

**NORTHERN ILLINOIS UNIVERSITY**

**Building the Ideal Undergraduate Operations Management Curriculum:**

**A Survey of Employers**

**A Thesis Submitted to the  
University Honors Program**

**In Partial Fulfillment of the**

**Requirements of the Baccalaureate Degree**

**With University Honors**

**Department of**

**Operations Management and Information Systems**

**By**

**Brad Orsucci**

**DeKalb, Illinois**

**May 14, 2005**

**University Honors Program**

**Capstone Approval Page**

Capstone Title: (print or type):

Building the Ideal Undergraduate Operations  
Management Curriculum: A Survey of Employers  
\_\_\_\_\_  
\_\_\_\_\_

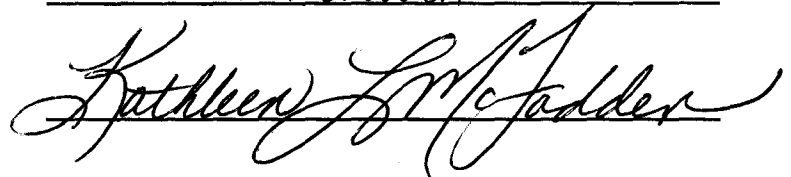
Student Name (print or type):

Brad Orsucci

Faculty Supervisor (print or type):

Kathleen McFadden

Faculty Approval Signature:



Department of (print or type):

OMIS

Date of Approval (print or type):

5/10/05

**HONORS THESIS ABSTRACT  
THESIS SUBMISSION FORM**

**AUTHOR:** Brad Orsucci

**THESIS TITLE:** Building the Ideal Undergraduate Operations Management Curriculum:  
A Survey of Employers

**ADVISOR:** Dr. Kathleen McFadden

**ADVISOR'S DEPT:** OMIS

**DISCIPLINE:** Operations Management

**YEAR:** 2005

**PAGE LENGTH:** 13

**BIBLIOGRAPHY:** 2

**PUBLISHED:** No

**ABSTRACT:** The needs of the business community are always changing. The goal of this study is to determine what those needs are and develop a curriculum that satisfies to those needs. To gather the information needed, we created an online survey and asked employers of operations management and information systems majors to complete the survey. The survey consisted of questions about their company, education and the importance of different courses. Many of the courses the business community felt were important were courses that had a combination of OM and IS. To meet the business communities needs we suggest that NIU develop a course in business forecasting and offer a separate course on project management. These changes will help keep the curriculum relevant so that employers desire NIU graduates.

## INTRODUCTION

Redesigning a department's curriculum to adapt to changes in the business environment can be key to its success. This is especially true with departments within the college of business. With constant changes in technology and increased globalization, curriculum from five years ago may not be pertinent today. To help with these changes, many business programs work closely with the business community to discover what their needs are and develop a curriculum that will prepare students with the knowledge and skills needed to succeed. Research suggests that a majority of operations management departments regularly consult with the business community on current and future curricular issues (McFadden, Jansen and Towell 1999; Gabric and McFadden 1999).

The purpose of this study is to build the ideal undergraduate curriculum that combines operations management and information systems (OMIS). To do this, we survey employers about the types of courses they feel are the most relevant. The initial list of courses was generated by examining the courses offered at Northern Illinois University (NIU) and other universities with operations management and/or management information systems departments. The universities include Massachusetts Institute of Technology, Purdue University, and Carnegie Mellon University. The full list of universities examined in our study can be found in Table 1.

<b>Table 1</b> <b>Universities Examined</b>
Ball State University Carnegie Mellon University Kent State University Massachusetts Institute of Technology Miami University of Ohio Ohio University Purdue University University of Michigan University of North Carolina University of Pennsylvania University of Virginia

An OMIS department, like the one at NIU, balances technology courses with strategies for improving business processes and adding value to organizations. An OMIS graduate is trained to bridge the gap between upper management and computer programmers. They know the business skills and possess enough knowledge about systems and system development to communicate effectively with both management and programmers.

The information gained from this study can assist departments in developing an undergraduate degree program that effectively combines operations management with information systems. By using the information to improve the curriculum, the business community and the students may gain much more from their undergraduate degree. The courses students take may be more meaningful, so that they are able to easily transition into their new position. The business community will acquire more competent employees which will in turn help improve their performance. By developing a curriculum that meets the needs of the business community, students may be more desired by recruiters.

## LITERATURE REVIEW

The goal of many departments is to prepare students with the skills and knowledge for positions after graduation. For students to be successful, departments should develop relationships and constantly communicate with students and the business community (Graf 1997, Gabric and McFadden 1999). Both students and the academic departments need to know the required skills and knowledge that is desired by the business community. It is the responsibility of the academic departments to provide the knowledge about what businesses are looking for in students. Much research has focused on identifying the gaps that exist between the academic community and the business community regarding the importance of skills and education (Gilsdorf 1986; Levenburg 1996; McFadden, Jansen, and Towell 1999; Gabric and McFadden 1999).

The task of developing students who are knowledgeable in areas that businesses desire constantly needs improvement. The results of a study done by Hammond, Hartman and Brown (1996), show that only 65% of students in operations management are exposed to computer-based decision making, while 90% of the field uses computer-based decision making. This finding indicates that there is a large gap in the preparedness of students in this field. It also appears that many departments need to understand the importance of integrating the technology aspects of business decision-making with the operations management function.

Communications skills are a very valuable component of a business degree. Studies (Tschirgi 1972) have shown that many employers value oral communication skills over other resume building criteria like grade point average or work experience. Maes, Weldy and Icenogle (1997) found that oral communication skills were more

important to employers than written communication skills (Gabric and McFadden 1999). Many employers feel that skills can be taught, but the attitude, personality, and communication skills are harder to alter.

Some people think business curriculum is not changing fast enough with the times. Not only are the improvements in technology important, but also ethical and environmental climates change. Lynne Richardson (Richardson 2003), Dean of the College of Business at Ball State University, asked some very thought provoking questions:

“Are we encouraging long-term growth environmental concerns, ethical decision making, and the like?... While we talk about ethics, do we prepare students to blow the whistle when all is not as it should be? Can we help them to understand that the ends don't justify the means, no matter how much money can be gained for the corporation and/or the individual?... I am not convinced that we are preparing them to do so.”

Classes dealing with ethics and making ethical business decisions have become much more important since recent large scale scandals such as Enron, Arthur Andersen, and WorldCom.

Business schools must foster close ties with their “customers”, not the students, but employers of graduates. The curriculum needs to be revised so students can demonstrate their ability to use the skills and knowledge they acquire from the classroom, not just memorize the material for a test. The outcome of business programs must provide students with the skills that will not only lead them to become employed, but also to succeed once they are employed (Schleede 2003). If a student obtains a job based on

the skills the student had been exposed to in class, but is not able to apply those skills on the job, then that person will not be employed with the company for very long.

According to a study done by Clinebell and Clinebell (1995), technology is readily available in many universities, but it is not integrated into the business curriculum. That is one of the goals of the OMIS department. It combines business practices and uses technology to develop business solutions. The common misconception is that many students feel they need to know the latest technology to be competitive (Silva and McFadden 2005). Knowing the latest technology is not nearly as important as having a clear grasp on fundamental business skills. Knowing the latest technology may help one acquire that first job, but it will not help one to grow within the business or beyond (Lightfoot 1999; Silva and McFadden 2005). Combining the right amount of technology and business fundamentals is the key to designing an ideal curriculum for an OMIS department.

## **RESEARCH QUESTIONS**

In order to provide the business community with well-trained competent employees, departments must understand their needs and the knowledge desired from new hires. To find out what the needs of the business community are, we need to find out what courses they feel would be the most important for a student to take in order for them to be prepared. The research question this study aims to answer is as follows:

*What courses do employers feel are the most important for a curriculum that combines operations management and information systems?*



By finding out which courses employers feel are important, we can provide valuable information to the academic community on how they may consider altering their curriculum. By continuously revising the curriculum to suit the needs of the business community, this will ensure a greater value to the work force and the world. The results of this survey will serve as a stepping-stone for operations management and information systems departments in evaluating and improving their curriculum to better serve the needs of the business communities.

## **METHODOLOGY**

To address our research question, we sent an email to recruiters and employers of Chicago land businesses that hire OMIS graduates. We explained the study and provided a link to our online survey. For simplicity, we will refer to recruiters and employers as employers. An online survey was developed for the employers to fill out. The survey was broken into two major parts, 1) general demographic information, and 2) a list of required courses. The list of courses is a collection of courses that the OMIS department at NIU offers as well as courses offered by top OM/MIS programs in the country. The second section of the survey asked employers to rate the importance of each of the courses on a 5-point Likert scale, where 5 = very high importance; 3 = moderate importance; and 1= very low importance. A short course description was placed at the end of the survey for recruiters to reference if they needed clarification on the course content.

We surveyed 122 Chicago-area employers that were obtained from a database in our department. The database contained contact information of recruiters that hire

graduates from our department. We sent emails to the employers explaining the purpose of the survey and the benefits that will arise from the results. Out of the 123 surveys, 47 were sent back as undeliverable, leaving 76 possible responses. Of the 76 possible responses, 30 surveys were completed. This resulted in a response rate of 39.5 percent.

Table 2 shows the demographic information of the employers that responded to the survey. As you can see, most responses came from manufacturing (26.7%) and retail industries (20.0%). In addition, most of the employees were either from smaller companies with under 1,000 employees (33.3%) or larger companies with over 10,000 employees (43.3%).

<b>Industry</b>	<b>Percent</b>
Manufacturing	26.7
Retailing	20.0
Consulting	13.3
Pharmaceuticals	6.7
Wholesale	6.7
Transportation	6.7
Consumer Products	3.3
Financial Services	3.3
Publishing	3.3
Packaged Software	3.3
Education	3.3
Internet Search	3.3
<b>Size of Organization</b>	
Under 1,000 employees	33.3
1,001-5,000 employees	16.7
5,001-10,000 employees	6.7
Over 10,000 employees	43.3

Table 3 displays the educational information of the respondents completing the survey. Half (15) of the respondents graduated from NIU, with only eight being OMIS majors. The rest studied another area of business or computer science. A few of the

**Table 3  
Employer Education**

<b>University Attended for Undergraduate Degree</b>	<b>Major</b>	<b>Year Graduated</b>
Northern Illinois University	OMIS	2003
Mankato State University	Mathematics	1974
University of Wisconsin-LaCrosse	Sociology	1997
Bradley University	Business Management/HR	N/A
Northern Illinois University	OMIS	2000
Northern Illinois University	OMIS	1998
N/A	N/A	N/A
Purdue	Industrial Engineering	1981
Northern Illinois University	Com Sci	1985
Northern Illinois University	Business	1973
Northern Illinois University	BSA/OMIS	1985
Northern Illinois University	OMIS	1989
Northern Illinois University	HR Management	2001
Northern Illinois University	Accounting	1989
University of California, Davis	Economics	1983
Northern Illinois University	Business Education	1969
Northern Illinois University	OMIS	2000
University of Illinois	Marketing	2001
Northern Illinois University	Industrial Supervision	1980
Elmhurst College	Business Administration	1974
UW-Madison	HR	2000
Northern Illinois University	OMIS	1998
Northern Illinois University	OMIS	2000
Miami U. (Ohio)	Psychology	1978
Michigan State	HR/Sociology	2002
Northwestern University	Psychology & Communications	1979
Oklahoma Christian	BS	1983
Millersville	Industrial Arts	1979
University of Chicago	English Language & Literature	1995
Northern Illinois University	Computer Science	1984

employers that graduated from other universities studied in areas that were not in

business or technology. Two of the respondents studied psychology and one studied

English language & literature. The year of graduation ranged from 1973 until 2003.

Table 4 breaks down the area each one of the respondents works in. The job titles were classified into three categories: IT, OM, and General. Most of the respondents were either classified as OM or General. This could have some bearing on the results of the survey.

<b>Area</b>	<b>Percent</b>
OM	40.0
General	36.7
IT	23.3

## **RESULTS**

Our research question was which courses employers felt were the most important for an undergraduate degree in operations management and information systems. The top five courses that the employers selected were Business Communications (4.59), Project Management (4.36), Management Information Systems (4.10), Operations and Information Management (4.05) and Supply Chain Management (3.90). The full list of required courses and their rankings can be found in Table 4.

<b>Course</b>	<b>Response Avg.</b>
Business Communications	4.59
Project Management	4.36
Management Information Systems	4.10
Operations and Information Management	4.05
Supply Chain Management	3.90
Business Forecasting-Spreadsheet Applications	3.73
Inventory Management	3.73
Database Management	3.71

System Analysis & Design I	3.71
Applied Business Statistics	3.67
Business Statistics	3.67
Supply Chain Systems	3.67
Business, Society and Ethics	3.64
Seminar in Supply Chain Management	3.61
Business Systems Development	3.62
Electronic Commerce	3.59
Quality Management	3.52
System Analysis & Design II	3.52
Procurement	3.41
Product Management	3.41
Business Computer Simulation	3.36
Information Technology Strategy	3.33
Process Management: Manufacturing & Quality	3.33
Corporate Strategy	3.29
Managerial Policy	3.27
Organizational Behavior	3.27
Capacity Planning Scheduling	3.24
Management Science Quantitative Methods	3.24
Service Operations	3.24
Telecommunications & Networking	3.19
Simulation	3.05
Career Planning	3.00
C Programming Language	2.86
Regulatory Policy	2.71
Advanced Visual Basic Programming	2.67
Mathematical Models for Consulting	2.52
Computer Security Management	2.48
Introduction to Unix Perl	2.24
COBOL	1.90

By contrast, the courses that had the lowest score were courses that were more about programming languages, such as COBOL (1.90) and Introduction to Unix Perl (2.24). It is apparent that courses that only deal with computer programming are not

nearly as important as courses that work at bridging the gap between upper management and computer programmers.

## **DISCUSSION**

With the business world and technology constantly changing, it is important for universities to update their curriculum with the change in skills that are demanded. The results of this research show the types of courses and skills employers feel are important for undergraduates of an OMIS department to possess.

Northern Illinois University currently offers many of the courses the employers feel are important. The courses that ranked among the top of the employers list that are not currently offered at NIU as required courses are Project Management, Business Forecasting, Inventory Management, and Systems Analysis & Design I. However, Project Management and Systems Analysis & Design I are combined into a single course at NIU entitled Business Systems Development, and this course is required. Inventory Management is currently an elective and Business Forecasting, while not a separate course, is partially covered in other required courses. To adjust to the employers input, it may be suitable to make Inventory Management a required course, make Project Management and Systems Analysis & Design I separate courses and develop a Business Forecasting course for the curriculum. These changes would help ensure that the OMIS program at NIU is meeting the needs of the business community.

The results of this research show that courses that focus on business applications and practical use of technology to solve business problems are more important to employers than courses that are more about programming languages. Courses such as

Business Communications, Project Management, Management Information Systems, Supply Chain Management, and Operations and Information Management were listed as the most important courses. Courses with the highest scores would be logical choices as required courses in an OMIS program. This shows that courses that demonstrate business process and fundamentals while still using technology were the most important. Also, the most important course, Business Communication, acknowledges previous research that has been done stating the importance of communication skills.

Courses that were more focused on programming and computer languages were ranked the lowest in the required and elective courses. Courses like COBOL, Introduction to Unix Perl, Regulatory Policy, and C Programming Language were among the less important courses. Courses that are more focused on the programming and technology aspect rather than the business fundamentals are less important to employers. For any department to develop the ideal curriculum it is extremely important to develop close relationships with the employers that hire the graduates and develop the program to benefit the needs of the business community.

## REFERENCES

- Clinebell, S.K. and J.M. Clinebell. 1995. Computer use n the management curriculum. *Journal of Education for Business* 71(1): 30-37.
- Gabric, D. and K.L. McFadden. 1999. Student and Employer Perception of Desirable Entry-Level Operations Management Skills. *Mid-American Journal of Business* 16: 51-59.
- Gilsdorf, J.W. 1986. Executives' and academics' perceptions on the need for instruction in written persuasion. *The Journal of Business Communication* 23(4):55-68.
- Graf, D. 1997. Critical success factors for community-based education. *Mid-American Journal of Business* 12(2):3.
- Hammond, D.H., S.J. Hartman and R.A. Brown. 1996. The match between undergraduate academic instruction and actual field practices in production/operations management. *Journal of Education for Business* 71(5): 263-266.
- Levenburg, N.M. 1996. General management skills: Do practitioners and academic faculty agree on their importance? *Journal of Education for Business* (Sept./Oct.):47-51.
- Lightfoot, J.M. 1999. Fads versus fundamentals: The dilemma for information systems curriculum design. *Journal of Education for Business*, 75(1), 43-50.
- Maes, J.D., T.G. Weldy, and M.L. Icenogle. 1997. A managerial perspective: Oral communication competency is most important for business students in the workplace. *The Journal of Business Communication* 34 (1):67-79.



McFadden, K.L., B. Jansen, and E.R. Towell. 1999. Building OM curriculum for the new millennium: Industry perceptions. *Mid-American Journal of Business* 14(2): 37-45.

Richardson, L. 2003. A challenge to change business education. *Mid-American Journal of Business* 18(1): 5-6.

Schleede, J. 2003. The future ? of management education. *Mid-American Journal of Business* 17(1): 5-8.

Silva, D. And K.L. McFadden. 2005. Combining operations management and information systems curricula : Assessing alumni preparations for the workforce. *Decision Sciences Journal of Innovative Education*. 3(2)

Tschirgi, H.D. 1972. What do recruiters really look for in candidates? *Journal of College Placement* 33:75-79.