

**Production & Operations Program (POM—currently Operations Management)**  
**POM Audit and Self-Study Assessment Report (2002)**

**Summary**

The Production and Operations Management (POM) major is a solid program. Our graduating students continue to be in great demand which is evident in our 100 percent placement record and average starting salaries over \$45,000/yr. In addition, the program is at the cutting edge given that the program faculty members are very active in research thereby bringing state-of-the-art developments into the classroom.

Our recent enrollment statistics indicate that the number of students in the POM major has stabilized at 40 students. To raise the number of majors we have embarked on new marketing and assessment strategies and have begun to continually improve the program. In addition, the POM academic staff and faculty provide a basic production concepts course to other business and non-business majors. The program is being continuously improved to better meet the needs of these student in terms of computer use, service sector issues, quality, and other current trends in operations, including E-Business and supply chain management.

**I. ACADEMIC ASSESSMENT**

**A. Highlights and Initiatives**

Since the last filing of the Audit and Review Self-Study, the Production and Operations Management (POM) has seen several significant developments. Given the input from our assessment activities such as meetings with the advisory board and surveys, course descriptions, required courses, electives and options in the major are being revised. These changes are intended to prepare our students better for the changing operational environment. As part of our continuous improvement program we are planning to seek input from our customers (industry and students) and make systematic changes. The program has completed the following program improvement initiatives:

- Supply Chain emphasis has been established. Four students were enrolled in the emphasis in the fall 2002 - the first semester the program was offered.
- Service emphasis has been established. One student was enrolled in the emphasis in the fall 2002 - the first semester the program was offered.
- E-operations emphasis has been established. Two students were enrolled in the emphasis in the fall 2002 - the first semester the program was offered.
- In 2002, the Student Chapter of the APICS was awarded the platinum status. Each year our student teams have been awarded one of the top three awards in the student case competition sponsored by the Milwaukee Chapter of APICS.
- The POM group has initiated discussions with the MCS group to better integrate our program offerings.
- A revised graduating student survey to provide better insights into the program (see attached survey instrument in Appendix A).
- The American Production and Inventory Control Society offers a series of five tests to gain professional certification in the area of POM. Obtaining professional certification by APICS is widely recognized in industry as proof of functional competence. We have relied on these tests as a measure of our student's knowledge of the field. While these certifications provide a significant incentive to the students to enhance their functional competence, it is expensive for them to take these tests. To increase the number of students taking certification tests we are exploring with the Milwaukee APICS parent chapter different ways to alleviate the financial burden to the students.

The current Academic Progress Report (APR) for the major is provided in Appendix A.

One problem that the program continuously faces is that many of our students at Whitewater are unaware of this major until it is too late for them to consider a switch. In fact, a large proportion of our students learn about this field only when they are at a junior standing taking the production concepts class. We are now publicizing this program to freshmen and sophomores. In addition, we are advertising our program at industry meetings in Milwaukee, Chicago and Rockford. The faculty teaching in the program will provide information to the academic advisors at the College level to make the students aware of the POM area early in their study programs.

To keep our constituents aware of our program changes we maintain web pages outlining requirements, course descriptions, and syllabi. In fact, this audit and review will also be up on the web. Overview of the current curriculum and options: Please refer to Appendix A for a detailed course listing. The area faculty have designed and implemented the following academic assessment initiatives:

## **B. Educational Objectives, Assessment Techniques**

1. Subject matter, cognitive development and skills objectives for the program.

### Subject Matter

**Majors will be able to identify and distinguish among key issues in the following topic areas:**

- Supply chain management
- Enterprise resource planning
- Manufacturing Planning & Control
- Quality Management
- Just in Time Systems
- Project Management
- Service Management

These areas are periodically assessed by student exit survey.

**Students will be able to identify the specific issues affecting operations management in the global business environment**

These areas are periodically assessed by student exit survey.

### Skill Objectives:

**Students will be able to use computer technology effectively to improve operational efficiencies as well as a tool for analysis and problem solving**

These areas are periodically assessed by student exit survey.

**The POM majors will be able to conduct quantitative analysis.**

These areas are periodically assessed by student exit survey.

**POM majors will be able to work effectively in teams**

These areas are periodically assessed by student exit surveys.

**POM majors will be able to work communicate clearly and effectively both in writing and verbally**

These areas are periodically assessed by student exit surveys.

Cognition objectives:

**POM majors will be able to conduct applied research in various POM related areas. This process includes problem formulation, data collection, data analysis and determination of results and recommendations.**

These areas are periodically assessed by student exit survey.

**POM majors will be able to will be able to and analyze cases**

These areas are periodically assessed by student exit survey.

**POM majors will be able to will be able to and analyze cases.**

These areas are periodically assessed by student exit survey.

**POM majors will be able to integrate complex operational knowledge to solve real world problems**

These areas are periodically assessed by student exit survey.

2. Data collection techniques

**A. Cognitive Development:**

Student exit survey  
APICS exams  
Input received from the POM area advisory board  
UWW Career placement services  
Activities and participation of students in the UWW APICS student chapter

**B. Skills Development:**

Student exit survey  
APICS exams

3. Relationship of individual courses that are related to student outcomes that are part of the assessment plan.

1. Overview of the current curriculum and options (all courses are 3 cr. unless otherwise noted). Courses normally taught by POM faculty are identified with an asterisk (\*)

1. Required courses:

250306, Operations Management (BBA degree requirement)\*  
250450, Operations Planning\*  
250455, Integration of Operations\*  
250456, Modern Manufacturing Systems\*  
250480, Management Information Systems\*

2. Electives (students must take at least 12 credits and at least one course from each group

(1) Industrial Management

250445, Quality Management\*  
250460, Computer Integrated Manufacturing\*  
250486, Supervisory Management  
260436, Purchasing and Materials Management

- (2) Quantitative Methods
  - 250471, Management Decisions Analysis\*
  - 250484, Simulation Modeling
- (3) Overview
  - 250445, Manufacturing Management\*
  - 250465 Global Operations Strategy
  - 250466, Management of Service Operations\*
  - 250493, Coop/Internship in Management, 2-3 credits\*
- 3. Options in the major
  - There are no specified options, but students can emphasize course work in any of the elective are as they desire.

The APICS professional certification exam specifically addresses several of these POM courses including:

- 250306, Operations Management (BBA degree requirement)
- 250450, Operations Planning
- 250455, Integration of Operations
- 250456, Modern Manufacturing Systems
- 250445, Quality Management
- 250460, Computer Integrated Manufacturing
- 260436, Purchasing and Materials Management
- 250471, Management Decisions Analysis
- 250465 Global Operations Strategy
- 250484, Simulation Modeling
- 250445, Manufacturing Management
- 250466, Management of Service Operations

However, the exam results do not give us specific data on each area but rather an overall score for the exams. The POM courses build the body of knowledge, skills and cognitive processing relative to the other assessment items Each of the courses in the POM area contributes in some way to the accomplishment of these objectives.

**C. Assessment Data**

- 1. Summary of assessment data gathered during the review period

The following tables have been designed based on the results of the 2001-2002 exit surveys, when it was administered for the first time. This comprehensive survey was designed to address the changes to the program that were implemented since 1999.

The table below includes data that measures the students' ability to identify and distinguish among key issues in the subject matter of the POM area.

Coverage of Topic Area	In Course	Survey Question Number	Score (1-5)
Supply Chain Management	Operations Strategy	3.	4.75
Transportation	Integrating Operations	4.	1.25
Purchasing	Operations Management	5.	4.33
	Purchasing	6.	0.00
-----			
Enterprise Resource Planning	Computer Integrated Manufacturing	7.	5.00
E-commerce		8.	5.00
Internet			
-----			
Manufacturing Planning & Control	Operations Planning	9.	2.25
	Integrating Operations	10.	2.25
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Quality Management	Quality Management	11.	4.75

Just in Time Systems	Quality Management	12.	4.75
	Supply Chain Management	13.	4.50
Project Management	Operations Management	14.	1.50
	Management Decision Analysis	15.	4.75
Service Management	Quality Management	16.	4.75
	Operations Management	17.	1.67
	Operations Strategy	18.	4.75
	Service Management	19.	5.00
	Integration Operation	20.	1.25

The table below includes data that measures the students' ability to identify and distinguish key issues in the subject matter of the OM affecting the global environment.

Topic Area	In Course	Survey Question Number	Score (1-5)
Global Operations Management	Operations Strategy	26.	2.50
	Operations Management	27.	1.50

The table below includes data that measures the students' use of computer technology skills to improve operational efficiencies as well as a tool for analysis and problem solving.

Topic Area	In Course	Survey Question Number	Score (1-5)
Analysis and problem solving	Management Decision Analysis	28.	5.00
Improve operational efficiencies	Computer Integrated manufacturing	29.	5.00
Spreadsheet	Management Decision Analysis	30.	4.75

The table below includes data that measures the students' use of quantitative skills.

Topic Area	In Course	Survey Question Number	Score (1-5)
Simulation	Management Decision Analysis	31.	4.75
Mathematical models	Management Decision Analysis	32.	4.75
Statistics	Management Decision Analysis	33.	4.75
	Quality Management	34.	4.75
	Operation Management	35.	2.50

The table below includes data that measures the students' ability to apply skills to work effectively in teams.

<b>Topic Area</b>	<b>In Course</b>	<b>Survey Question Number</b>	<b>Score (1-5)</b>
Group projects	All POM major courses	36.	4.75
Team/project methodology	Supply chain management	37.	3.25
	Organization behavior	38.	4.50

The table below includes data that measures the students' ability to communicate clearly and effectively (in writing and verbally).

<b>Topic Area</b>	<b>In Course</b>	<b>Survey Question Number</b>	<b>Score (1-5)</b>
Reports	All POM major courses	39.	4.50
Presentations	All POM major courses	40.	4.50

The table below includes data that measures the students' ability to conduct applied research in various POM related areas including problem formulation, data collection, data analysis and determination of results and recommendations.

<b>Topic Area</b>	<b>In Course</b>	<b>Survey Question Number</b>	<b>Score (1-5)</b>
Problem formulation	Management Decision	41.	4.75
Literature analysis	Analysis	42.	3.00
Data collection	Operations Strategy		
Data analysis	Management Decision	43.	4.75
Determination of results	Analysis		
Recommendations			

The table below includes data that measures the students ability to conduct case analysis.

<b>Topic Area</b>	<b>In Course</b>	<b>Survey Question Number</b>	<b>Score (1-5)</b>
Analyze cases	Operations Strategy	44.	5.00

The table below includes data that measures the students' ability to integrate complex operational knowledge in solving real world problems.

<b>Topic Area</b>	<b>In Course</b>	<b>Survey Question Number</b>	<b>Score (1-5)</b>
Integration to solve complex real world problems	Computer integrated manufacturing	45.	5.00
	Integrating operations	46.	1.25
	Operations strategy	47.	5.00
	Operations strategy	48.	4.67
	Internship		

APICS exams

Recording the pass rate on APICS professional certification exams also assesses the common body of knowledge in the POM area. The APICS certification statistics is shown in the following table:

APICS exams	Number of Students who Passed the Exam				
	1996/97	1997/98	1998/99	1999/2000	2001/02
Basics of Supply Chain Management	4				4
Material and Capacity Planning		1	3	9	
Systems and Technologies			1	2	
JIT	3	2	5	3	
Inventory Management			3	16	
Master Planning of Resources	2	1	1		
Detailed Scheduling and Planning	2				3

APICS Student Chapter:

American Production and Inventory Control Society (APICS) is a professional organization of global recognition affiliating individuals working and/or interested in issues relevant to the Operations Management community. Chapters of APICS are scattered nationwide. The Milwaukee APICS chapter sponsors the student chapter of APICS at UWW. This partnership ensures sources of significant professional contacts and guest speakers.

The UWW student chapter of APICS has several significant accomplishments to report. Continuing the success in 2001, the chapter received the platinum status in 2002. This very prestigious award requires meeting a rigorous set of APICS professional performance criteria at the highest level (resulting in the award of the chapter Gold award) for five consecutive years. UWW student chapter of APICS is one of only four student chapters in the US to have received this honor.

As part of the APICS mission, the local and regional chapters annually sponsor student case competitions. In 2002, a six-member POM tem from UWW was awarded third place by the Milwaukee chapter of APICS in the event.

As reported above, UWW POM students have taken and passed several professional APICS certification modules. Obtaining the certification while at UWW significantly enhances the marketability of the student in the marketplace after graduation. On average, getting certified by APICS also means a significant salary boost for a POM professional. A high pass percentage on APICS certification exams also boosts the reputation of the POM program at UWW.

**D. Program Improvement Resulting from Assessment Efforts**

Data collected confirms that the POM program continues to stay on the desired track. The POM area advisory board recommendations and the area response are as follows:

1. In order to spur the growth of supply chain management, service and E-operations emphases, the POM advisory board emphasized the importance of adding more

appropriate content as part of the core requirement, for individual courses or modules.

- Adopted state-of-the-art textbooks and added appropriate course content in 250306, 250456, 250465, and 250466.
2. In order to expose students to current global developments, the POM advisory board emphasized the need to include global issues in business and to encourage international activities of students.
- *Added appropriate course content in 250306, 250456, and 250465.*
  - *Provided information to students about international internship and exchange opportunities.*
  - *One student completed an internship in Holland under an agreement of UWW with the University of Arnhem.*
3. Recognizing the importance of current developments in information technology in businesses, the POM advisory board emphasized the need to incorporate information systems in the area curriculum. Specifically, the group emphasized the following:
- 3.1 The importance to include ERP/MRP software experience for students.
- *The 250460 CIM course have been revised to include exposure to ERPIMRP software*
  - *Discussions with the MCS group to better integrate our program offerings in the DSS area including coverage of ERPIMRP*
- 3.2 Students should be comfortable with the use of information technology at least at the level of spreadsheets and databases.
- *The 250211 course now includes projects requiring the use of Excel and Access.*
  - *The 250471 course requires the use of Excel for modeling managerial decision problems.*
  - *The 250480 course gives the student foundations of management information systems.*
4. Students should be able to analyze, synthesize and build computer and quantitative models.
- *The 250306 course exposes students to the quantitative models, including queuing and computer simulation, for modeling operations management problems.*
  - *The 250471 course requires the use of Excel for modeling managerial decision problems.*
  - *The 250484 course requires students to develop computer simulation models to model operations management problems.*
5. Students should be exposed to a variety of process technologies.
- *The 250306 course exposes students to a variety of manufacturing and service system technologies.*
  - *Site plant tours and video tours are used as part of 400-level courses to demonstrate manufacturing technologies in selected area industries.*
  - *Invited speakers from industry provide information about technologies used manufacturing and service organizations to several 400-level classes and during meetings of the UWW student chapter of APICS. ,*
  - *The need to provide introductory concepts on machine technology in a dedicated course continues to exist.*
6. Marketing of the POM program is done through:
- *The development and distribution of information fliers to interested students.*
  - *Inviting pre-business majors to APICS meetings.*

- *Participation in freshmen orientation activities.*

*The development of Internet web site, where students can find useful information about the POM program and career opportunities.*

<http://academics.uww.edu/business/ugmajors/Product.htm#top>

## **E. Information Shared with Constituents**

All POM faculty are actively involved in data collection and writing of assessment reports. The reports are discussed during regularly scheduled meetings of the area advisory board, student APICS chapter meetings and departmental meetings where personnel issues concerning the POM area are discussed. Steps are being taken to make the summary of the results of these surveys available on the Web. The POM web pages provide timely information on changes in the program, course content, syllabi, placement information, research thrusts, and interactions with industry. Information about POM students participating in the internship programs is made available to the members of the POM advisory board, students and other constituents.

## **II. STRATEGIC PURPOSES AND PERFORMANCE**

### **A. Centrality**

- I. Centrality of the program to the mission and strategic plan of the UWW. The POM major supports each of the following six priorities of the University's Strategic Plan in the following ways:

- a. Student learning as the paramount focus:

A variety of methods are used to help students learn including:

- Cases
- Experiential exercises
- Plant tours
- Outside speakers
- Studies in real companies
- Research papers
- Computer based assignments
- Team based assignments

The educational experiences are broad enough to support our students as they progress through their career paths.

- b. Deliver state of the arts programs and services:

Improvement in courses and their content is being implemented with input from the POM Advisory group, contacts with industry and research.

- c. Well qualified faculty and staff:

Significant research in POM, service to campus student organizations (APICS, etc.) and active committee involvement characterize the extensive commitment and resulting performance of the educators in the program.

All faculty members teaching in the POM area, have Ph.D.s in the relevant area and publish extensively in refereed journals. When a hiring need in the POM area arises at the academic staff level, we make an effort to recruit individuals with POM industry experience to supplement academic credentials.

d. Foster a sense of community, respect for diversity, and an appreciation of global perspectives:

For our students to be effective managers we discuss (within and outside of the classroom) the importance of diversity in the management of operations. The student organization (APICS) is actively involved with community reach programs.

The way we manage operations today has changed dramatically with the rise of industrial capacity in newly industrialized, transitional, and developing countries. Almost all large and medium sized firms in Southern Wisconsin sell products to or purchase supplies from overseas. To give our students this vital knowledge we are changing the content in several of our courses to include globalization and diversity issues.

e. Serve as a vital resource to the region:

The Production and Operations Management program is providing highly capable individuals to support service and manufacturing industries in Southern Wisconsin and Northeastern Illinois. Multinational firms can locate plants globally. By supplying POM majors we are providing a part of the "soft" infrastructure necessary to attract and retain companies locally. In addition, POM faculty make presentations at industry meetings of APICS and ASQ.

f. Relationship of the program to other programs at the University.

Any for-profit or non-profit organization is involved with the program area. In order to effectively manage our organizations we need to be aware of productivity issues and methods to improve the quality of our products.

**B. Goals and Objectives**

1. Current Goals and Objectives

Production and Operations Management (POM) majors will, upon graduation, have a command of the body of knowledge as defined by the American Production and certification examinations, which the POM students are strongly encouraged to take.

The APICS body of knowledge covered by the CPIM exam includes Inventory Management, Just-In-Time, Production Activity Control, Master Planning, Material and Capacity requirements, Planning and Systems and Technologies. The CRIM exam covers Customers and Products, Manufacturing Processes, and Integrated Enterprise.

2. Progress in fulfilling Goals and objectives (see table below)

Details of specific objectives, goals and progress towards goal/objectives are presented in the following table.

Objectives	Goals	Progress
POM majors should be able to effectively perform entry-level managerial responsibilities in the POM area in manufacturing, service and government organizations.	Increase placement of our all our students ----- Encourage all students to take the APICS certification exams -----	Current placement rate is 100% Continuing to work with the Milwaukee chapter of APICS ----- Ongoing

	Offer emphases in: - Supply chain management - E-commerce	Implemented in 2000
POM majors should be able to make relevant decisions in the	Revise course content	Implemented
global economic system in which these organizations operate.	Augment faculty experience in international operations management.	<ul style="list-style-type: none"> <li>□ Dr. Madan's leave of absence in international operations</li> <li>□ Dr. Bramorski Fulbright scholarship in Eastern Europe</li> </ul>
POM majors should be able to identify and assess the risks and opportunities for their functional area of employment arising from their employers' strategies in the global market place	Speakers who can describe risk/opportunities in terms of strategies for the global market place.	4-5 speakers a year
	Internships to help students understand changing strategies.	A majority of students
POM majors should be able to integrate the theoretical and practical knowledge gained through their studies at UW-W into practice.	Reports examining real world reports in organizations	Student study an operational problem in a real firm in most
	Internships	Advanced POM area courses.
	Case competitions	<ul style="list-style-type: none"> <li>o A majority of students</li> <li>o Participated annually since 1997 in APICS case competitions</li> </ul>
POM majors should be able to communicate clearly and effectively both in writing and verbally.	Class presentations	All 400 POM course require presentations in class
	Industry presentations	Need to schedule a presentation at the Milwaukee APICS meeting.
	Reports	All 400 POM course require reports
	Case competition	Participated annually since 1997 in APICS case competitions
POM majors should be able to conduct applied research in various POM related areas. This process includes problem formulation, literature analysis, data collection, data analysis and determination of results and recommendations.	Reports requiring problem formulation, data collection, results	Most advanced courses in the POM area
	Data analysis, literature review	All 400-level courses
POM majors should be able to make efficient use of available resources, such as libraries, library data bases, etc. and	Library resources	400-level courses currently require the use of library access information on CD-ROM, and/or Internet

modern technologies, such as communication networks and personal computers with multimedia capabilities.

PC - spreadsheets

400 level courses currently require computer-based homework

Multimedia

All students know how to use

State of the art manufacturing software

- o PowerPoint presentation software
- o Working with industry vendors to acquire ERP software

POM majors should be able to work effectively in teams

Methodology for project management

Almost all the 400 level courses require team projects

Implementation of projects

All 400 level courses

### 3. How program contributes to meeting state and societal goals

Operations management is a vital function in any organization, whether it is for profit or not, or it is in the manufacturing or service sector. Operations management helps firms efficiently and effectively manage their resources in adding value to the society. How well we manage operations has a direct bearing on such issues as profitability, environment, standard of living, government services and economic power. A well-run system is more profitable, generates a larger tax bases and can sustain a higher standard of living among its workers.

Countries/regions of the world lacking an industrial base tend to be poorer and lack independence. It is imperative that we retain and augment our industrial capability. The POM program provides a "soft" infrastructure for industries in Wisconsin. We are providing high quality graduates that are able to effectively manage operations and remain competitive in a dynamic global environment. In addition, the area faculty are a valuable resource in helping production managers gain access to knowledge in the POM area and to solve specific operational problems.

### 4. Changes in goals and objectives and how program has responded to recommendations listed in previous audit and review report. (A copy of the most recent Audit and Review Evaluation is included in the Appendix.)

The report lists 21 program strengths. The program has worked diligently to maintain these strengths.

The report also lists six program weaknesses. The specific weaknesses and the area response (the responses are in italics) are listed below.

1. The program has not yet systematically collected assessment data.

*The program now collects assessment-related data from alumni, the industry advisory board, the internship reports and UWW APICS student chapter surveys.*

2. The program objectives are somewhat vague. The first three goals seem tied to the program while the next five seem to be general university goals.

*In response to the previous audit and review, we have redefined the educational objectives and specifically linked them to the required courses and electives. We will gauge how*

*these objectives are being achieved by conducting an annual survey of our graduating students. These changes are resulting from the POM program industry advisory board recommendations. We are confident that this program will continue to provide a valuable service to the regional economy by providing qualified individuals that are capable of effectively managing service and industrial operations.*

3. The program has experienced a steady decline in the number of declared majors (nearly 40% drop in past five years).

*The decline has slowed down and we believe that it has reached a stable level. Program promotion efforts have been undertaken in conjunction with the CBE Student Advising Officer, Samantha Samreth, to provide information about the program to incoming freshmen.*

4. The program lacks visibility.

*The issue has been addressed by program promotion initiatives that have been undertaken in conjunction with the CBE Student Advising Officer, Samantha Samreth, to provide information about the program to incoming freshmen. In addition, the APICS student chapter continues to actively participate in internal and external program promotion. Linkages with industry are being established by bringing practicing professionals in POM area as guest class speakers and part-time instructors.*

5. The cost of the APICS tests is quite high, making it difficult for students to afford to take them.

*The fee structure for the APICS certification exam is set by the national APICS organization. Hence, the program has no control over the fees they charge.*

6. The enrollments in POM courses are relatively low.

*As noted in item #3 above, the decline has slowed down and we believe that it has reached a stable level. Program promotion efforts have been undertaken in conjunction with the CBE Student Advising Officer, Samantha Samreth, to provide information about the POM program to incoming freshmen.*

The latest Audit and Review Evaluation Form report also lists six specific actions required. The specific actions required and the area *actions taken* (the actions are in italics) are listed below.

1. Revise the assessment plan as follows:

a. Rewrite the Educational Objectives so that they read: "majors will be able to," as opposed to "majors should be able to."

*This revision was implemented in the current report.*

b. Separate objectives into subject matter, cognitive development, and skill development objectives.

*This action was implemented in the current report. Section II.B of this report now categorizes these objectives as required.*

c. Match the assessment data collection techniques to the educational objectives they assess (for instance, which assessment technique addresses objective #4). Complete this revision by March 1, 1999.

*This action was implemented in the current report. Section II.B of this report now matches the assessment data collection techniques to the educational objectives, as required.*

2. Systematically collect assessment data during 1998-99.

*This action was implemented. Assessment data is not collected from relevant sources, as required. The sources include: POM Advisory Board input, student exit surveys and APICS student chapter statistics. In addition, the UWW web site offers valuable enrollment and graduation statistics that was found to be very beneficial in preparing this report.*

3. Continue to work with outside agencies in the private sector as well as with the Office of Research and Sponsored Programs to explore external funding opportunities that would support implementation of its strategic initiatives. Report on external funding efforts and progress by March 1, 1999.

*The POM area advisory board has provided the program with several internship opportunities for the POM students. Some of these opportunities have opened up for area students in Europe. The Office of International Education has assisted students participating in internship programs with the Technical University of Brno (under the cooperative agreement with UWW). Several proposals prepared by area faculty have been filed with the Office of Research and Sponsored Programs (The Fulbright experience of Dr. Tom Bramorski in 1998).*

4. Continue to aggressively pursue program marketing and assessment strategies to recruit and retain larger numbers of majors. Report on the progress in this effort by March 1, 1999.

*Program promotion efforts have been undertaken in conjunction with the CBE Student Advising Officer, Samantha Samreth, to provide information about the POM program to incoming freshmen. The area faculty routinely provide information about the program to potential majors, including the annual Majors Fair held at Wyman Mall. The POM area also maintains the web site for anybody to get information about the area. APICS students visit select classes at the beginning of each semester encouraging students to find out more about the POM area.*

5. Investigate means of further subsidizing the cost of APICS exams, perhaps through an alumni fund or industrial endowment.

*Faculty in the POM area are working with the Milwaukee Chapter of APICS and individual industry representatives to find ways to subsidize the high cost of APICS exams.*

6. Investigate ways of supporting the cost of subscriptions to the International Journal of Operations and the International Journal of Production Economics.

*The above two journals and several other leading journals in the POM area are now available online as well as through interlibrary loan.*

#### **C. Trend Data (data extracted from University Web Site and other UWW sources)**

- a. Number of students enrolled each fall for each of the past five years. (Refer to Table below)
- b. Average number of total credits completed by those earning degrees for each year for each of the past 5 years. (Refer to Table below)
- c. Student placement information. (Refer to Table below)

Category\Year	1997/98	1998/99	1999/00	2000/01	2001/02
Students enrolled each fall (POM majors)	58	66	42	41	29
Degrees granted	8	24	32	14	19
Placement percent	100%	100%	100%	100%	N/A
Credits completed	N/A	N/A	N/A	N/A	N/A

\*Since 1998/1999 there has been a significant increase in the number of degrees granted.

#### d. Demand for Graduates

##### 1 Career opportunities available for graduates

a. The demand for UW-W POM graduates is in excess of the number of graduates. The placement rate of our graduates is 100%. Although not documented, employers regularly call us in hopes of finding POM graduates that have not yet accepted a job. Thus, the outstanding success of our majors in landing POM jobs in our market is probably the best predictor of demand.

b. Bureau of Labor Statistics (BLS) projections. US BLS data can be studied to determine nation-wide statistics and projections. The employment outlook for the broad operations management area looks good and the future appears to be ever more promising as businesses are beginning to reemphasize the importance of excellence in operations after the financial, ethical and E-Business fiascos of the last 2 years. We expect the demand to continue to exceed our supply of graduates. From our discussion with the POM Advisory Board we are planning to inject more information systems, supply chain management, and globalization into our program.

Occupation Title	% Change, 1994-2005
General Managers & top executives	17
Purchasing agents	22
Management & support workers	21
Industrial engineers	20
Operations research analysts	50*
Systems analyst	92

\*Approximated from US BLS charts

**e. Accreditation**

The BBA program in POM has no specific accreditation requirement. However it does meet the requirements of AACSB since it is part of the College of Business and Economics, which holds AACSB accreditation.

**f. Location Advantage**

The BBA POM major has a distinct advantage due to the location of UW-Whitewater and its access to resources in this region. We are close to many industrial areas that provide significant internship and permanent job opportunities for our majors: Milwaukee, Rockford, Madison, Racine/Kenosha, Beloit/Janesville and Chicago. We are within fifty miles of large, active APICS Chapters in Milwaukee, Rockford, Madison, and Chicago. These chapters provide support and opportunities for our POM students and graduates. The close proximity of so many potential employers provides many opportunities for convenient plant tours, speakers for APICS student chapter meetings, and makes it convenient for employers to come to UW-Whitewater for interviewing/hiring. We have tried to take maximum advantage of our location.

**g. Comparative Advantage**

The POM program at UW-Whitewater is highly rated by employers. Reasons for the competitive advantage are listed below.

a. One of the biggest advantages that the UW-Whitewater SBA POM major has over similar competing programs is that we completely cover all five modules of the APICS Body of Knowledge in our senior-level POM courses. This coverage enables our students to do well on the APICS certification exams, in the APICS Original Paper Competition, and on the job after graduation. Also, potential employers consider it very favorably.

b. Very active and long standing Student APICS Chapter. This chapter was the first one in the nation to be established. In addition, the chapter recently won the platinum award. Only two other institutions in the nation have similar honors.

c. Abundant internship opportunities for students enrolled in the POM program.

d. Three Faculty/Staff members fully certified by APICS in Production & Inventory Management. One faculty member certified by American Society for Quality (ASQ) as Certified Quality Engineer (CQE).

e. Given the diversity of experiences among our faculty/staff, our students experience a rich learning environment.

**h. Community Impact**

1. The UW-Whitewater BBA POM program has become very well known in our region and services the community needs.

a. The involvement of students and/or faculty in the region.

Faculty & Staff:

APICS - Milwaukee - Sisak & Prasad, Madan

APICS - Chicago - Prasad

ASQC - Rockford - Bramorski

Students:

The Executive Board of the APICS chapter at UWW and the APICS chapter in Milwaukee regular attend each other's meetings. In addition, the students at Whitewater attend every Milwaukee Chapter Dinner meeting.

b. The utilization of the program by consumers  
A number of POM student advisors assist local firms in defining their problems and recommending sound business solutions.

In addition, faculty and staff are tapped for their expertise in solving operational problems for companies.

c. Support by regional constituencies. The Milwaukee Chapter supports our students by funding purchases of APICS educational material.

i. **Strategic Planning**

Based on the inputs received from the advisory board, alumni and information from similar academic institutions and limited institutional resources the area does not anticipate any major revisions to the curriculum or developing new courses at this time. However, course content and information technology currency will be maintained. In particular, the role of information technology in classroom instruction will be expanded by using BlackBoard in the delivery of more area courses.

### **III. RESOURCE AVAILABILITY AND DEVELOPMENT**

#### **A. Faculty and Staff Characteristics**

1. All full-time area faculty have relevant terminal Ph.D. degrees. The program staff also included two academic staff members with relevant qualifications. Program faculty and staff stay current in their fields, as evidenced by the attached summary of their publications and conference presentations. Program faculty and staff engage in industry activities by attending meetings of professional associations such as APICS and ASQ. Some program faculty and staff also engage in professional consulting activities, run businesses and are active in professional associations as presenters and/or trainers for professional certification exams. Dr. Madan, Mr. Sisak and Dr. Washbush are certified and have CPIM designation, while Dr. Bramorski is certified as CQE by ASQ.

The professional characteristics of program faculty and staff members presented above are appropriate for the needs of the program and ensure high program quality. While an effort was made in 1995 to recruit an individual to enhance UWW affirmative action goals, no women or minorities with the appropriate combination of skills applied. The proportion of multicultural faculty members compares favorably with the proportions found at the university level.

2. The faculty and staff responsibilities for courses are listed in: Appendix F and resumes for details regarding each area member's education and specialties. The specific course assignment for each individual varies from semester to semester and is made by the departmental chairperson in accordance with departmental and college needs. Hence, no individual is solely responsible for a course. This responsibility rests with the entire group of faculty and staff teaching in the program who meet regularly. The POM group is led by the program coordinator who works with the departmental chairperson and program faculty and staff on issues related to the POM area.

3. One of the POM area staff members retired from UWW in the summer of 2002. A competent replacement was hired for the 2002/2003 academic year. We anticipate that we will be able to hire a full-time academic staff replacement in the future.

## B. Teaching and Learning Enhancements

Summary of faculty and staff activities in the areas of teaching and learning enhancement.

- a. Participation in on-campus and off-campus teaching enhancement activities.
  - Dr. Bramorski attended a workshop in the summer of 2002 in Whitewater on the use of Lotus Notes to offer courses on the Internet.
  - Dr. Bramorski attended a workshop in the fall of 2002 in Whitewater on the use of Blackboard to offer courses on the Internet.
  - Dr. Madan attended two workshops in the spring of 1998 in Chicago on the use of Oracle Manufacturing software.
  - Dr. Madan attended two workshops in the spring of 2000 in Chicago on E-commerce.
- b. Involvement in academic advising and efforts to maintain or improve advising performance.

All faculty and staff in the POM area advise students assigned to them during the two-week advising session. Students are expected to see their assigned advisor to review their progress in the program and to ask questions. In addition to the formal advising sessions, all faculty and staff interact with the students on an on-going basis through student organization advising, attendance at meetings, office hours, etc. and offer their input to students in their area of interest.

- c. Work with undergraduate students on research project

All upper-division courses in the POM area require that students prepare a research report. The report requires significant time expenditure on the part of the students as well as faculty and staff. The report involves computer programming work, library work, data collection from companies and data analysis. Faculty and staff assist students in all phases of the process. Students form teams of two or three and are expected to divide the work equally. A written report summarizing the literature, outlining the business environment, stating the research problem, the research methodology, results and conclusions must be submitted to the instructor for grading by each student team. In addition, students must make a 20-minute oral presentation of their paper to the rest of the class using PowerPoint, and answer audience questions.

Best student papers are submitted to the APICS student paper competition. UWW student have won numerous awards at the Milwaukee level and have won recognition nationwide.

- d. Initiatives in student-learning based outcomes

Students are encouraged to submit their work to academic conferences through channels including student organization advisors and the UWW undergraduate research initiative.

- e. New course development

Faculty and staff in the POM area continuously modify the content of their courses to reflect changes in the field. This is evidenced by several proposals for course title and course description changes presented to the UWW Undergraduate Curriculum Committee. These changes allow for a more interdisciplinary approach integrating not only the affected areas within POM but also other areas within business.

### **C. Research and Other Scholarly/Creative Activities**

Summary of faculty and staff activities in the areas of research and other scholarly/creative activities.

The POM faculty is very active in research. The research output of POM area faculty is published in refereed academic journals or conference proceedings of international and national recognition. Please refer to the resumes of area faculty for details of their research output.

### **D. External Funding**

Summary of efforts and success of the program to generate funding through grants, contracts and/or gifts.

- Dr. Tom Bramorski has received a Fulbright Program Senior Exchange Scholar grant in 1998 to spend one year at Poznan Academy of Economics in Poznan, Poland.
- We have made extensive but unsuccessful efforts to get student sponsorship and funding from local area industries and the Milwaukee chapter of APICS.

### **E. Professional and Public Service**

All faculty and staff are involved in various professional organizations such as APICS, DSI, INFORMS and ASQ. Many faculty offer management development seminars for business groups. Some of these seminars are offered through Small Business Development Center offices at UWW.

All faculty members in the POM area have worked as reviewers of papers submitted for publication considerations to various professional publications.

In addition, some of the faculty have provided service as external reviewers for tenure/promotion for faculty from other academic institutions as well as external reviewers of theses for graduate students.

### **F. Resources for Students in the Program**

The departmental service and supply budget covers three majors so that resources available to the POM program are not broken down as a separate figure.

### **G. Facilities, Equipment and Library Holdings**

1 Facilities are at best adequate.

2 Equipment:

The multimedia equipment, computers and projectors in a number of rooms where POM courses are generally taught are in excellent operating condition.

3. Library.

The library holdings are more than adequate to support teaching and research in the POM program.

4. Internet.

Internet access is available when needed at multiple locations on campus.

5. Software.

General-purpose software such as Word, Excel, DBMS, PowerPoint is available. However, there is a need for specific software (such as ERP) for supporting instruction in higher-level POM courses. The area faculty are working with industry to obtain access to such software for instructional purposes.

APPENDIX A: POM Advising Documents (APR, Advising Sheets, POM Area Fact Sheet) [Note-Not included]

PPENDIX B: Sample Questionnaire

APPENDIX C. Audit & Review Evaluation Report from Last Review

APPENDIX D. Exit Survey of Graduating Seniors [Note-Not included]

APPENDIX E. Trend Data Included from the University's Fact Book [Note-Not included]

APPENDIX F. Table of Faculty and Faculty/Staff CVs [Note: not included]

APPENDIX F: Table of Faculty and Staff and Courses Taught

Courses	Faculty				Staff	
	Bramorski	Madan	Prasad	Washbush	Hancock	Sisak
250306 Operations Management	x	x	x	x	x	x
250450 Operations Planning	x	x	x			x
250455 Integration of Operations	x	x	x			x
250456 Modern Manufacturing Systems		x			x	x
250445 Quality Management	x	x				x
250460 Computer Integrated Manufacturing					x	x
250471 Management Decision Analysis	x			x		
250465, Global Operations Strategy	x					
250466, Management of Service Operations						x
250493, Coop/internship in Management						x

QUESTIONNAIRE - PRODUCTION PROGRAM SURVEY

Management Department  
University of Wisconsin-Whitewater  
Whitewater, WI 53190

If you are graduating this semester please fill out the entire questionnaire to the best of your ability. The information you provide will be held in strictest confidence. The valuable information you supply will be very helpful in building an even better Production Program and in improving job opportunities for graduating seniors and recent graduates (such as you will be in a few years).

A. Why did you select the P/OM Major?

\_\_\_\_\_

B. Please List the Names of All the Firms you Interviewed On-Campus for a Production (or related) Position \_\_\_\_\_

C. Please Supply the Following Information Concerning All Your (Off-Campus) Interviews for Production Job(s). Include those not through Placement Office.

Interview Annual Firm Offer?

Position Title - Name of Firm - City - Salary\$ - (no/yes/accepted)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

D. If you have already accepted a position, please indicate the position above with "Accepted" in the "Firm Offer?" column.

E. Indicate the APICS Certification Exams you have taken with a "T", passed at practitioner with "P", passed at fellow with "F".

\_\_\_\_\_

E. Thanks for filling out this survey. (Not necessary - but helpful) Please Print:

1. Your Name \_\_\_\_\_ Today's Date \_\_\_\_\_

At UW-W Permanent

2. Address \_\_\_\_\_

3. Phone ( )- - \_\_\_\_\_ ( )- - \_\_\_\_\_

G. Put additional comments/suggestions below or attach a sheet.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

AUDIT AND REVIEW EVALUATION FORM  
**Program: Production Operations Management**

Major   X    
Minor       

**Program Strengths:**

1. The program is consistent with the university's strategic plan.
2. The program is thinking progressively about methods for collecting assessment data from both internal and external sources.
3. The program has a very progressive method planned of sharing its assessment outcomes.
4. The program has been responsive to suggestions about shortcomings in its assessment efforts.
5. The student organization (American Production and Inventory Control Society) is performing at an excellent level-garnering national recognition.
6. Majors are completing the program in an efficient fashion-graduating, typically, with 130 or fewer credits.
7. The program sports an excellent placement rate (100%) and graduates command a very respectable starting salary.
8. The program has acquired state-of-the-art software that provides in-class opportunities for experiential learning.
9. The faculty are active scholars.
10. The faculty and academic staff are active in local and regional professional organizations.
11. The faculty and academic staff are active in supporting industry in Southern Wisconsin.
12. The faculty participate in international exchanges and research.
13. The program is located near a number of industrial centers that allows it to provide a number of internship opportunities.
14. The demand for production operations managers is projected to be strong for the years ahead.
15. The program has documented changes because of assessment.
16. The program is using the web extensively for a variety of purposes.
17. The program uses its advisory board well.
18. The program has an outstanding record of internship and job placements.
19. The faculty is diverse.
20. The program addresses all 6 modules of the APICS Body of Knowledge.
21. The enrollment in the program appears to be stabilizing.

**Program Weaknesses:**

1. The program has not yet systematically collected assessment data.
2. The program objectives are somewhat vague. The first three goals seem tied to the program while the next five seem to be general university goals.
3. The program has experienced a steady decline in the number of declared majors (nearly 40% drop in past five years).
4. The program lacks visibility.
5. The cost of the APICS tests is quite high, making it difficult for students to afford to take them.
6. The enrollments in POM courses are relatively low.

**Specific Actions Required:**

1. Revise the assessment plan as follows:
  - (a) Rewrite the Educational Objectives so that they read "majors will be able to," as opposed to "majors should be able to."
  - (b) Separate objectives into subject matter, cognitive development, and skill development objectives.
  - (c) Match the assessment data collection techniques to the educational objectives they assess (for instance, which assessment technique addresses objective #4).Complete this revision by March 1, 1999.
2. Systematically collect assessment data during 1998-99.
3. Continue to work with outside agencies in the private sector as well as with the Office of Research and Sponsored Programs to explore external funding opportunities that would support implementation of its strategic initiatives. Report on external funding efforts and progress by March 1, 1999.
4. Continue to aggressively pursue program marketing and assessment strategies to recruit and retain

- larger numbers of majors. Report on the progress in this effort by March 1, 1999.
5. Investigate means of further subsidizing the cost of APICS exams, perhaps through an alumni fund or industrial endowment.
  6. Investigate ways of supporting the cost of subscriptions to the International Journal of Operations and the International Journal of Production Economics.

**Recommendation:**

Continuation subject to minor concerns.