SLO1	2. SLO2	3. SLO3	4. SLO4
Programming Principles CSCI 501, 502, 503, 504, 505	B			B
Computer Systems CSCI 511, 512, 513, 514, 515	B,D			B,D
Mobile Device Programming Principles CSCI 521, 522	D			
Advanced Mobile Device Programming CSCI 523, 524	P			P
Software Engineering CSCI 526	B,D	B,D	B,D	B,D
Web Design CSCI 528	B,D	B		B,D,P
Big Ideas in Computer Science CSCI 600	B	B	B	B
Computer Science Theory CSCI 601, 602	D	D		
Cybersecurity CSCI 607, 608, 609, 610	P	P		P
Computer Network Applications CSCI 612	P	P		D
Game Development CSCI 614	D	D	D	D
Topics in Specialized Areas CSCI 626, 627, 630, 631, 633, 636, 639, 641, 642, 646, 651, 652, 656, 657, 661, 662	D	D	D	D
Advanced Topics in Specialized Areas CSCI 628, 629, 632, 634, 635, 637, 647, 653, 658, 659	P	P	P	P

Course	Program Student Learning Outcomes			
	1. SLO1	2. SLO2	3. SLO3	4. SLO4
Topics in Computer Science CSCI 680	B,D,P	B,D,P	B,D,P	B,D,P
Internships CSCI 690, 696	P			
Seminar in Computer Science CSCI 695	D	D		
Graduate Readings in Computer Science CSCI 697	D	D	D	D
Master's Thesis CSCI 699	D	D	D	D

5. Assessment Methods

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs Covered
Internship Assessment Survey, sent to employers by Computer Science.	Evaluations from on-site supervisors of the Computer Science Master's degree students who register for academic credit for Computer Science internships. Some, but not all, of these students are included in Method B, below.	n/a	85% of the graduates with the M.S. in Computer Science will be able to demonstrate outcomes 1, 2, 3, & 4 at a satisfactory or higher level.	During the last week of each semester	Director of Graduate Studies	1, 2, 3, 4
Internship Assessment Survey, sent to employers by Career Services.	Evaluations from on-site supervisors of Computer Science Master's degree students who accept Computer Science internships obtained through the Career Services. Some, but not all, of these students are included in Method F, above.	n/a	85% of the graduates with the M.S. in Computer Science will be able to demonstrate outcomes 1, 2, 3, & 4 at a satisfactory or higher level.	During the last week of each semester	Director of Graduate Studies	1, 2, 3, 4
University Alumni Survey	University Master's degree graduates are asked about their perceptions of how well the department prepared them for their careers.	n/a	85% of the graduates with the M.S. in Computer Science will be able to demonstrate outcomes 1, 2, 3, & 4 at a satisfactory or higher level.	During the last week of each semester	Director of Graduate Studies	1, 2, 3, 4

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs Covered
Graduating M.S. Candidate Student Survey	Graduating computer science M.S. candidates are asked about their experiences in the Department of Computer Science and how well they think the program prepared them for their careers.	n/a	85% of the graduates with the M.S. in Computer Science will be able to demonstrate outcomes 1, 2, 3, & 4 at a satisfactory or higher level.	During the last week of each semester	Director of Graduate Studies	1, 2, 3, 4

ASSESSMENT METHODS-BY-OUTCOMES MATRIX

Assessment Method	Program Student Learning Outcome			
	Demonstrate the ability to evaluate and analyze a complex business problem and decide whether or not it is amenable to a computer solution.	Demonstrate the ability to design a practical computer software system to solve a complex business problem.	Demonstrate the ability to design, implement, and integrate a family of computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.	Demonstrate the ability to test software systems for correct output.
Internship Assessment Survey, sent to employers by Computer Science	S, I	S, I	S, I	S, I
Internship Assessment Survey, sent to employers by Career Services	S, I	S, I	S, I	S, I
University Alumni Survey	S, I	S, I	S, I	S, I
Graduating M.S. Candidate Survey	S, I	S, I	S, I	S, I
<i>Note.</i> F=formative assessment, S=summative assessment, D=direct assessment, and I=indirect assessment. See the paragraph above for an explanation of each type of assessment.				