

Fall 2005 Embedded Assessment Report

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Introduction

This report shows how the college is directly assessing the learning goals of three degree programs –the B.S. in Business Administration, the B.S. in Accountancy, and the B.A. in Economics- in the fall 2005 semester. The B.S. in Information Systems does not typically conduct course assessments during fall semesters. Additionally, the Master of Business Administration has established learning goals for the degree program and will begin collecting course embedded measures in the spring 2006 semester.

Program learning goals are directly assessed with embedded measures in 12 different courses where students have an opportunity to demonstrate proficiency in the learning goals. The linkage between program learning goals and embedded measures in specific courses is shown in Tables 1 through 3.

For example, Table 1 indicates that FIN 303, FIN 435, MKT 348, SOM 120, and SOM 306 are courses where data is collected to measure students' problem solving skills (i.e., BSBA general learning goal 2). The material in these five courses provides students with an opportunity to improve their problem solving skills and their performance is measured with exam questions, class projects, or case analysis.

Table 4 indicates the type of instruments that faculty selected to measure student achievement in the learning goals. For example, SOM 306, SOM 307, ECON 401, and ECON 407 all used essay exam questions to assess how well students were meeting the course learning goals.

Table 1. Linkage between B.S. in Business Administration Program Learning Goals and Course Embedded Measures

	BSBA Program Learning Goals	Courses with Embedded Measures
General Learning Goals	1. Our graduates have strong written and oral communication skills.	BUS 302, MKT 348, SOM 120, SOM 306, SOM 307
	2. Our graduates have strong problem solving skills.	FIN 303, FIN 435, MKT 348, SOM 120, SOM 306
	3. Our graduates have strong critical thinking skills.	BUS 302, MKT 348
	4. Our graduates have an understanding of ethics and social responsibility.	BUS 302, FIN 303, MKT 348
	5. Our graduates have strong information technology skills.	MKT 348, SOM 120, SOM 306, SOM 307
	6. Our graduates can work effectively in teams.	
Management Specific Learning Goals	1. Our graduates understand the global context of business.	FIN 435
	2. Our graduates understand the cross-functional and interdisciplinary nature of business problems.	BUS 302
	3. Our graduates understand and can apply basic business concepts.	BUS 302, FIN 303, FIN 435, MKT 348, SOM 120, SOM 306, SOM 307

Table 2. Linkage between B.S. in Accountancy Program Learning Goals and Course Embedded Measures

	BSA Program Learning Goals	Courses with Embedded Measures
General Learning Goals	1. Our graduates are able to recognize and analyze ethical problems in practical business and accounting situations and to select and defend a course of action.	BUS 302, FIN 303
	2. Our graduates are able to effectively communicate complex business and accounting concepts both orally and in writing.	ACCT 351 COM, BUS 302, SOM 120, SOM 306
	3. Our graduates are able to apply critical thinking skills when analyzing and solving problems.	ACCT 352, BUS 302
Accounting & Management Specific Learning Goals	1. Our graduates are able to apply their conceptual understanding to both structured and unstructured problems in accounting	ACCT 352
	2. Our graduates are able to research accounting literature for both structured and unstructured problems in accounting.	ACCT 352
	3. Our graduates understand the cross-functional and interdisciplinary nature of business problems.	BUS 302
	4. Our graduates understand and can apply basic business concepts.	BUS 302, FIN 303, SOM 120, SOM 306

Table 3. Linkage between B.A. in Economics Program Learning Goals and Course Embedded Measures

	BAE Program Learning Goals	Courses with Embedded Measures
General Learning Goals	1. Quantitative Skills	ECON 401, ECON 407
	2. Communication Skills	ECON 320
Economics Specific Learning Goals	1. Students will have the ability to apply supply and demand analysis to analyze the business environment and public policy.	
	2. Students will understand why there are gains from trade.	
	3. Students will understand the importance of considering opportunity cost in decision making.	
	4. Students will understand why some economies are wealthy and others are not.	
	5. Students will understand key macroeconomic measures of economic activity.	ECON 401, ECON 407
	6. Students will understand the role of markets as an organizer of economic activity.	ECON 320
	7. Students will be able to express economic concepts both intuitively and more formally.	ECON 320, ECON 401, ECON 407
	8. Students will be able to use and interpret economic data and statistics effectively.	ECON 320
	9. Students will understand the impact of monetary and fiscal policies on macroeconomic variables.	ECON 401, ECON 407
	10. Students will be able to evaluate the significance of market failure for public policy.	

Table 4. Types of Instruments used to Cover Learning Goals

Assignments	Courses with Embedded Measures
Multiple choice exam questions	BUS 302, FIN 303, FIN 435
Essay exam questions	SOM 306, SOM 307, ECON 401, ECON 407
Class project	MKT 348, ECON 320
Case analysis	BUS 302, SOM 120, SOM 306, SOM 307, ACCT 352, ACCT 351 (COM)
Formal presentation	BUS 302

Business 302, Gateway Experience

Business 302 prepares students for upper-division coursework. It is a required course for all business programs (i.e., BSBA, ACCT, and IS) and must be taken prior to, or concurrently with, the student's first upper-division business core classes. BUS 302 reviews and tests students' knowledge of the lower-division business core (financial and managerial accounting, micro and macroeconomics, business law, and statistics) by integrating and applying concepts from these courses to solve business problems. While the course does not introduce new material from the lower-division business core, it is designed to develop the ability of our students to apply these disciplines in a complex business environment. Students also learn to work in teams, to analyze business cases, to make class presentations, and to write short business reports. In addition, business ethics and ethical frameworks are an important aspect of the course.

Table 5. Embedded Measures for BUS 302

Course Learning Goals	Linkage to Program Learning Goals	SKA	Not Good Enough	Good Enough	Very Good
1. Enhance oral communication	-Effective communication	Intro, platform skills, visual aids, clear comm., handling Q&A	2.4%	34.4%	63.2%
2. Enhance written communication	-Effective communication	Focus & audience, organization & flow, clarity & correctness of style, and presentation	15.6%	32.0%	52.3%
3. Use ethical thinking in solving business problems	-Ethics and social responsibility	Identify issues, stakeholders, possible solutions, apply ethical theories, and recommend policy	10.2%	48.4%	41.4%
4. Review and integrate lower-division core concepts	-Critical thinking -Apply cross-functional and discipline-based knowledge	Understand & apply the top 10 concepts from 6 lower-division core classes	5.9%	54.4%	39.7%

Table 5 shows course learning goals, alignment with BSBA program learning goals, SKA, and student performance on various course assignments in BUS 302. This data was collected from 12 sections containing 340 students enrolled during fall 2005.¹

The scale in Table 6 was used to classify student performance on each course learning goal. The oral communication measure is derived from a formal case presentation in the class. Students work in teams to develop and present a Power Point presentation. Each student must present a portion of the team presentation and is graded individually on her performance. Students are provided with a *Presentation Evaluation Form*, which indicates how the total points are allocated to the various skills, knowledge, and abilities that are required for a formal presentation. This form (among others used in the Gateway course) is extremely important because it helps students understand exactly what is required to meet the course learning goals (e.g., to be a good presenter).

By examining the total points for the presentation, we see that only 2.4% of the students fall into the category “not good enough.” Apparently, a substantial number of Gateway students are successful in making formal, oral presentations as 63.2% fall into the category of “very good” while 34.4% are deemed “good enough.” These results may indicate that our students have largely mastered the skills required for formal oral presentations. Alternatively, working in teams may bolster the individual performance of weaker students who receive help from team members to create the Power Point slides (worth 30 points out of 100).

Table 6. Scale for All Measures in Table 5

Performance on SKA	Outcome
Less than 70%	Not good enough
More than 70% but less than 85%	Good enough
85% or more	Very good

The written communication measure in Table 5 comes from an individual writing grade on the ethics case analysis. The ethics case is designed to review and apply five ethical theories covered in the course. The students receive a writing grade and a content grade for the ethics case. Students are provided with a grading rubric, which indicates how the total points are allocated to the various skills, knowledge, and abilities that are required for the ethics case analysis. Students read the case prior to attending class and are given approximately 60 minutes to write their analysis during one class period.

By examining the total points for the writing grade, we see that 15.6% of the students fall into the category “not good enough.” However, a large number of students are successful in creating clearly written case analysis as 52.3% fall into the category of “very good” while 32.0% are deemed “good enough.” These results may indicate that our students have largely mastered the skills required for producing clear written assignments.

The “ethical thinking” measure in Table 5 comes from the individual content grade on the ethics case analysis. The findings suggest that most students are able to apply the ethical theories covered in the course. Only 10.2% of the students fell into the category “not good enough,” while 89.8% fell into the “good enough” or “very good” categories.

The learning goal entitled “review and integrate the lower-division core” comes from the content grade on the business case analysis. Each team submits three business cases that are designed to review and integrate the top ten concepts from the lower-division core. The teams receive a content grade and a writing grade for each business case. Normally the content grade is the same for all students on a team. However, individuals may receive lower scores if they do not participate in their team’s work. This is also true for the case writing grade.

¹ Course goals one and four contain measures for all 340 Gateway students. Alternatively, course goals two and three contain measures for only 128 students. Many instructors did not record separate writing and content grades for the ethics case.

Student performance in Table 5 is determined by the *average* content grade on the three business cases. By examining the average content grade, we see that 5.9% of the students fall into the category “not good enough.” It appears that a large number of students are successful in producing good case analysis as 39.7% fall into the category of “very good” while 54.4% are deemed “good enough.” These results may indicate that our students have largely mastered the skills required for good business case analysis. Alternatively, working in teams could hide the performance of weaker students.

The one-unit lab associated with the Gateway course (i.e., BUS 302L) requires students to take a multiple-choice exam in each of the six lower-division core business subjects: financial accounting, managerial accounting, business law, microeconomics, macroeconomics, and statistics. Students must pass each of the six exams with a minimum score of 8 out of 16 correct answers. If students do not achieve the minimum required score on their first attempt, they are given two additional opportunities to pass each exam. The purpose of the LDC exams is to demonstrate minimal proficiency in all LDC areas. The exam results from all 890 students enrolled in BUS 302L during fall 2005 are summarized in Table 7. The scale for the LDC exams is shown in Table 8.

Table 7. Lower-division Exam Results

Lower-division Exam	Not Good Enough	Good Enough	Very Good	Mean score
Financial Accounting	14.7%	70.7%	14.6%	9.3
Managerial Accounting	15.4%	70.5%	14.0%	9.3
Business Law	5.6%	56.5%	37.9%	10.8
Microeconomics	11.9%	67.8%	20.3%	9.7
Macroeconomics	12.9%	68.8%	18.3%	9.6
Statistics	15.6%	69.5%	14.9%	9.3

Table 8. Scale for the LDC Exams

Performance on LDC	Outcome
Below 8	Not good enough
8 to 11	Good enough
Above 11	Very good

The scores in Table 7 represent the *highest* exam score achieved by any given student on a particular exam. As mentioned previously, each student had three opportunities to take each of the six LDC exams. The mean scores are fairly similar across the LDC exams –between 9.3 and 10.8. However, there are some noteworthy differences when viewing the three performance categories. The findings suggest that students have largely mastered the topics covered in business law. Only 5.6% of the students earn scores that are “not good enough” while 37.9% are “very good.” By contrast, 15.4 (15.6) % of students do not pass the managerial accounting (statistics) exam after three takes and are categorized as “not good enough.” And only 14.0 (14.9) % are deemed “very good” in managerial accounting (statistics). This

suggests that students are having a difficult time with these subject areas. Improvement strategies will be investigated to determine interventions that can improve the performance of these students. Examples of possible intervention strategies are altering topic coverage in the corresponding lower-division course and providing additional review materials to Gateway students.

Finance 303, Financial Management

This course is required of all students in the BSBA, ACCT, and IS programs. The course learning goals, their linkage to program learning goals, the SKA and the results of embedded measures obtained from 129 students in one large section of Finance 303 are summarized in Table 9.

The instruments used to produce the data are from three exams, two midterms and one final. One or more multiple choice questions on the exams covered every skill, knowledge, and ability that is associated with a particular course learning goal. The percentage of correct answers on each question covering a given SKA was computed. The scale in Table 10 was used to classify student performance on each SKA.

The results represent the percentage of correct answers on the questions covering each SKA associated with a particular learning goal. For example, on average, 82% of the students correctly answered the questions on “time value of money concept;” 76% of the students correctly answered the questions on “risk and return concept;” and 83% correctly answered questions that require “financial calculation” --the three SKA associated with the course learning goal of being able to make “investment decisions.”

The rows labeled “weighted mean” provide an overall measure for each course learning goal. These weighted means are calculated by averaging the scores on each SKA associated with a particular learning goal. For example, assuming that the three SKA associated with “investment decisions” are equally weighted in terms of their relative importance, the average score for this learning goal is 80%, putting student achievement on this learning goal into the “very good” category. The weighted means in Table 9 suggest that students in this course are either “good enough” or “very good” in achieving all four of the course learning goals.

Every semester, the assessment results from the previous semester are shared with faculty who teach the 303 course. Areas that need improvement are discussed and faculty are asked for their input to enhance teaching and learning effectiveness.

Comparing fall 2005 assessment results to those of the previous five semesters (spring 2003 to spring 2005), we noticed students have particular difficulty with the course learning goal “investment decisions.” Additionally, “risk and return concept” appears to be the most difficult SKA for students to comprehend.

Most 303 faculty agree that the trade-off between risk and return is probably the most difficult aspect of making investment decisions. It is not surprising that this concept is covered extensively in more advanced finance courses. It is important to note that the assessment results for Finance 435 indicate that finance majors demonstrate a good understanding of this SKA.

We have also observed that most 303 students seem to fear working with variance and standard deviation, which are used to estimate risk. This may be another reason for the lower score on the “risk and return concept.”

While there were slight improvements in some SKA and minor drops in others, all three weighted means remained in the same category as the spring 2005 assessment results.

Table 9. Embedded Measures for FIN 303

Course Learning Goal	Linkage to Program Learning Goals	SKA	Not Good Enough	Good Enough	Very Good
Investment Decisions	-Problem Solving -Understand and apply basic business concepts	Time value of money concept		82%	
		Risk and return concept		76%	
		Financial calculation		83%	
Weighted Mean				80%	
Financing Decisions	-Problem Solving -Understand and apply basic business concepts	Financial Markets and Institutions			87%
		Capital Structure			88%
Weighted Mean					88%
Using Financial Data	-Problem Solving -Understand and apply basic business concepts	Financial Statements		79%	
Financial Ethics and Regulatory Requirements	-Ethics and Social Responsibility	Ethics			90%
		Regulatory Requirements			90%
Weighted Mean					86%

Table 10. Scale for All Measures in Table 9

Performance on SKA	Outcome
Less than 70%	Not good enough
More than 70% but less than 85%	Good enough
85% or more	Very good

Finance 435, Problems in Corporate Financial Policy

This course is required of all students in the finance option of the BSBA program. It is primarily taken by finance majors, but occasionally students in accounting also take it as an elective. In the 2005 fall semester, 76 students from two sections of FIN 435 were assessed. The course learning goals, their linkage to BSBA program learning goals, the SKA, and the results of embedded measures are summarized in Table 11 below.

Table 11. Embedded Measures for FIN 435

Course Learning Goal	Linkage to Program Learning Goals	SKA	Not Good Enough	Good Enough	Very Good
Investment Decisions	-Problem solving -Global context of business -Understand and apply basic business concepts	Cost of capital estimation		81%	
		Capital budgeting techniques			97%
Weighted Mean					89%
Financing Decisions	-Problem solving -Global context of business -Understand and apply basic business concepts	Financial markets and institutions		76%	
		Capital structure: theories and applications		71%	
Weighted Mean				74%	
Using Financial Data	-Problem solving -Understand and apply basic business concepts	Financial statement analysis			91%
Asset Valuation	-Problem solving -Understand and apply basic business concepts	Time value concept of money			95%
		Securities valuation		71%	
		Risk and return concept		74%	
		Portfolio theory and asset pricing models		83%	
Weighted Mean				81%	

The instrument used to produce the data is a set of multiple choice questions designed to test students' knowledge of each SKA associated with a particular course learning goal. Questions were chosen and reviewed by the Finance Department Assessment Committee. We tried to select questions that cover the

core skills of each SKA with a reasonable level of difficulty. For each SKA, two or three multiple choice questions were used.

A subset of the questions were included in the midterm, and the rest were included in the final exam. The percentage of correct answers on each question covering a given SKA was computed. The scale in Table 12 was used to classify student performance on each SKA.

Table 12. Scale for All Measures in Table 11

Performance on SKA	Outcome
Less than 70%	Not good enough
More than 70% but less than 85%	Good enough
85% or more	Very good

The results represent the average percentage of correct answers on the questions covering each SKA associated with a particular learning goal. For example, on average, 81% of the students correctly answered the questions on “cost of capital estimation” and 97% of the students correctly answered the questions on “capital budgeting techniques;” the two SKA associated with the course learning goal of being able to make “investment decisions.” From Table 11, we see that student performance in each SKA falls into either “good enough” or “very good” category.

The rows labeled “weighted mean” provide an overall measure for each course learning goal. These weighted means are calculated by averaging the scores on each SKA associated with a particular learning goal. For example, assuming that the two SKA associated with “investment decisions” are equally weighted in terms of their relative importance, the average score for this leaning goal is 89%, putting student achievement on this learning goal into the “very good” category. The weighted means in Table 11 suggest that students in this course are either “good enough” or “very good” in achieving all four of the course learning goals.

Comparing the assessment results of fall 2005 with spring 2005, we see several changes. The most significant change is that student performance has improved from being “not good enough” to “good enough” in three SKAs: “capital structure” (from 68% to 71%), “securities valuation” (from 63% to 71%), and “risk and return” (from 51% to 74%). These were the only three SKAs that fell into the “not good enough” category in spring 2005. We attribute the improvement to the following three reasons: (1) in the course design, we have placed more emphasis on understanding important concepts; (2) for more difficult subjects, such as “capital structure,” we provide students with more practice questions; and (3) we spend more class time doing exercises and practice problems, so that students can have a solid understanding of each SKA.

Alternatively, student performance dropped from being “very good” to “good enough” in two SKAs: “financial markets and institutions” (from 86% to 76%), and “portfolio theory” (from 87% to 83%). We will continue to monitor student performance in these two SKAs in spring 2006, and make changes to course design if necessary.

Marketing 348, Consumer Behavior

This course is required of all students in the marketing option of the BSBA program. Embedded measures were used to evaluate seven course learning goals. These goals include (1) knowledge and application of models and theories of consumer behavior; (2) written communication at a professional level; (3) enhanced critical thinking; (4) enhanced problem solving; (5) enhanced information management and decision support; (6) sensitivity to diversity in individuals and groups; and (7) enhanced sensitivity to ethical issues.

The source of embedded measures for the seven course learning goals is the customer analysis done as an individual project. This is required in all Marketing 348 classes. A *Project Evaluation Sheet* was used to evaluate each report sampled.² Each learning goal in each report is evaluated for the standard of professionalism it did (score = 10) or did not (score = 1) meet. Thirty project reports were randomly selected from two sections for this analysis.

Two teaching associates were trained and used to assess each report. Any discrepancy in judgment on a learning goal was discussed and resolved by these two teaching associates. Their evaluation and analysis of each course learning goal is given in Table 13.

Table 13. Embedded Measures for MKT 348

Course Learning Goal	Linkage to Program Learning Goals	Mean and (Stdev) of Scores	Performance Category
1. Knowledge & Application of Theories of Consumer Behavior	Basic Business Concepts	8.7 (0.8)	Very Good
2. Written Communication	Communication Skills	7.2 (1.6)	Good Enough
3. Critical Thinking	Critical Thinking	8.1 (1.2)	Good
4. Problem Solving	Problem Solving	6.6 (1.9)	Good Enough
5. Information Management & Decision Support	Information Technology Skills	8.4 (0.9)	Good
6. Sensitivity to Diversity	Basic Business Concepts	8.5 (0.8)	Good
7. Sensitivity to Ethical Issues	Ethics	8.4 (0.7)	Good

The Marketing Department does not conclude anything from the results in Table 13 because this assessment was a pilot that will be launched more fully in fall 2006. The instructions for the class project (i.e., customer analysis) will be more standardized across sections. This assessment was originally intended to examine data from all five MKT 348 sections. However, three sections divided their embedded assessments into two assignments rather than one. Thus, only two sections whose instructors merged the agreed upon assignments into a single project produced usable data. Also, the

² The *Project Evaluation Sheet* is not provided here to conserve space. It is a detailed grading rubric that outlines the distribution of points for each course learning goal. For example, "knowledge and application of models and theories of consumer behavior" is scored (on a scale of 1 to 10) for three different models used by the students (for a total of 30 possible points on the learning goal). The *average* mean score for each learning goal is captured in Table 13.

project evaluations by the instructors did not correlate well ($r = 0.38$) with the teaching associates' evaluations. This suggests that evaluators for our fall assessment must be better trained.

The Marketing Department believes this course contributes to all BSBA program goals outlined in Table 13. However, the department does not believe that this data validly and reliably shows this.

The marketing faculty have experienced difficulties with regard to the programmatic goals of ethics and writing. MKT 348 instructors indicate that despite their use of "Turn-it-in" and warnings to students, they continue to have an unacceptable problem with plagiarism. This has also occurred in the MKT 304 class projects. The department plans to pilot an exercise in fall 2006 to help reduce our plagiarism problem. Students in both classes (304 and 348) will be asked to perform various citation tasks. These will be returned until done correctly. This exercise will precede graded work requiring citation. Instructors will track writing sub-scores and the number of plagiarism cases to determine the impact of the exercise.

Systems and Operations Management 120, Basic Business Statistics

This course is a requirement for all students in the BSBA, ACCT, IS, and ECON programs. The course learning goals, their linkage to BSBA program learning goals, the skills, knowledge, and abilities (SKA), and the results of embedded measures obtained from 283 students in all sections of SOM 120 taught by full time faculty are shown in Table 14.

Table 14. Embedded Measures for SOM 120

Course Learning Goal	Linkage to Program Learning Goals	Skills, Knowledge, and Abilities	Not Good Enough	Good Enough	Very Good
1. Recognize the statistical problem	Understand and apply basic business concepts	Define the decision problem	28%	38%	34%
2. Statistically analyze data in support of solving business problems	Problem solving Information technology skills	Select appropriate statistical method Use statistical software output to interpret the results	28%	46%	26%
3. Interpret and explain results of analysis to management	Written communication	Clarity of explanation and interpretation of results	28%	56%	16%
<i>Weighted Mean</i>			28%	48%	24%

The instrument used to produce the results in Table 14 is a case study with statistical analysis and recommendations. Each student was provided with different data from that of other students. The purpose of this case is to provide each student with the opportunity to demonstrate his or her knowledge of the statistical modeling concepts that were covered during the semester and to evaluate the student's ability to explain these concepts using simple terminology.

The data in columns four through six are the percentages of students who fell into each performance category. To be classified in a given performance category, a student's score on the portion of the case analysis associated with a particular course learning goal must fall within the intervals shown in Table 15. The "weighted mean" in the last row of Table 14 is determined by taking a weighted average of each student's scores in the three course learning goals. The weights are based on a departmental consensus of the relative importance of each course goal. They are calculated as 30% each for "recognize the statistical problem" and "analyze data" and 40% for "interpret and explain results."

The results in Table 14 are fairly similar across the three course learning goals. Students appeared to have slightly more difficulty with the second goal, "selecting the appropriate statistical method," with 26% "very good," compared with the first goal "recognizing the statistical problem," with 34% "very good." Model selection in statistics appears to be difficult because it involves conceptual models and not the mechanical step-by-step procedures used for solving problems in other subjects. Students had particular difficulty selecting models in statistical hypothesis testing. Similar results were discovered in the assessment of the statistics exams in BUS 302L. The department has discussed this issue and is attempting to correct the problem.

These assessment results are being reviewed by the Systems and Operations Management Department. The department will use embedded assessment measures again in all sections of SOM 120 in the 2006 spring semester.

Table 15. Scale for All Measures in Table 14

Performance on SKA	Outcome
90 – 100 pts	Very good
60 – 89 pts	Good enough
Less than 60 pts	Not good enough

Systems and Operations Management 306, Operations Management

This course is required of all students in the BSBA, ACCT, and IS programs. The course learning goals, their linkage to BSBA program learning goals, the skills, knowledge and abilities (SKA), and the results of embedded measures obtained from 398 students in all sections of SOM 306 are summarized in Table 16.

The instruments used to measure student performance in the first learning goal, "knowledge of basic concepts," are the second midterm and the final exam. A short case write-up dealing with the application of operations management concepts was used to measure the second and third course learning goals -- "analysis of operations management problems" and "presentation of results."

The "weighted mean," in the last row of Table 16, is determined by taking a weighted average of each student's scores in the three course learning goals. The weights are based on a departmental consensus of the relative importance of each course goal; and are calculated as 40% for "analysis of operations management problems" and 30% each for the other two goals.

On the first course learning goal, "knowledge of the basic concepts", only 32% of the students were "very good" and the largest percentage by far, 42%, were "not good enough." On the second goal, data analysis, a higher 50% were "very good" and a far lower 10% were "not good enough". These results were statistically significant. This phenomenon, also noticed in assessing another SOM course (SOM 307), appears to support the idea that it is easier for students to learn solution techniques and data analysis than it is for them to learn more conceptual ideas. That is, it is easier for students to learn

mechanical step-by-step procedures for solving analytical problems than it is for them to learn how to apply the appropriate conceptual models.

The majority of students scored very high, 90% “good enough” or “very good,” on the second and third course goals, “analysis of operations management problems” (applying operations management ideas) and “presenting the results.” In this later goal, there was improvement from the previous two semesters. This might have been the result of a departmental effort over the last two semesters to persuade instructors to spend more time going over methods of reporting analytical results. Unfortunately, it might also be forcing the instructors to spend less time on “knowledge of basic concepts,” where the scores were poorer than last semester.

These assessment results are being reviewed by the Systems and Operations Management Department. The department will again use embedded assessment measures in all sections of SOM 306 in the 2006 spring semester.

Table 16. Embedded Measures for SOM 306

Course Learning Goal	Linkage to Program Learning Goals	Skills, Knowledge, and Abilities	Not Good Enough	Good Enough	Very Good
1. Knowledge of the basic concepts of operations management	-Understand and apply basic business concepts	-Understand the role of operations management -OM Strategies -Quality management -Planning and control	42%	26%	32%
2. Analysis of operations management problems	-Problem solving -Information technology skills	-Forecasting -Control charts -Project management -Inventory Control -Scheduling -Layout	10%	40%	50%
3. Presentation of results	-Problem solving -Written communication	-Demonstrate effective writing -Clear and concise interpretation of results	10%	52%	37%
<i>Weighted Mean</i>			20%	39%	41%

Table 17. Scale for All Measures in Table 16

Performance on SKA	Outcome
90 – 100 pts	Very good
60 - 89 pts	Good enough
Less than 60 pts	Not good enough

Systems and Operations Management 307, Data Analysis and Modeling

This course is a requirement for the SOM option and an elective for several other options in the BSBA. The course learning goals, their linkage to BSBA program learning goals, the skills, knowledge, and abilities (SKA), and the results of embedded measures obtained from 88 students in all sections of SOM 307 taught by full-time faculty are shown in Table 18.

Table 18. Embedded Measures for SOM 307

Course Learning Goal	Linkage to Program Learning Goals	Skills, Knowledge, and Abilities	Not Good Enough	Good Enough	Very Good
1. Recognize the decision problem and select the appropriate decision support and statistical model	Understand and apply basic business concepts	(a) Define the decision problem, and (b) select appropriate statistical or stochastic model	31%	38%	31%
2. Students should be able to analyze data to support decision-making in organizations	Information technology skills	Use of software to perform analysis	27%	55%	18%
3. Interpret and explain the results of their analysis to management	Written communication	Clear communication and interpretation of results	25%	43%	32%
<i>Weighted Mean</i>			28%	46%	26%

The instrument used to produce the results in rows one and three in Table 18 are essay exam questions. The results from row two came from a case study with analysis and recommendations. The purpose of the case is to provide each student with the opportunity to demonstrate his or her knowledge of the statistical and stochastic modeling concepts that were covered during the semester and to evaluate their ability to explain these concepts using simple terminology.

The data in columns four through six are the percentages of students who fell into each performance category. To be classified in a given performance category, a student's score on the exam questions or case analysis associated with a particular course learning goal must fall within the intervals shown in

Table 19. The “weighted mean” in the bottom row is determined by taking a weighted average of each student’s scores in the three course learning goals. The weights are based on a departmental consensus of the relative importance of each course goal. They are calculated as 40% each for “select the appropriate model” and “analyze data” and 20% for “interpret and explain results.”

On problem recognition and model selection, 31% were “not good enough.” This was the highest “not good enough” among the three course learning goals. As in the past, students had particular difficulty learning concepts in statistical hypothesis testing; i.e., choosing the appropriate model and probability distribution (Z, t, or p), determining the correct null versus alternative hypothesis, and understanding the concept of significance. The department has discussed this issue, has attempted to correct the problem, and has met with some degree of success in correcting this problem.

Students scored highest on “interpretation and explanation of results,” as 75% were deemed “good enough” or “very good.” This is probably the result of the instructors giving students practice assignments in advance of the assessment questions.

These assessment results are being reviewed by the Systems and Operations Management Department. The department will use embedded assessment measures again in all sections of SOM 307 in the 2006 spring semester.

Table 19. Scale for All Measures in Table 18

Performance on SKA	Outcome
90 – 100 pts	Very good
60 – 89 pts	Good enough
Less than 60 pts	Not good enough

Accounting 352, Intermediate Financial Accounting II

In fall 2005, the accounting program extended the assessment process to ACCT 352, the third course in the intermediate accounting sequence. Some 110 students were enrolled in three sections taught by Professor Lundblad.

The accounting specific learning objectives of 352 include:

1. Each student has a conceptual understanding of external financial reporting.
2. Each student has the ability to apply their conceptual understanding of external financial reporting to real world problems.
3. Each student can research professional literature (the FARS database) in external financial reporting.

Additionally, the class focuses on two general learning goals:

1. Each student shall be able to apply critical thinking skills when analyzing and solving accounting problems.
2. Each student shall be able to effectively communicate complex accounting concepts in writing.

To assess these learning goals, students had to research and prepare a written report on a case: "*Saks Offers to Buy Back Over Half of Its Bonds.*"³ The case is based on a real company, Saks, Inc. which was faced with a technical default notice on some of its bonds. The case addressed issues related to a topic covered in the course (accounting for corporate bonds). It required students to research the following accounting and financial reporting issues:

1. Reporting requirements for the proper classification of bonds in default.
2. Treatment of technical default (versus default caused by an inability to make interest payments).
3. Early retirement of the bonds placed in technical default.
4. Treatment of "consent payments" offered to bond holders who agreed not to demand acceleration of payment on the firm's remaining bonds.

Students also had to suggest appropriate alternative courses of accounting treatment and prepare sample journal entries to illustrate the recommended course of action. Additionally, they had to provide appropriate justification for the recommended course of action.

While 110 students completed the assignment (and each received a grade for it in 352), the papers of 30 students were randomly selected for assessment.

The papers were assessed with an adapted version of the rubric developed for ACCT 351 in fall 2004.⁴ The actual rubric used is shown in Table 20.

Five faculty members served as the assessment team. They included:

1. The instructor for the course.
2. Two faculty members who teach Intermediate accounting.
3. Two faculty members who teach the accounting communications course.

One of the team members served as a facilitator and led a norming process. The norming process used three of the papers selected in the sample. After agreement on evaluation of these three papers, the remaining 27 were evaluated by the team. Each person on the team evaluated approximately five papers.

³ Esterl, Mike. *Saks Offers to Buy Back Over Half of Its Bonds* THE WALL STREET JOURNAL, June 21, 2005; Page C5.

⁴ The grading rubric for critical thinking in ACCT 351 cases is not provided here to conserve space.

Table 21 contains the assessment results. Almost 90% of the students were able to determine the relevant facts and 70% identified the correct accounting issues. While this demonstrates that a majority of students understand conceptual issues in financial accounting, the data suggests that two SKAs need additional work:

1. Research proper literature: 70% of students failed to properly research or document the correct accounting literature.
2. Identify solutions: While all students managed to identify solutions for some of the issues, 67% of students failed to identify solutions for all issues.

The fact that students overall failed to properly research or document the relevant accounting literature has been communicated to faculty who teach ACCT 351 and 351 COM. Students are taught how to research the accounting literature in those courses. However, it appears that students did not understand the importance of transferring the skills acquired in those courses to ACCT 352. Feedback from students supports this statement. For example, when the ACCT 352 instructor indicated that failure to properly research or document the appropriate accounting literature resulted in lower grades, students expressed surprise that researching and documenting the literature is required in general, and not only in ACCT 351 COM. This indicates that students fail to understand the importance of this skill.

Students' overall failure to identify appropriate solutions suggests they are having difficulties with applying conceptual understanding to real world problems. This information has been communicated to the ACCT 350 and 351 faculty. It appears that instructors in these courses need to continue to stress the applicability of conceptual knowledge to actual cases. Instructors in all intermediate courses have also been encouraged to expand the use of unstructured cases to increase opportunities for students to practice this skill.

Instructors for ACCT 351 and 352 will inform students of the grading rubric and make it available on the instructors' websites.

The 351 faculty discussed the 352 assessment findings and agreed that the students' research skills need improvement. In spring 2006, the 351 and 351 COM faculty will shift from a teacher-centered to a student-centered approach. In other words, instead of providing appropriate sources, the faculty will facilitate/guide the students' research attempts. Students will be encouraged to examine their research strategies and broaden the scope of their search techniques when their results lack relevance. The focus will be on improving the students' procedural knowledge. Faculty will help students seek alternative methods during the process of researching the accounting literature.

Table 20. Grading Rubric for ACCT 352 SAKS Case

Skills, Knowledge, and Abilities	Not Relevant	Not Acceptable	Acceptable	Above Average
<p>Determine the Relevant Facts</p> <ol style="list-style-type: none"> 1. Notice of default on bonds <ol style="list-style-type: none"> a. Violation of indenture agreement 2. Offer to repurchase bonds 3. Offer of “consent payment” <p>Background Facts – not strictly related to bond repurchase offer</p> <ol style="list-style-type: none"> 4. Investigation by SEC 5. Law suits by vendors 6. Need to restate financial statements 7. Late filing of quarterly financial statements 				
<p>Identify Accounting Issues</p> <ol style="list-style-type: none"> 1. Bond classification (current/non-current) Need to reclassify because of default notice 2. Early retirement of long term debt 3. Treatment of “consent payment” 4. Inventory mark-ups, etc. 				
<p>Research Proper literature</p> <ol style="list-style-type: none"> 1. Classification of long term obligations callable by creditor FAS 78, ¶ 5; 13; L 35 (101); EITF 86-30 2. Retirement of long term obligations FAS 76; APB 26 (superseded by FAS 76); FAS 140; FAS 145 (rescission of FAS 4); FAS 15 (troubled debt restructuring) not applicable (EITF 02-4) 3. Expense recognition SFAC 5 4. Bond indenture – Delayed filing of financial statements – Securities and Exchange Act of 1934 				
<p>Identify Solution (and alternatives if appropriate) Repurchase bonds/not repurchase</p> <p>Recognize consent payment</p> <ol style="list-style-type: none"> 1. As expense 2. As part of repurchase payment (affect gain/loss on repurchase of bonds) 				
<p>State and Support Solution (making proper schedule, JE, as appropriate)</p> <ol style="list-style-type: none"> 1. Journal entry to record early retirement of bonds and “consent payment” 				

Table 21. Embedded Measures for ACCT 352

Course Learning Goal	Linkage to Program Learning Goals	SKA	Not Acceptable	Acceptable	Above Average
1. Reason Logically	Critical Thinking	Determine relevant facts	13.3%	76.7%	10.0%
		Identify accounting issues	30.0%	66.7%	3.3%
		Research proper literature	70.0%	26.7%	3.3%
Mean for Course Goal 1			37.8%	56.7%	5.5%
2. Evaluation	Critical Thinking	Identify solution (and alternatives)	66.7%	30.0%	3.3%
Mean for Critical Thinking (using Goals 1-2)			52.3%	43.4%	4.4%
3. Research Proper Literature	Ability to do Research in Financial Accounting	Research proper literature	70.0%	26.7%	3.3%
4. Identify Accounting Issues	Understand Conceptual Issues in Financial Accounting	Identify accounting issues	30.0%	66.7%	3.3%
5. Apply Conceptual Understanding to Real World Problems	Apply Conceptual Understanding to Real World Problems in Financial Acct.	Identify solution (and alternatives)	66.7%	30.0%	3.3%
		State and support solution	30.0%	66.7%	3.3%
Mean for Course Goal 5			48.4%	48.4%	3.3%

Accounting 351 COM, Communications for Accountants

This two-unit course is required for the B.S. in Accountancy. Students must concurrently enroll into ACCT 351 (Intermediate Financial Accounting II). The two courses share common assignments so it is possible to assess multiple student skills (e.g., critical thinking, research skills, and written communication) in a single assignment. The 351 COM course learning goal is to develop a business style of writing letters, memos, and reports based on accounting situations.

The course embedded measures consist of (1) scores from a pre and post diagnostic exam that measures students' ability to properly apply conventions of English and organize information; and (2) scores from two writing assignments (i.e., pre and post assessment) in response to the assigned ACCT 351 cases.

The diagnostic exam comprises 55 groups of two to three sentences where students select the sentence with proper punctuation, capitalization, number style, abbreviations, plural and possessive forms, spelling, compound words, and grammar usage. In addition, a group of five sentences each is organized for good paragraph flow. There are 60 possible points.

The pre diagnostic exam is given in the prior semester (i.e., spring 2005) in ACCT 350. Students who scored below 42 points were assigned the *Gregg Worksheets* that accompany the *Gregg Reference Manual*. Rules for the conventions of English are presented with 24 worksheets containing practice sentences. Answer keys are available in the Oviatt Library. Student worksheets were checked for completion during Week 3 of the 351 COM course.

The post diagnostic exam is identical to the pre diagnostic exam and is given in 351 COM during Week 5 of the 2005 fall semester. The pre and post diagnostic exam scores are not included in the students' final course grade. Students who score below 42 points receive an Incomplete in the class until they pass. The diagnostic exam is given twice each semester.

There are also two written documents that are evaluated (i.e., pre and post assessment). The pre assessment does not count towards the students' grade the first time that it is graded. However, students consider the pre grade, feedback, and comments and write a revision of the pre assessment writing assignment, which counts 5 percent. The post assessment writing assignment counts 10 percent.

The pre assessment writing assignment is a diagnostic letter. Students are asked to write a business letter advising a client about making an investment decision based on the financial statements. Students are asked to discuss the financial statements in terms of reliance and reliability. Students are also told that very little credit will be given for quoting definitions or repeating the information provided in the facts. The client is not a sophisticated businessperson and, therefore, students are asked to communicate in terms that will be easily understood. Students are also provided with information about the format used to write a business letter.

The post assessment writing assignment is from Ethics Case 8-6 in the 351 accounting text. Students are asked that their case analysis be prepared in a one-page letter and to present the required journal entry in an appendix.

The two written assignments –diagnostic letter and case analysis – are evaluated using the *Business Communication Evaluation Form for Written Documents*. Students are given this form prior to the assignments so they understand the skills, knowledge, and abilities that are required for excellent written assignments. Holistic grading is used based on the qualities listed in the evaluation form for the 4 categories of business writing—(1) audience, (2) organization, (3) clarity, and (4) presentation. Grades from zero to four were given, representing the letter grades F through A.

Table 22 shows the average scores for the pre (diagnostic letter) and post (case analysis) writing assessments; and the average pre and post diagnostic exams scores for 110 students enrolled in 3 sections of ACCT 351 COM during the 2005 fall semester.

Table 22. Embedded Measures for ACCT 351 COM

Instrument	Mean
Pre Writing Assessment	2.11
Post Writing Assessment	2.75
<i>% of students who score below 2.0 on the post writing</i>	4.5%
Pre Diagnostic Exam	41.1
Post Diagnostic Exam	44.1
<i>% of students who score below 42 on the post exam</i>	26%
Sample Size	110

A comparison of mean pre and post writing assessments indicates that student performance rises by 0.64 points. Additionally, the mean score on the post diagnostic exam is 3.0 points higher than on the pre diagnostic exam. Additionally, only 26 percent of the students scored below 42 on the post diagnostic exam.

The 351 COM students seem to be taking this exam less seriously than in the 2005 spring semester. Students scoring below 42 receive an Incomplete for the course until they pass the exam. Nine students scored below 42.⁵

The average post diagnostic exam score has fallen 3.0 points from the 2005 spring semester. The pre exam scores range from 28 to 52 points (out of 60 possible points), while the post exam scores range from 32 to 57 points.

To improve the pre writing scores, students in 350 were given more direction and guidelines for writing the diagnostic letter. Directions included guidance on organization, length, letter format, and, audience analysis.

⁵ If students receive a score below 42 points on the post diagnostic exam, they are given one chance to retake it at the end of the semester. If the scores are below 42, they receive an Incomplete. Hence, 8.2% (i.e., 9/110) of the students received an Incomplete in 351 COM.

Economics 320, Labor Economics

This is a class in labor economics that is taken by economics majors, human resource management majors and economics minors. One section of this class is offered every year. Students were asked to write a 10-page essay, synthesizing evidence on the decline in employment of disabled individuals following the implementation of the Americans with Disabilities Act. Students were asked to base their analysis on a series of empirical studies published in *The Decline in Employment of People with Disabilities: A Policy Puzzle*, ed. by David C. Stapleton and Richard V. Burkhauser, 2003. Table 23 summarizes the results for the 14 economic majors in a class of 35 students.

Table 23. Embedded Measures for ECON 320

Course Learning Goal	Linkage to Program Learning Goals	SKA	Not Good Enough	Good Enough	Very Good
Explain implications of public policy using economic concepts and principles	Express economic concepts both intuitively and more formally	Use economic concepts and principles to explain the consequences of public policy	14%	21%	64%
Use understanding of labor market forces to explain observed outcomes	Understand the role of markets as an organizer of economic activity	Given a case study, explain the observed outcomes			
Use empirical evidence to inform analysis	Use and interpret economic data and statistics effectively	Given a case study, explain the observed outcomes	36%	29%	36%
Written Communication Skills	Communication Skills	Follow rules given by professor for written assignment	36%	21%	43%
		Grammar and readability	23%	54%	23%
		Structure and organization of paper	21%	43%	36%
		Appropriate to audience	21%	50%	29%
		Comprehensive survey of readings	14%	36%	50%

Table 24. Scale for All Measures in Table 23

Performance on SKA	Outcome
1-5 of 10; 1-12 of 20; or 1-15 of 30	Not good enough
6-8 of 10; 12-17 of 20; or 16-24 of 30	Good enough
9-10 of 10; 18-20 of 20; or 25-30 of 30	Very good

The grading rubric was not shown to the students. However, students did receive the instructions below. They were also given a sample of how to pull information from an empirical study (using Chapter 4 in the required reading as an example).

Instructions given to students:

Your job is to summarize the main points of the book. Pretend that your boss has asked you to summarize the main points for her. She does not have time to read the book but she wants to know what economists think about the employment impacts of the ADA legislation. Be sure to include answers to these questions: What do we know about the effect of the Americans with Disabilities Act (ADA) on the employment of disabled workers in the United States? What possible explanations are offered, and by whom, to explain the observed evidence? Students were then given a dozen or more specific instructions.

Grading was based on the following rubric:

SKA	Points
Main issues in readings identified and explained	30
Follow rules given by professor for written assignment	10
Grammar and readability	10
Structure and organization of paper	10
Appropriate to audience	10
Comprehensive survey of readings	10
Economic content	20
<i>Total Points</i>	<i>100</i>

Students did well in the areas of economic content and analysis. They had trouble pulling all of the empirical evidence together. This was a challenging assignment, probably their first at reviewing empirical studies.

The next time I teach this class I will require that each student submit a review of each chapter, following a detailed example of how to review an empirical study. I gave them this example, but many failed to prepare and attempted to read the book and write the paper in a short time. This makes learning almost impossible. I allowed for in-class discussions of the chapters (1-3, then 4-6, etc.) but few students came prepared. I will replace this with in-class discussions of the required chapter reviews (after they are handed back to the students). A significant portion of the class grade will rest on preparing these chapter reviews. I will bring this to the attention of the Economics Department faculty at our annual assessment meeting.

Economics 401, Macroeconomic Theory

This is a required senior level course taken by all students in the Economics program. The course learning goal is to increase students' understanding of aggregate economic growth and fluctuations. Emphasis is placed on the microeconomic foundations of macroeconomic behavior.

Much of the analysis done in this class allows the student to practice general program learning goal # 1 - quantitative skills. The class uses graphs and algebra in macroeconomic analysis. The class also provides students with an opportunity to demonstrate mastery of three economic specific program learning goals. These include goal # 5 - understand key macroeconomic measures of economic activity; goal # 7- express economic concepts both intuitively and more formally; and goal # 9 -understand the impact of monetary and fiscal policies on macroeconomic variables.

Program learning goals # 5 and # 9 represent a standard part of any macroeconomics class. Macroeconomic measurement issues are covered during the first two weeks of the class.

Macroeconomic variables such as gross domestic product, the consumer price index, and the unemployment rate are used throughout the course. These variables represent basic knowledge needed to conduct macroeconomic analysis. The impact of monetary and fiscal policies on macroeconomic variables is a central component of the course learning goal of understanding economic fluctuations. Mastery of this program learning goal provides the student with the knowledge and skills needed to analytically understand stabilization policy issues.

Program learning goal # 7 -express economic concepts both intuitively and more formally - is practiced and ultimately demonstrated throughout the course. Most economic ideas are developed both verbally and graphically (some algebra is used). On the midterm exam, an essay question was asked that required the student to demonstrate mastery of goals # 7 and # 9. The exam question was “Compare and discuss the impact of a larger U.S. federal budget deficit on interest rates, savings, investment, and the current account using a closed economy capital market and then an open economy capital market (assume the U.S. is a large economy and consumers are non-Ricardian).” The question requires the student to intuitively describe the issue and then to conduct a formal (graphical) treatment of the problem. Student answers to this midterm essay question were used to produce the assessment data.

The course learning goal, its linkage to four program learning goals, and the results of embedded measures from 19 students in one section of ECON 401 are summarized in Table 25. The scale in Table 26 was used to classify student performance on the course learning goal.

Table 25. Embedded Measures for ECON 401

Course Learning Goal	Program Learning Goal	Not Good Enough	Good Enough	Very Good
Aggregate Economic Growth and Fluctuations	-Quantitative skills -Key macroeconomic measures -Express economic concepts both intuitively and more formally -Impact of monetary and fiscal policy on macro variables	31.6%	47.4%	21.1%

Table 26. Scale Used for All Measures in Table 25

Performance on Course Learning Goal	Outcome
Less than 55%	Not good enough
More than 55% but less than 75%	Good enough
More than 75%	Very good

Economics 407, International Macroeconomics and Exchange Rates

This course is an elective in the Economics program. The course learning goals, their linkage to program learning goals, and the results of embedded measures obtained from 15 students in one section of ECON 407 are shown below in Table 27.

Table 27. Embedded Measures for ECON 407

Course Learning Goal	Program Learning Goals	Not Good Enough	Good Enough	Very Good
Understand exchange rates	-Quantitative skills -Key macroeconomic measures	33%	40%	27%
Understand short-run determination of macroeconomic variables in an open economy	-Express economic concepts both intuitively and more formally -Impact of monetary and fiscal policy on macro variables	33%	33%	33%

The instrument used to measure student performance in the two course learning goals is the final exam. Two essay questions (discussed below) were used to measure students' understanding of "exchange rates" and "determination of macroeconomic variables in an open economy."

The data in columns three through five are the percentages of students who fell into each performance category. To be classified in a given performance category, a student's score on the final exam question must fall within the intervals shown in Table 28.

Table 28. Scale Used for All Measures in Table 27.

Performance on Course Learning Goal	Outcome
Less than 50%	Not good enough
More than 50% but less than 75%	Good enough
More than 75%	Very good

Students' understanding of "exchange rates" was evaluated using the following exam question; "Discuss how a high inflation rate in Mexico contributed to the 1994 Peso Crisis." The average students' score on this question was 2.7 out of 5 points (i.e., 54%). Some 67% of the students fell into the "good enough" or "very good" category, while only 33% were in the "not good enough" category.

Students' understanding of "short-run determination of macroeconomic variables in an open economy" was evaluated using the following exam question: "Many argue that the Chinese government is intentionally undervaluing the Yuan to increase demand for exports. Use the IS-LM-FE model to illustrate this situation and discuss how it should impact their economy." The average students' score on this question was 6.5 out of 10 points (i.e., 65%). The majority of students knew how to set up the IS-LM-FE model to represent an undervalued currency, knew that there was a settlements balance surplus, and were able to correctly shift the LM curve in response to the government's intervention in the foreign exchange market. Some 66% of the students (deemed "good enough" or "very good") demonstrated the ability to use the formal economic model discussed in class.