

ASSESSMENT OF AN MIS LEARNING GOAL

1. Please list the learning outcome(s) that your department or program focused on.

The Management Information Systems (MIS) major has five program level learning goals (MISLG) described below.

Undergraduate MIS majors will be able to:

- **MISLG1:** Document requirements of an information system using state-of-the-art modeling techniques.
- **MISLG2:** Develop a data model that satisfies the third normal form (3NF).
- **MISLG3:** Understand and apply the concepts of object-oriented systems.
- **MISLG4:** Understand the design principles of computer network architectures and apply them to a business problem.
- **MISLG5:** Understand project management principles and apply these principles to a practical situation.

The table below presents the courses in which these learning goals are covered and assessed. In the table below, “R” means that the material related to the MISLG is covered, “A” denotes the course in which the learning goal is assessed.

	MISLG1 (Requirements)	MISLG2 (Data Model)	MISLG3 (OO Concepts)	MISLG4 (Network Design)	MISLG5 (Project Management)
MIS 322			RA		
MIS 327				RA	
MIS 328		RA			
MIS 422			R		
MIS 424				R	
MIS 425	RA	R	R		R
MIS 426	R				
MIS 428	R	R			RA

In this report, I will be discussing the assessment results of MISLG1: Document requirements of an information system using state-of-the-art modeling techniques.

2. What data did you analyze for this learning outcome?

MISLG1 is assessed in the course MIS 425: Systems Analysis and Design; this course is offered regularly in the spring semester. Each spring semester, students are assessed on this learning goal through a mini-case assignment. The mini case describes a business problem; students arrive at requirements to solve the business problem, and then construct use case diagrams, activity diagrams and use case descriptions based on the requirements. Students submit their work in Microsoft Word documents as well as Microsoft Visio documents.

3. What was the process for analysis?

A rubric was developed by the MIS faculty to assess each student’s work and analyze the results. This rubric is reproduced below.

	Exemplary	Satisfactory	Unsatisfactory
Use Case Diagram	Student’s use case diagram captures most of the requirements stated in the assignment and the use case diagram uses the correct symbols and terminology without errors.	Student’s use case diagram captures more than 75% of the requirements stated in the assignment and more than 75% of the use case diagram uses the correct symbols and terminology.	Student’s use case diagram reflects only 75% (or less) of the requirements, or 25% or more of the student’s use case diagram uses the incorrect symbols or terminology.
Use Case Descriptions	Student describes all use cases correctly by discussing normal business flows, associated actors and relationships.	Student describes more than 75% of the use cases correctly by discussing normal business flows, associated actors and relationships.	Student does not correctly describe 25% or more of the use cases.
Activity Diagrams	Student creates correct activity diagrams for all of the business processes described in the assignment.	Student creates correct activity diagrams for more than 75% of the business processes described in the assignment.	Student does not create (or creates incorrect) activity diagrams for at least 25% of the business processes described in the assignment.

For each rubric dimension, students were categorized as “Exemplary”, “Satisfactory” or “Unsatisfactory”. The percentage of students in each cell is reported. In some semesters, students were also assessed using a quiz, in addition to the mini-case. In the case of a quiz, the questions corresponding to each rubric dimension were graded separately and those results were used to place the student in the “Exemplary”, “Satisfactory” or “Unsatisfactory” categories.

4. Based on your analysis of data, what did you learn?

The assessment of MISLG1 has been done every spring semester since spring 2007. In spring 2007, there were high rates of “unsatisfactory” in some rubric dimensions; in some rubric dimensions, 35% students were in the “unsatisfactory” category. This was because the assessment assignment was not required and a number of students did not complete the assignment, since there was no grade associated with it. Students who did not submit the assignment were categorized as unsatisfactory. Beginning 2008, the mini-case assignment was associated with a percentage of the course grade. The following were the results were obtained for each rubric dimension in 2008 and 2011.

<u>Rubric Dimension</u>	<u>Year</u>	<u>%Students Exemplary</u>	<u>%Students Satisfactory</u>	<u>%Students Unsatisfactory</u>
Use Case Diagram (Requirements Diagram)	2008	43.75%	43.75%	12.50%
	2011	47.83%	39.13%	13.04%
Use Case Descriptions (Requirements Descriptions)	2008	43.75%	43.75%	12.50%
	2011	47.83%	39.13%	13.04%
Activity Diagram (Process Diagram)	2008	43.75%	43.75%	12.50%
	2011	47.83%	39.13%	13.04%

Similar results were obtained in subsequent years including 2009, 2010, and 2012. However, it was noted that in some years students who are in the unsatisfactory category simply did not submit their assignment. Typically students take this class (MIS 425) in their last semester. By the time they take this course, a number of them are already working either full-time or part-time. Since only a part of the grade is associated with the assessment mini-case assignment, students can pass the class even without submitting this assignment. This happened in both 2011 and 2012. If we exclude the students who did not submit the assignments, the percentages for each rubric dimension are indicated below for years 2008, 2011, and 2012.

<u>Rubric Dimension</u>	<u>Year</u>	<u>%Students Exemplary</u>	<u>%Students Satisfactory</u>	<u>%Students Unsatisfactory</u>
Use Case Diagram (Requirements Diagram)	2008	43.75%	43.75%	12.50%
	2011	55%	45%	0%
	2012	50%	50%	0%
Use Case Descriptions (Requirements Descriptions)	2008	43.75%	43.75%	12.50%
	2011	55%	45%	0%
	2012	50%	50%	0%
Activity Diagram (Process Diagram)	2008	43.75%	43.75%	12.50%
	2011	55%	45%	0%
	2012	50%	50%	0%

In some years, MISLG1 was assessed twice: once based on quiz scores and once based on the mini-case assignment. In spring 2010, the following are the assessment results from the quiz scores and mini-case assignments.

<u>Rubric Dimension</u>	<u>Assessment based on</u>	<u>%Students Exemplary</u>	<u>%Students Satisfactory</u>	<u>%Students Unsatisfactory</u>
Use Case Diagram (Requirements Diagram)	Mini-case	8%	83%	8%
	Quiz	38%	46%	15%
Use Case Descriptions (Requirements Descriptions)	Mini-case	75%	17%	8%
	Quiz	31%	38%	31%
Activity Diagram (Process Diagram)	Mini-case	58%	42%	0%
	Quiz	54%	23%	23%

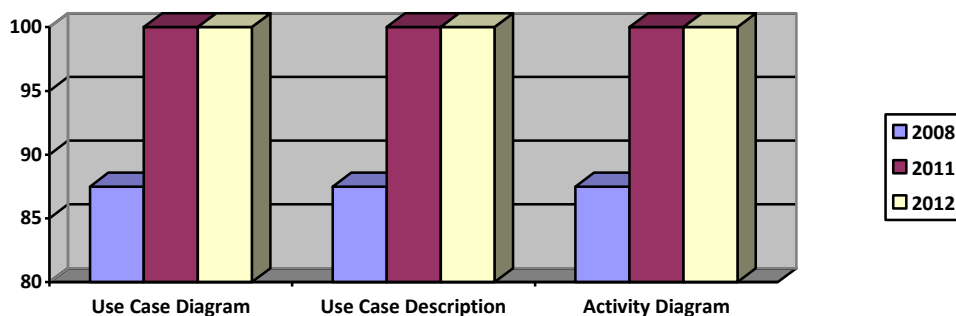
It is noteworthy that the unsatisfactory rates for quiz assessment are much higher than the unsatisfactory rates with the mini-case assignment. The reason for this is quizzes are closed book and closed notes and students need to complete them in 30 minutes. On the other hand, students are typically given two weeks to complete the mini-case assignments; they also can consult with the instructor on preliminary versions of their solutions to the mini-case assignment. From these results, it is clear that the students in general tend to perform better in applying the concepts to a real-life (mini-case) scenario rather than recalling theoretical concepts in an exam/quiz setting.

5. What changes will your department or program make to improvement student learning?

To close the feedback loop, several changes were made to the course MIS 425 beginning 2008. Some of these changes are identified below.

- Beginning Spring 2008, the assessment mini-case assignment was made part of the grade to encourage students to participate in the assessment activity.
- Beginning Spring 2009, the coverage of the topic of gathering, analyzing and documenting requirements with use case diagrams and activity diagrams has been increased to two weeks. Prior to 2009, only one week was spent teaching this topic.
- Beginning Spring 2011, practice assignments related to MISLG1 were given in the class to students. These assignments required students to arrive at and document requirements in the class for a given business scenario. Once students arrived at their solutions, I moderated discussions among students and arrived at the ideal solution in the class. Such discussions and in-class assignments gave students more practice; they helped students understand and apply the concepts related to MISLG1 better.
- Students complete a community based learning project in MIS 425. As part of the project, students work in groups and gather requirements, document requirements, and build an information system for a local organization. Beginning Spring 2010, I instituted a requirement that each student in every project group must construct at least one use case description, one activity diagram, and must complete part of the use case diagram. This requirement forced students to further work on concepts related to MISLG1.

These changes were discussed in the past in the department curriculum meetings. Some of these changes are having a positive effect on student learning. The following chart shows the total percentage of students in the exemplary and satisfactory categories for years 2008, 2011, and 2012 (excluding the students who did not submit their work). It can be seen that the percentage of students in the exemplary and satisfactory categories have increased significantly from 2008 to 2012. It is noteworthy that the unsatisfactory rates have reduced to 0% in both 2011 and 2012.



To further improve student learning of MISLG1 In future, I would recommend the following changes to the curriculum:

- Introduce concepts related to use cases and activity diagrams in earlier classes; some example classes include MIS 220 and MIS 328. Currently MISLG1 is only covered in 400-level courses. It is better to introduce it in a 200 level class and reinforce the concept in other classes such as MIS 328.
- Encourage MIS students to undertake internship opportunities and apply concepts related to MISLG1 to their internship work.

6. What ideas suggestions for change do you have for your department or programs assessment process?

- Assess MISLG1 in other classes including MIS 428.
- If the concept is introduced in earlier classes such as MIS 220 and MIS 328, assess students for MISLG1 in sophomore, junior and senior years.
- Require students to create a portfolio of their learning activities related to MIS learning goals. This portfolio could include examples of student's work on community projects, class assignments, internship work, and their current/past work experience. A portfolio could provide a more robust picture of student learning related to MIS learning goals.
- Explore the option of surveying MIS students through EBI (Educational Benchmarking Institute) survey regarding their comfort level with MIS learning goals.

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