UTCA Project 99118

The Development of a Multi-disciplinary Transportation and Logistics Education Program

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University Transportation Center for Alabama

About UTCA The University Transportation Center for Alabama (UTCA) is designated as a "university transportation center" by the US Department of Transportation. UTCA serves a unique role as a joint effort of the three campuses of the University of Alabama System. It is headquartered at the University of Alabama (UA) with branch offices at the University of Alabama at Birmingham (UAB) and the University of Alabama in Huntsville (UAH). Interdisciplinary faculty members from the three campuses (individually or operating in teams) perform research, education, and technology transfer projects using funds provided by UTCA and external sponsors. The projects are guided by the UTCA Annual Research Plan. The plan is prepared by the Advisory Board to address transportation issues of great importance to Alabama and the region.

Mission Statement and Strategic Plan The mission of UTCA is "to advance the technology and expertise in the multiple disciplines that comprises transportation through the mechanisms of education, research, and technology transfer while serving as a university-based center of excellence."

The UTCA strategic plan contains six goals that support this mission, as listed below:

- Education – conduct a multidisciplinary program of coursework and experiential learning that reinforces the theme of transportation;
- Human Resources – increase the number of students, faculty and staff who are attracted to and substantively involved in the undergraduate, graduate, and professional programs of UTCA;
- Diversity – develop students, faculty and staff who reflect the growing diversity of the US workforce and are substantively involved in the undergraduate, graduate, and professional programs of UTCA;
- Research Selection – utilize an objective process for selecting and reviewing research that balances the multiple objectives of the program;
- Research Performance – conduct an ongoing program of basic and applied research, the products of which are judged by peers or other experts in the field to advance the body of knowledge in transportation; and
- Technology Transfer – ensure the availability of research results to potential users in a form that can be directly implemented, utilized or otherwise applied.

Theme The UTCA theme is *"MANAGEMENT AND SAFETY OF TRANSPORTATION SYSTEMS."* The majority of UTCA's total effort each year is in direct support of the theme; however, some projects are conducted in other topic areas, especially when identified as high priority by the Advisory Board. UTCA concentrates upon the highway and mass transit modes, but also conducts projects featuring rail, waterway, air, and other transportation modes as well as intermodal issues.

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16. Abstract

The University of Alabama does not presently offer an integrative program in transportation and logistics. The goal of this effort was to develop a multi-disciplinary curriculum for such a program. To accomplish this task, the researchers benchmarked existing programs at 18 universities that are recognized leaders in this field of study. Based on the course contents of these programs and the knowledge of the researchers, three major fields were defined: Information Technology, General Body of Knowledge, and Technical Analysis. These three fields were subdivided into 22 sub-component areas. Using the course descriptions, each of the benchmarked programs was evaluated on the extent of coverage of these areas. Furthermore, a review of the literature – using both academic and trade journals – was performed to identify emerging trends in the marketplace. These two distinct sources were distilled to identify the components of an ideal curriculum that was used as the foundation for the program at The University of Alabama. This program combined the talents of two departments housed in the College of Commerce and Business Administration, the Department of Geography in the College of Arts and Sciences, and the Department of Computer Science in the College of Engineering. The proposed curriculum has been informally approved by the separate departments in the College of Commerce and Business Administration and will be submitted to the Faculty Executive Board in the near future for implementation. When approved, both the Department of Information Systems, Statistics, and Management Science, and the Department of Management and Marketing will offer a new major in Transportation / Supply Chain Management.

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Executive Summary

The University of Alabama does not presently offer an integrative program in transportation and logistics. The motivating purpose behind this proposal was to develop an outstanding multi-disciplinary transportation/logistics program at The University of Alabama, Tuscaloosa to produce undergraduate degreed students that will meet the growing needs of the Nation and the State of Alabama. To accomplish this task, the researchers benchmarked existing programs at 18 universities that are recognized leaders in this field of study. (Please see Appendix A.) Based on the course contents of these programs and the knowledge of the researchers, three major fields were defined: Information Technology, General Body of Knowledge, and Technical Analysis. These three fields were subdivided into 22 sub-component areas. Using course descriptions, each of the benchmarked programs was evaluated on the extent of its coverage in these areas. Secondly, a review of the literature – using both academic and trade journals – was performed to identify emerging trends in the marketplace. These two distinct sources were combined to create the components of an ideal curriculum for the proposed program at The University of Alabama. This program combined the talents of two departments housed in the Culverhouse College of Commerce and Business Administration, plus the Department of Geography in the College of Arts and Sciences, and the Department of Computer Science in the College of Engineering.

The proposed curriculum consists of a 27 credit hour *major* on top of the standard college-wide business curriculum, and an 18 credit hour *minor* in Geographic Information Systems (GIS). This curriculum can be completed with 128 credit hours, which is only four credit hours more than the 124 hours required for a business degree. (Please see Appendix B.)The *major* combines existing courses from two undergraduate business programs: Marketing and Industrial Management. These courses cover all of the activities and processes involved in managing supply chains, including transportation, manufacturing operations, inventory management and distribution. The *minor* combines four courses from the Geography Department in the College of Arts and Sciences, and two courses from the Computer Science Department in the College of Engineering. The combination of courses in both the *major* and *minor* provide students with knowledge and skills to understand and apply GIS, as well as design add-in supply chain models and implement them within a GIS. This program compares favorably with the six "best of the best" transportation / logistics / supply chain management programs identified by this research. (Please see Figure 4-2.)

The proposed curriculum has been formally approved by the two affected departments in the Culverhouse College of Commerce and Business Administration and is being submitted to the College's Faculty Executive Board in November for approval and implementation. When approved, both the Department of Information Systems, Statistics, and Management Science, and the Department of Management and Marketing will offer a new major in Transportation / Supply Chain Management.

Since this program uses only existing courses and faculty resources, there is an opportunity for improvement. Longer-term, this program will benefit from the inclusion of additional topics, such as purchasing/procurement and transportation management. Further benefits can be achieved from eliminating overlapping topical coverage and integrating the concepts and processes related to managing the total supply chain across all of the courses in the *major*.

Section 1
Introduction, Problem Statement, Overall Project Approach

Introduction

A new managerial focus is emerging in today's high cost, competitive and ever changing business environment: the integration of transportation and logistics activities across the entire ***supply chain.*** The supply chain refers to the flow of goods from raw material sources to manufacturer to wholesaler to retailer to consumer/end user, and the flow of information in the opposite direction. This business environment has recognized that the typical distribution channel contains redundant and unnecessary functions and processes.

Globally, the logistics industry is among the largest industries. In the U.S. this industry will contribute approximately $1 trillion to the Nation's economy in the year 2000. Transportation consumes approximately 60 percent of these annual expenditures. Logistics costs can exceed the cost of manufacturing, and exceed 50% of overall marketing costs. Logistics related assets can represent as much as 75% of a company's total assets. Consequently, better management of transportation / logistics offers every member of the supply chain significant opportunities for improving corporate profitability and return on assets.

There are tremendous opportunities in the transportation and logistics industries for energetic, properly educated students. Presently, there is no cohesive strategy within the University of Alabama System to meet this challenge. In fact, the state of Alabama lags in the development of both higher education programs in this area, and the building of integrated relationships between the transportation industry and shippers (manufacturers, wholesalers and retailers).

Problem Statement

The objective of this effort was to establish a truly ***multi-disciplinary*** transportation / supply chain management undergraduate program that combined the expertise of two departments within the Culverhouse College of Commerce and Business Administration as well as reached out to other colleges, Engineering and Arts & Sciences, to provide outstanding preparation in the business logistics area.

Overall Project Approach

The strategic approach adopted for this research was to create an initial curriculum that used only existing resources, and to describe enhancements that would lead to a future curriculum. This will permit the number of students enrolled in the program to grow to a viable level before the faculty would need to commit their energies to the required improvements. In addition, this approach will permit the faculty to observe where new resources may best be spent in developing the program in the future.

To develop the initial curriculum, existing and recognized transportation / logistics programs across the country were evaluated to serve as a benchmark. This process enabled the researchers to compare the University of Alabama's current resources and expertise to the "Best of the Best." Furthermore, current trends in transportation / logistics and supporting advances in technology were identified. This information allowed the design of a new program that uses existing resources to meet future needs in the logistics industry. The identification of an educational niche will provide students of this program with special skills that will give them a competitive edge in the job market.

Section 2
Background

History

Prior to and immediately following the deregulation of the various modes in the transportation industry in 1980, the University offered a program in transportation in the Culverhouse College of Commerce and Business Administration's Department of Economics, Finance and Legal Studies. As the emphasis in transportation management shifted from a regulatory environment to a competitive free market, the required knowledge base evolved toward an integrative logistics view involving the management of inventory flows in the total supply chain. As a result, this program was disbanded several years ago.

The trends in the marketplace, described in Section 4 of this report, are changing the historic role of transportation in the distribution of products to manufacturers, wholesalers, retailers and consumers. For example, manufacturers can now access customer demand information directly from retailers. These data are being used to plan production schedules. These schedules, in turn, are shared with suppliers, so that they can provide "Just-in-Time" deliveries of raw materials and component parts to the manufacturer. Transportation provides the linkages between suppliers, manufacturers and retailers. This tight and complex coordination requires special skills on the part of suppliers, manufacturers and retailers that are typically outside their core competencies. As a result, these firms are outsourcing their transportation needs to traditional transportation companies. These firms are evolving into a new industry, commonly referred to as "Third Party Logistics" (3PL). These 3PL companies manage warehouse inventories, provide coordinated, on-time deliveries of raw materials, components and finished goods, and link all of these transactions and physical flows with state-of-the-art information systems, including internet based technology.

Opportunity

Managers are demanding courses that integrate activities across the entire supply chain and emphasize information technology. There is a real need to train current and prospective employees to meet these challenges. The proposed program is a first step toward meeting these needs.

Section 3
Methodology

Curriculum Design Process

The first step in designing a curriculum for a transportation / supply chain management program was to benchmark similar programs at other well-known and respected institutions across the country. These programs were identified and program representatives were contacted and requested to provide details of their curriculum. See Table 3.1 for a list of these institutions, the colleges in which the programs are housed, and the program names.

Table 3-1. Institution, College, and Program Name of Benchmarked Programs

Institution	College	Program Name
Arizona State University	Business	Supply Chain Management
University of Arkansas	Business	Transportation & Logistics
Florida International University	Business	Logistics
Iowa State University	Business	Transportation & Logistics
University of Maryland	Business	Logistics & Transportation
Miami of Ohio	Business	Purchasing & Procurement Management.
Michigan State University	Business	Supply Chain Management
Mississippi State University	Business	Transportation
University of Nevada	Business	Logistics
University of No. Texas	Business	Logistics
Ohio State University	Business	Transportation & Logistics
Penn State University	Business	Business Logistics
Syracuse University	Business	Supply Chain Management
University of Tennessee	Business	Logistics & Transportation
Texas A&M University	Engineering	Industrial Distribution
Wayne State University	Business	Logistics
Weber State University	Business	Logistics
Western Michigan University	Business	Integrated Supply Management

The curricula at these benchmark institutions were categorized to identify common elements that must be included in an ideal curriculum. These elements were then matched against existing courses and programs at the University of Alabama. In addition, strengths and weaknesses of the benchmarked programs were identified based upon their perceived depth and breadth across the identified common elements. Next, "gaps" between an ideal curriculum and existing courses were identified throughout the University's Tuscaloosa campus

In parallel with the above process, trends were identified in the transportation and logistics industries that need to be considered in designing a current, up-to-date curriculum. Academic and trade journals were searched to identify these trends.

In developing a draft of the curriculum-without-additional-resources, representatives of the Department of Computer Science and the Department of Geography were informed of the programmatic concept. Their assistance was enlisted to select the courses appropriate for the curriculum. This process identified a potential lack of resources that could arise in the future if and when demand for the program increases.

As the program grows, there will be a need to provide a more integrative set of courses. This will require faculty time and energy to design and develop curricular enhancements. The researchers identified a set of enhancements that can be implemented in the near future. For the longer term, a curriculum is envisioned that will provide stronger preparation in the general background knowledge of purchasing, transportation, supply chain management, and logistics. This will necessitate the gradual evolution of the curriculum and the addition of new faculty positions to handle the growth of this program in terms of both course offerings and the number of students enrolled.

The final project task was to recommend specific ways in which course "gaps" can be filled, as well as to identify the associated resources that will be required.

Section 4
Project Findings and Results

Summary
The project findings and results are three-fold. First, they identified trends in the marketplace that will influence how business logistics are to be performed in the future. Second, the research screened the curricula of 18 of the top programs in the US and developed a methodology for characterizing the common elements of these programs. The output of this process consisted of a summary of the strengths and weaknesses of these programs, and the identification of the six most outstanding programs. The third and final result of the effort consisted of the description of a multi-disciplinary, transportation and supply chain management curriculum that can be implemented at The University of Alabama without any additional resources. This final phase included the detail specifications of the curriculum, and a comparison of the proposed curriculum against the top six programs identified during the benchmarking process.

Business Logistics Trends
Three major trends will have an impact on the way business logistics will be conducted in the future. The first is the ever-increasing level of electronic commerce in the marketplace. This new business paradigm is having a tremendous impact in the transportation and logistics industry. While orders can be taken over the Internet, the products to be delivered still must travel through more traditional channels. In addition to the increased demand for transportation capacity, the firms in these industries must provide informational services since customers desire to initiate, track and acknowledge shipments online. In effect, transport and logistics companies have to become an integrated part of their e-business customers' supply chains. [Wilson 1999]

The second of these trends is the growing use of Third Party Logistics (3PL) providers. 3PL's provide an array of services, including warehousing, carrier selection, dedicated fleet operations, transportation, and inventory management. Many analysts contend that third-party distribution is the fastest growing segment of the logistics market. [Cooke 1998] It has been estimated that corporate use of third-party logistics services has nearly doubled from 1995 to 1999 with estimated expenditures expected to exceed $100 billion by the end of year 2000. [Andel and Harrington 1999] According to a handful of very large third-party logistics providers, the trends of globalization and outsourcing have created a need for one-stop shopping on a global scale. For example, in April 1999 disk-drive manufacturer Western Digital decided to turn over management of its $50 million global supply chain to a single logistics provider, GeoLogistics. Such arrangements, while rare today, will become the norm in the future. [Parker 1999]

The third trend is the growing sophistication of software tools to meet the needs of transportation and logistics managers. One of these tools is logistics execution systems (LES), which consists of suites of software modules that handle major logistics systems tasks, such as transportation

management, warehousing management, order management, inventory control and employee scheduling. Several software firms now offer LES that integrate logistics operations. It Appears that the worldwide market for an integrated logistics execution system could readily exceed a billion dollars. [Cooke 1999] Another is the use of global satellite positioning (GSP) to track exact locations of vehicles in real-time. Such information is critical input to freight and yard management and computer-assisted routing software. [Weinstein 1999] A third software tool is geographic information systems (GIS). GIS is being used in a wide variety of organizations to aid in decision-making. It is a robust tool having display and analysis capabilities, as well as the ability to link with existing database systems and incorporate optimization models. When enhanced with GPS data, GIS can be used for real-time tracking and dispatching of vehicle delivery fleets. GIS also can enhance solution approaches to facility location problems within a supply chain's distribution network. [Grimshaw 2000]

These trends indicate that the logistics industry will have a significant demand for individuals who understand how to design and use information systems, possess a broad foundation of knowledge on supply chain and logistics operations, and are familiar with analytic software tools that convert data into useful information upon which to make transportation and logistics decisions.

Benchmarking Results

The benchmarking results are organized into three areas: Characterization Schema of the curricula, Strengths and Weaknesses of the Benchmarked Programs, and the Top Six Programs.

Characterization Schema

The first task in analyzing the curricula of the 18 programs used in the benchmarking process was to identify their common elements. Each University's program offerings were assigned to three primary components. These three components were, in turn, further segregated into relevant sub-components. Table 4-1 identifies these three primary components and constituent sub-components, as well as provides a brief definition for each sub-component.

To define an ideal curriculum, the three sub-components were split into a set of six base courses and a set of four integration topics. Common sub-components across the higher ranked programs in the General Body of Knowledge component were used to form the six "base courses", while sub-components from the Information Technology and Technical Analysis areas were combined to form an "integration module". Table 4-2 lists this set of ten elements that constitute the "ideal" curriculum.

Strengths and Weaknesses of the Benchmarked Programs

Each curriculum at the 18 benchmarked programs was evaluated using this schema. The evaluation form listed the courses in each program's curriculum across rows, and the sub-components identified in Table 4-1 comprised the columns. For each course, an "X" was recorded in the column corresponding to the sub-components that the course covered. These decisions were based on the course descriptions that were either solicited from each benchmarked program or obtained from the Internet. The 18 benchmarked curriculum evaluation forms are provided in Appendix A.

A summary of these 18 programs is presented in Figure 4-1. The first column identifies the program by university. The remaining columns reflect the researchers' assessments of each program's focus, strengths, weaknesses, extent of non-business content, and the breadth of its business school curriculum.

Table 4-1. Common Elements of the Benchmarked Programs

Primary Component	Sub-component	Brief Definition
Information Technology		
	Efficient Consumer Response (Vender Managed Inventory, Continuous Replenishment Process, etc.)	Retailers' shelves are replenished automatically by manufacturers' forecast of consumer demand, based on retailers' Point-of-Sale data.
	Information Systems	Integrated data bases and operating systems that manage the flow of product & information across the entire supply chain
General Body of Knowledge		
	Channel Management	Managing the relationships among the various echelons in the supply chain & marketing channels
	Outsourcing	Managing supply chain functions that have been transferred to "third party" service providers.
	Supply Chain Management	Managing the flow of information and inventories from raw material suppliers to end-use / consumption.
	Customer Service / Quality Management / Total Quality Management	Identifying and meeting customers' supply chain service expectations to gain competitive advantage
	Logistics Management	Integrating transportation, warehousing, inventories & customer service activities to minimize total cost, and achieve desired service levels.
	Organization	The role and impact of various organizational structures on the operation of the supply chain.
	Transportation	The various legal implications, modes and cost principles required to manage the movement of goods
	Warehousing	Decision making with respect to warehouse design, storage and handling costs and operating principles.
	Packaging / Material Handling	Managing the design of packaging to minimize damage and maximize transportation economies.
	Global Logistics	Managing the flow of imports and exports to minimize global pipeline inventories and coordinate the timely transfer of goods across national boundaries.
	Environmental	Evaluating issues affecting the environment, such as recycling, green manufacturing, bio-degradability.
	Manufacturing	Planning, scheduling and operating processes related to the conversion of raw materials and components into finished product.
	Purchasing	Managing the acquisition of raw materials, components and services (e.g., transportation) required to satisfy supply chain demands.
Technical Analysis		
	Financial Dimensions	Evaluating all of the costs across the entire supply chain and performing cost trade-off analyses.
	Performance Measurement	Defining and analyzing financial and service performance to improve operating processes.
	Inventory Management	Setting safety stock and target inventory levels, and deploying inventories across the supply chain.
	Benchmarking and Business Process Reengineering	Identifying and eliminating duplicate or non-value adding processes and assets in the supply chain
	Network Design	Planning the optimum number and location of production and distribution facilities.
	Strategic Planning	Deploying supply chain services and capabilities as a corporate competitive strategy.
	Software Tools	Computer based modeling and problem solving.

Table 4-2. 10 Elements of an Ideal Supply Chain Management Curriculum

Six Base Courses	Four Key Integration Components
Transportation Basics	Information Technology: Management Information Systems, ECR
Integrated Logistics and Customer Service	Financial Dimensions and Performance Measurements
Manufacturing Operations and Inventory Management	Strategic Planning and Network Design
Purchasing and Procurement	Model Building and Decision Support Systems
Global Logistics	
Supply Chain Management	

UNIVERSITY	PROGRAM FOCUS	STRENGTH S	WEAKNESSES	EXTENT OF NON-BUS CONTENT	BREADTH OF BUS SCHOOL CURRICULUM
Arizona State University	Supply Chain Mgmt	Breadth over General body of knowledge; Network design	lack of IT; lack of global issues	none	standard business curriculum
University of Arkansas	Transportation / Logistics	depth in Transportation	lack of IT integration w/i program; lack of Supply Chain Mgmt; No manufacturing connection	none	standard business curriculum
Florida International University	(Global) Logistics	Global transportation	Lack of depth (only 5 courses)	none	standard business curriculum
Iowa State University	Transportation	Transportation	Lack of SCM, Mfg. Integration, IT & Inv. Mgt.	none	standard business curriculum
University of Maryland	Material Logistics Mgmt	Breadth of coverage of general body of knowledge; Technical Skills	IT, Supply Chain Mgmt	none	standard business curriculum
Miami of Ohio	Mfg. & Purchasing	Mfg. & Purchasing	Lack of Breadth re transp. & logistics	none	standard business curriculum
Michigan State University	Purchasing &Supply Chain Mgmt	Breadth of coverage of general body of knowledge	Apparent lack of organizational & Internat'l	none	standard business curriculum
Mississippi State University	Transportation	Transportation	SCM, IT, Logistics, Technical Skills	none	standard business curriculum
University of Nevada	Supply Chain Mgmt	General body of knowledge, technical skills	none	none	standard business curriculum with strong integration of logistics
University of No. Texas	Global Logistics	Global transportation & Technical Analysis Skills	No I.T.: Little SCM: & Mfg. courses are all electives.	none	standard business curriculum
Ohio State University	Transportation & Logistics	Transportation & Technical Analysis	Little Supply Chain Mgmt & I.T., Mfg., Purchasing	Two electives in Geography	standard business curriculum
Penn State University	Logistics	Transportation and Logistics Mgmt	Lack of breadth along supply chain, lack of IT	none	standard business curriculum
Syracuse University	SCM	Integration of mfg. & IT	Survey coverage of topics (no depth)	none	standard business curriculum
University of Tennessee	Transportation	Transp. & Logistics	Minimal IT, SCM, Tech. Analysis & Mfg integration	none	standard business curriculum
Texas A&M University	Channel Management of intermediaries	View intermediary relationships from multiple disciplines	Lack of manufacturing	Require 24 hrs of business/24 hrs of enginerring tech	In engineering but have 24 hrs of business courses
Wayne State University	Strong interface with Marketing	Standard Logistics course	Lack of depth, potential lack of breadth	none	standard business curriculum
Weber State University	Logistics	Technical Analysis	little Supply Chain Mgmt	none	standard business curriculum
Western Michigan University	Mfg, SCM & Logistics	Integration of mfg. & logistics	No apparent weaknesses	Engr quality(core): IT & process analysis (electives)	standard business curriculum
University of Alabama	Mfg. & Logistics	Inter-disciplinary nature of proposed program (e.g., GIS minor)	Lack of integration & SCM concepts across courses	Good (minor in geography & computer science)	standard business curriculum

Figure 4-1. Summary of Supply Chain Management Programs at Benchmarked Universities.

Top Six Programs

Based on a review of the 18 benchmarked curriculums, six "best of the best" programs were chosen. The selection process was based on the following criteria: 1) the overall strengths and/or lack of weaknesses of each program; 2) the inclusion (or exclusion) of critical course offerings that were determined to be directly related to transportation, logistics and supply chain management, as depicted in Appendix A; and, 3) a comprehensive review of the description of each relevant course in the program. Table 4-3 lists these top six programs and provides the justification for their selection. Note that only the program at Texas A&M appears to be multidisciplinary.

Table 4-3. Top Six Programs

Institution	Motivation for Selection
Michigan State University	Strong breadth in General Body of Knowledge
University of Nevada	Strong breadth in General Body of Knowledge and Technical Analysis; No weaknesses
Texas A&M University	Interdisciplinary program: engineering, business, and engineering technology
Western Michigan University	No weaknesses; Integrates manufacturing and logistics
Arizona State University	Strong breadth in General Body of Knowledge
Weber State University	Strong breadth in Technical Analysis

Figure 4-2 presents a qualitative comparison of these programs. The basis for the comparison consisted of the strength of each program across the six base courses and four key integration components detailed in Table 4-2. All of the "Top Six" benchmarked programs have medium to strong coverage in at least five of the six base courses, as well as varying degrees of coverage with regard to the four key integration components.

IDEAL CURRICULUM	MICH ST.	NEVADA	TEX A&M	W. MICH.	AZ. ST.	WEBER ST.	
BASE COURSES							
1. Transportation Basics	0	+	0	0	0	0	0
2. Integrated Logistics / Customer Service	+	+	+	+	+	+	0
3. Manufacturing Operations / Inventory Management	+	+	0	+	+	+	+
4. Purchasing / Procurement	+	0	+	+	+	0	0
5. Global Logistics	–	0	0	0	0	0	0
6. Supply Chain Mgmt.	+	0	+	+	+	–	0
KEY INTEGRATION COMPONENTS							
7. IT / MIS / ECR	0	0	+	–	–	–	+
8. Financial Dimensions & Performance Measurements	+	+	+	0	0	0	+
9. Strategic Planning & Network Design	0	0	0	0	0	0	+
10. Model Building / DSS	–	+	0	–	–	0	+

Evaluation Key:		
BASE COURSES	**SYMBOL**	
More than 2 courses	+	strong
1 or 2 courses	0	medium
No courses	–	weak
KEY INTEGRATION COMPONENTS	**SYMBOL**	
More than 3 courses	+	strong
2 or 3 courses	0	medium
0 or 1 course	–	weak

Figure 4-2. Overview of "Best of the Best" University Supply Chain Management Programs.

New Transportation / Supply Chain Management Curriculum

The primary result of this research is a proposed transportation / supply chain management program that can be implemented without any additional resources on the main campus of The University of Alabama in the Culverhouse College of Commerce and Business Administration. This program combines courses from the undergraduate programs offered in Marketing and Industrial Management that constitute a program major of 27 credit hours. In addition, there is a recommended minor in Geographic Information Systems that consists of four courses from the Department of Geography and two courses from the Department of Computer Science. The details of this program are presented in Figure 4-3. The curriculum meets all Culverhouse College of Commerce and Business Administration guidelines and requires 128 credit hours – only four credit hours more than a standard CBA degree program. See Appendix B for the

Academic Advising Checksheets for the proposed majors in Industrial Management or Marketing, with a concentration in Transportation / Supply Chain Management.

The resulting program of study has also been assessed using the same curriculum evaluation form that was used to evaluate the 18 benchmarked programs. This analysis is contained in Appendix C. In addition, the proposed multidisciplinary program was evaluated against the top six "best of the best" programs. The result is included in Figure 4-2, which indicates that The University of Alabama's program compares favorably to these top six programs. While the proposed program provides adequate coverage of the six base courses, it excels in the four key integration components. Further improvements can be made to score better on the six base courses once the program has reached a viable level of student enrollment. Recommendations of how to identify and implement these improvements are provided in the next section.

General Education Courses
EC 110 Principles of Microeconomics
EC 111 Principles of Macroeconomics
EH 101 English Composition I
EH 102 English Composition II
MATH 112 Pre-calculus Algebra
MATH 121 Calculus and its Applications
CS 114 Intro. to Computer Programming
CS 116 Lab for CS114

Functional Field Courses
Lower Division
AC 210 Introduction to Accounting
LGS 200 Legal Environment of Business
ST 260 Statistical Data Analysis

Upper Division
MGT 300 Org. Theory and Behavior
MKT 300 Marketing
IM 300 Intro. to Production Management
FI 302 Business Finance
MGT 395 Managerial Communications
GBA 490 Strategic Management

Required Major Courses (27 Hrs.)
MIS 385 Intro. to Mgmt. Info Systems
MGS 310 Intro. to Mgmt Science
IM 321 Production Planning and Control
IM/MGS 420 Computer Simulation
IM 423 Inventory Management
MKT 411 Supply Chain Management
MKT 422 Strategic Logistics Mgmt.
MKT 455 International Marketing
MKT 446 Measuring Mktg. Effectiveness[4]

Recommended Electives (Choose 2)
IM 422 Scheduling
St 475 Quality Control
MKT 310 Principles of e-Commerce
MKT 427 Business to Business Mktg.

Prescribed Minor in GIS (18 Hrs.)

Geography (12 credits, including GY 110)
GY 110 Principles of Human Geography[1]
GY 430 Geographic Info.Systems[2]
GY 436 Adv. Geographic Info Systems[2]
One of the following two courses:
GY 304 Map & Air Photo Interpretation
GY 335 Computer Mapping Apps In Bus.

Computer Science (6 credits)
CS 302 Computerized Database Systems[3]
CS 385 Visual Basic Programming[3]

1: This course may be used to satisfy the SS requirement.

2: This course may be used to satisfy the C requirement.

3. CS 114 has been substituted for CS 102 in the "General Education" requirements section. As a result, students can take both CS 302 & CS 385.

4. AC 351 may be substituted for MKT 446

Figure 4-3. Proposed Multi-Disciplinary Program in *Transportation / Supply Chain Management.*

Section 5
Project Conclusions and Recommendations

Summary Statement
Based on this research, The University of Alabama can implement a multidisciplinary program in transportation / supply chain management that compares favorably with the top programs currently offered at other major universities – without adding additional faculty resources.

Implementation Issues
The current plan is to create a program that will be shared across the departments of Management and Marketing, and Information Systems, Statistics and Management Science. Specifically, each department will offer this program as a **concentration** option within their respective department's existing overall undergraduate **major** (that is "Marketing" in the Management and Marketing Department, and "Industrial Management" in the Information Systems, Statistics & Management Science Department).

This approach will minimize the time required to implement the program and ensure its inclusion in the next undergraduate catalog, since only approval by the faculty of the Culverhouse College of Commerce and Business Administration is required. It will also eliminate the time consuming requirement of preparing a formal proposal to ACHE (the Alabama Committee on Higher Education).

Recommendations for Long-Term Curriculum
The major priority, long-term, is to revise the content of ***MKT 422, Strategic Logistics Management***. This course needs to be expanded into a capstone format that incorporates and enhances the content of all of the required major courses. This course would be case-based, require integrative concepts and solutions, including network modeling, and focus on the application of supply chain concepts to support corporate strategies.

The second priority will be to expand, integrate and coordinate course content across the required major course module. The objectives will be to eliminate duplication of subject matter and to ensure the coverage of all relevant concepts and subject matter. For example, the current proposed curriculum lacks individual courses in transportation management and purchasing / procurement. The faculty teaching in this program will jointly design and implement courses in these areas that support and enhance the overall program's objectives.

The researchers believe that the "**major**" track should apply to all students enrolled in this program. Creating separate tracks for Marketing students and another for Industrial Management students would defeat the primary purpose of a **multi-disciplinary** program and dilute the objective of an integrated **"supply Chain"** curriculum.

Section 6
References and Other Resources

References

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Arkansas, University of; Program and course descriptions found on-line at http://pigtrail.uark.edu/catalogofstudies/99-00/Walton/requirements.html and http://www.uark.edu/depts/mktt/tlogug.html.

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Appendix A

Curriculum Evaluation Forms for 18 Benchmarked Programs

University	Program																																
Arizona State University - Supply Chain Management						I.T.		General Body of Knowledge														Technical Analysis											
						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Cust Srvce / OM / TQM	Logistics Mgmt	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msrmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools						
			Course No	Course Title	Hrs																												
	18 hours Major Courses																																
			SCM345	Logistics Management	3						X	X		X		X								X									
			SCM355	Supply Management	3					X	X		X						X	X		X		X								
			SCM432	Materials Management	3						X				X	X			X			X		X								
			SCM440	Productivity and Quality Management	3						X		X										X									
			SCM455	Research and Negotiation	3			X		X										X					X								
			SCM479	Supply Chain Strategy	3					X				X	X	X			X	X					X								
	9 hours Lower Division Business		ACC 230	Uses of Accounting Information I	3																												
			ACC 240	Uses of Accounting Information II	3																												
			CIS 200	Computer Applications and Information Technology	3																												
	22 hours Upper Division Business		BUS 301	Fundamentals of Management Communication	3																												
			COB 301	Business Forum	1																												
			FIN 300	Fundamentals of Finance	3																												
			LES 305	Legal, Ethical, and Regulatory Issues in Business	3																												
			MGT 301	Management and Organization Behavior	3																												
			MKT 300	Principles of Marketing	3																												
			OPM 301	Operations and Logistics Management	3																												
				International business course																													
	25 hours General Studies Requirements				25																												

University	Program					I.T.		General Body of Knowledge														Technical Analysis								
University of Arkansas - Transportation & Logistics																														
						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Mgmt.	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools		
			Course No.	Course Title	Hrs																									
				Core Courses in Major (18 hrs.)																										
			TLOG 3443	Principles of Transportation	3							X		X																
			TLOG 3613	Business Logistics	3						X	X	X	X	X	X						X		X						
			TLOG 3623	Purchasing & Inventory Systems	3			X			X		X				X			X	X		X		X					
			TLOG 4633	Transportation Carrier Management	3									X							X	X			X					
			TLOG 4643	International Transport & Logistics	3							X		X			X								X					
			TLOG 4653	Transportation & Logistics Strategy	3							X		X							X	X			X	X				
				University Core Requirements (35 hrs.)																										
				Additional General Education Requirements (28 hrs.)																										
			MATH 2043	Survey of Calculus	3																									
			COMM 1313	Fundamentals of Comm.	3																									
			ECON 2013	Principles of Macroeconomics	3															X										
			ECON 2023	Principles of Microeconomics	3															X										
			ECON 3000/4000		3																									
				Core for College of Business Admin (33 hrs.)																										
			ACCT 2013	Intro to Accounting Information I	3																									
			ACCT 2023	Intro to Accounting Information II	3																									
			BLAW 2013	Legal Environment of Business	3																									
			CISQ 1121L	Intro to Computer Information Systems	3		X																							
			CISQ 2013	Business Statistics	3																									
			CISQ 2232	Business Information Systems	3		X																							
			CISQ 3333	Information Systems Management	3		X																							
			CISQ 3603	Production and Operations Management	3														X			X	X					X		
			ECON 2013	Principles of 3 Macroeconomics	3																									
			ECON 2023	Princes of Microeconomics	3																									
			FINN 3043	Financial Management Theory and Practice	3																									
			MGMT 4833	Strategic Management	3																									
			MKTT 3433	Principles of Marketing	3			X		X										X										
				Total Degree Requirements: 126																										

University	Program					I.T.		General Body of Knowledge														Technical Analysis								
Florida International University - Logistics						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Management	Custmr Srvce / OM / TQM	Logistics Mgmt.	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Measurement	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools		
			Course No	Course Title	Hrs																									
	15 hours Major Courses																													
			4012	Principles of Transportation	3									X			X				X									
			4202	Logistics Technology	3		X					X		X											X					
			4203	Principles of Logistics	3					X	X	X	X	X	X	X				X				X						
			4214	Logistics Strategy	3							X	X					X	X	X	X				X	X				
			4721	Global Logistics	3						X			X			X		X				X		X					
	45 hours Upper-Division/Business C		3300	Introduction to Information Systems	3		m																							
			3311	Applied Accounting Concepts	3																X										
			4310	Legal Environment of Business	3																										
			3431	Applied Macro Economics	3																										
			3403	Financial Management	3																X										
			4303	Financial Markets and Institutions	3																X										
			3113	Entrepreneurship & Organization	3																										
			3025	Organization and Management	3																										
			3602	International Business	3																										
			3701	Business in Society	3																										
			4504	Operations Management	3														X					X			X	X			
			4722	Strategic Management	3																							X			
			3023	Marketing Management	3																										
			3200	Application of Quantitative Methods in Business	3																										
			4446	Corporate Communication Theory and Leadership D	3																										
	Pre Core		2021	Accounting for Decisions	3																										
			3301	Accounting for Planning and Control	3																										
			2100	Microcomputer Applications	3																										
			2013	Principles of Macroeconomics	3																										
			2023	Principles of Microeconomics	3																										
			2023	Business Statistics	3																										
			2233	Calculus for Business and Economics	3																										

University	Program					I.T.	General Body of Knowledge															Technical Analysis							
Iowa State University - Transportation & Logistics						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce (QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msrmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools	
			Course No.	Course Title	Hrs																								
			Foundation (18 hrs.)																										
			ACCT284	Financial Accounting	3																								
			COM S 103	Computer Applications	4																								
			ECON 101	Principles of Micro	3																								
			MATH 150	Discrete Math for Business	3																								
			STAT 227	Intro to Business Statistics	5																								
			Communications (12 hrs.)																										
			ENGL 104	Freshman Composition I	3																								
			ENGL 105	Freshman Composition II	3																								
			ENGL 302	Business Communication	3																								
			SP CM 212	Fundamentals of Public Speaking	3																								
			Supporting Courses (10)																										
			ACCT 215	Legal Environment of Business	3																								
			ECON 102	Principles of Macro.	3																								
			MATH 151	Calculus for Bus & Soc Sci	3																								
			LIB 160	Library Instructions	0.5																								
			BUSAD 100	Orientation	0.5																								
			University Requirement (3)																										
				U.S. Diversity	3																								
			Global/International Perspectives (6)																										
				International Perspective	3																								
				Global Perspective	3																								
			Humanities (9)																										
			PHIL 230	Contemporary Moral Issues	3																								
			HIST	choice	3																								
				open elective	3																								
			Behavioral Science (6)																										
				Choose from Psychology, Sociology, Anthropology	6																								
			Business Core (24)																										
			ACCT 285	Managerial Accounting	3																								
			FIN 350	Business Finance	3																X	X							
			POM 320	Production/Operations Mgmt.	3				X										X	X									
			MIS 330	Mgmt. Information Systems	3	X																							
			MGMT 370	Prin. Of Org. & Mgmt.	3																								
			MKT 3470	Principles of Marketing	3																								
			TRLOG 360	Business Logistics	3					X	X	X	X	X	X							X			X				
			MGMT 478	Bus. Policy & Strategic Mgmt.	3																								
			Major Core																										
			TRLOG 460	Advanced Logistics Management	3	X			X	X	X	X	X	X	X					X		X			X				
			TRLOG 461	Transportation Economics	3								X								X								
			3 of the following:																										
			TRLOG 462	Transportation Carrier Management	3							X	X								X	X			X				
			TRLOG 463	Industrial Purchasing	3													X	X				X						
			TRLOG 466	International Transportation & Logistics	3											X													
			TRLOG 468	Transportation and Public Policy	3							X	X							X					X	X			
			TRLOG 469	Transportation & Logistics Issues	3			X	X		X		X												X	X			
			1 of the following:																										
			TRLOG 462	Transportation Carrier Management	3																								
			TRLOG 463	Industrial Purchasing	3																								
			TRLOG 466	International Transportation & Logistics	3																								
			TRLOG 468	Transportation and Public Policy	3																								
			TRLOG 469	Transportation & Logistics Issues	3																								
			TRLOG 490	Independent study	3																								
			ACCT 316	Business Law	3																								
			ACCT 383	Principles of Federal Income Tax	3																								
			FIN 352	Advanced Business Finance	3																								
			MGMT 418	Inventory Planning and Control	3														X				X						
			MGMT 419	Social Responsibility of Business	3																								
			MKT 343	Personal Sales	3																								

University	Program																																
University of Maryland - Logistics & Transportation						I.T.	General Body of Knowledge																	Technical Analysis									
						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / OM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Globalization	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools						
			Course No.	Course Title	Hrs																												
			Major Courses	30 hrs.																													
			BMGT 370	Principles of Transportation	3								X																				
			BMGT 372	Introduction to Logistics Management	3					X	X	X		X	X	X				X	X	X	X										
			BMGT 476	Applied Computer Models	3		X																X										
			Two of the following:																														
			BMGT 470	Advanced Transportation Management	3						X			X			X				X	X			X								
			BMGT 472	Advanced Logistics Operations	3						X	X								X	X	X			X								
			BMGT 473	Advanced Transportation Policies	3									X			X				X												
			BMGT 475	Advanced Logistics Strategy	3						X	X										X											
			One of the following:																														
			BMGT 332	Operations Research for Management Decisions	3									X																				
			BMGT 373	Logistics and Transportation Internship	3																												
			BMGT 385	Production Management	3		X																										
			BMGT 453	Business to Business Marketing	3			X																										
			BMGT 474	Urban Transportation Systems	3																												
			BMGT 477	International Logistics and Transportation Mgt.	3									X																				
			BMGT 482	Business and Government	3						X	X		X			X				X	X											
																					X											
			Lower Level	26 hrs.																													
			MATH 140	Calculus 1																													
			COMM 100	Communications	3																												
			BMGT 201	Composition	3																												
			BMGT 220	Accounting I	3																												
			BMGT 230	Statistics	3																												
			BMGT 221	Accounting II	3																												
			ECON 200	Microeconomics	4																												
			ECON 201	Macroeconomics	4																												
			Core/Elective Hrs	35 hrs.																													
			Fundamental Studies																														
			Distributive Studies																														
				Humanities and the arts (9 credits)																													
				Math & Science (10 credits)																													
				Social Science (11 credits)																													

University	Program					I.T.	General Body of Knowledge															Technical Analysis								
Miami of Ohio University - Purchasing & Procurement						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl. Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Measurement	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools			
			Course N	Course Title																										
			Core																											
			333	Managerial Cost Accounting			X													X	X	X								
			365	Statistical Quality Control						X								X												
			432	Purchasing and Materials Management			X			X				X				X	X	X		X								
			433	Advanced Topics in Purchasing and Materials Mgt.						X								X	X	X	X				X					
			451	Operations Planning and Scheduling														X			X	X				X				
			431	Logistics Management						X	X		X	X	X					X		X					X			
				Professional electives																										
				Nine semester hours, including at least one course																										
				from a business dept. other thatn management.																										
			Common Core (45 hrs.)																											
			221	Intro to Financial Accounting	3															X										
			222	Intro to Managerial Accounting	3															X	X									
			135	Intro to Public Expresssion and Critical Inquiry	3																									
			205	Business Statistics	4																									
			201	Principles of Microeconomics	3																									
			202	Principles of Macroeconomics	3																									
			301	Intro to Busienss Finance	3																									
			342	Legal Environment of Business	3																									
			301	Organizational Behavior and Theory	3																									
			302	Operations Management	3						X							X												
			235	Information Systems	3		X																							
			291	Princples of Marketing	3																									
			151	Calculus	4																									
				SBA Senior Capstone Experience	3																									
				International course requirement	3																									
			Foundation Courses (36 hrs.)																											
				English Composition	6																									
				Fine Arts, Humanities	9																									
				Social Science, World Cultures	9																									
				Natural Science	9																									
				Mathematics, Formal Reasoning, Technology	3																									

University				I.T.		General Body of Knowledge														Technical Analysis								
Michigan State University - Supply Chain Management				ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools			
	Course No.	Course Title	Hrs																									
	University Requirements		4																									
	Writing		23																									
	Integrative Studies		3																									
	Transcollegiate course																											
	Business Core																											
	MTH 103		3																									
	MTH 124		3																									
	CSE 101		3																									
	EC 201		3																									
	EC 202		3																									
	ACC 201		3																									
	ACC202		4																									
	HST 213		3																									
	EC 300-400		3																									
	EC 340		3																									
	FI 311		3																									
	GBL 395		3																									
	MSC 300	Marketing Mgt.	3			X																						
	MGT 302	International & Comparative Dimensions of Busines	3																									
	MSC 303	Intro to Supply Chain Mgt.	3					X	X	X							X	X	X									
	TT 315		3																									
	MSC 317	Quantitative Business Research Methods	3																									
	MGT 409		3																									
	Major Core																											
	MSC 305	Supply Chain Mgt.	4	X				X	X	X							X	X										
	MSC 401	Procurement Mgt.	3			X												X	X	X								
	MSC 402	Manufacturing Planning & Control	3		X												X				X							
	MSC 442	Logistics & Transportation Mgt.	3						X	X		X	X	X				X	X	X	X								
	MSC 470	Supply Chain Application and Policy	2	X				X		X		X					X	X		X			X	X	X			
	One of the following 3 courses:																											
	MSC 471	Topics in Purchasing & Sourcing Mgt.					X											X	X	X								
	MSC 472	Topics in Operations Mgt.							X																			
	MSC 473	Topics in Logistics & Transp. Mgt.		X	X	X	X	X		X		X					X											
	Elective credits outside of business		9																									
	Minimum of 120 credits required for graduation																											

University	Program
Mississippi State University - Transportation	

Course No.	Course Title	Hrs	I.T.: ECR (VMI, CRP, etc.)	Information Systems	General Body of Knowledge: Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Svce / OM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Technical Analysis: Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools
1st year																								
EN1103	English Composition 1	3																						
HI___3	History, HI1213,HI1223,HI1063,HI1073	3																						
MA1313	College Algebra	3																						
PS1113	American Government	3																						
	Lab Science	3																						
	English Composition II	3																						
MA1463	Finite Math	3																						
	Behavioral Science	3																						
	Lab Science	3																						
2nd Year																								
ACC2013	Accounting Principles I	3																						
BL2413	Legal Envir. Of Business	3																						
EC2113	Economics I	3																						
CO1003	Oral Communications	3																						
BIS1013	Intro to Bus. Comp. Sys.	3																						
ACC2023	Accounting Principles II	3																						
BQA2113	Business Statistics	3																						
EC2123	Business Statistics II	3																						
	Fine Arts	3																						
	Literature	3																						
3rd/4th Year																								
BIS3233	Intro to MIS	3		X																				
BQA3123	Business Statistics II	3																						
FIN3113	Financial Systems	3																X						
FIN3123	Financial Management	3																X						
MGT3413	Production Management	3						X								X				X				
MGT3213	Principles of Management	3																						
MKT3013	Principles of Marketing	3			X		X		X							X	X	X	X					
GB4853	Business Policy	3																						
	International Elective	3																						
Core Courses																								
MKT4413	Consumer Behavior	3																						
MKT4533	Marketing Research	3																						
MKT4813	Marketing Management	3																						
TR3313	Principles of Transportation	3									X							X						
TR4133	General Transportation	3						X			X			X				X	X					
TR4393	Transportation Seminar	3									X											X	X	
TR4313	Physical Distribution Management	3		X				X	X	X	X	X						X				X		

University	Program					I.T.		General Body of Knowledge														Technical Analysis								
University of Nevada - Logistics						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce. / Qlty. TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging, Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Mgmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools			
			Course No.	Course Title	Hrs																									
			University Core (30 units)																											
			Required Non-Business (18 units)																											
			Pre-Business Core																											
			ACC 201	Intro to Accounting I	3																									
			ACC202	Intro to Accounting II	3																									
			CIS 190	Intro to Computer Apps.	3																									
			EC 101	Principles of Micro.	3																									
			EC 102	Principles of Macro.	3																									
			EC 261	Principles of Statistics I	3																									
			EC 262	Principles of Statistics II	3																									
			MATH 176	Elements of Calculus I	3																									
			MGRS 210	Marketing Principle II	3																									
			Upper Division Core																											
			CIS 301	Management Info. Systems	3		X																							
			MGRS 323	Organization and Interpersonal Behavior	3								X																	
			MGRS 325	Legal Environment	3																									
			MGRS 352	Operations Management	3						X								X			X	X				X			
			MGRS 365	Corporate Finance	3																X									
			MGRS 458	International Logistics	3			X				X		X			X			X										
			MGRS 488	Strategic Management and Policy	3																						X			
			Major Core																											
			MGRS 455	Business Logistics	3				X	X	X		X	X	X															
			MGRS 457	Research Methods for Logistics	3	X																								
			MGRS 459	Analysis and Design of Logistical Systems	3	X					X											X	X		X		X			
			MGRS 461	Advanced Operations Management	3														X		X		X		X	X	X			
			MGRS 462	Changing Environments	3											X	X													
			MGRS 474	Supply Chain Management	3			X	X	X	X										X	X								
			Logistics Elective (Choose 4 from the following):																											
			MGRS 445	Purchasing Management Transportation	3			X	X		X									X	X	X	X							
			MGRS 451	Transportation	3					X			X							X										
			MGRS 463	Inventory Management	3				X									X				X								
			MGRS 464	Quantitative Methods for Logistics	3																X				X		X			
			MGRS 476	Logistics Practicum	3																									
			MGRS 490	Independent Study	3																									
			MGRS 494	Advanced Seminar in Logistics	3						X										X				X	X	X			
			MGRS 479	Advanced Analysis & Design of Logistics Systems	3																									
			128 units required for graduation																											

University	Program					I.T.	General Body of Knowledge													Technical Analysis							
University of No. Texas - Logistics																											
			Course No.	Course Title	Hrs																						
			University Core (units) 47																								
			Required Non-Business (units)																								
			Pre-Business Core																								
			ECON 1100	Principles of Microeconomics																							
			ECON 1110	Principles of Macroeconomics																							
			MATH 1190	Business Calculus																							
Hot Links to Course Descriptions:			COMM 1010	Introduction to Communication																							
			BCIS 2610	Introduction to Computers in Business																							
ACCT	Accounting		ACCT 2020	Accounting Principles I (Managerial Accounting)																							
BCIS	Business Computer Information Sy		ACCT 2030	Accounting Principles II (Financial Accounting)																							
BLAW	Business Law		MSCI 2710	Data Description and Analysis with Spreadsheets																							
BUSI	Business - Interdepartmental																										
COMM	Communication Studies		Upper Division Core																								
ECON	Economics		BLAW 3430	Basic Law																							
FINA	Finance		BCIS 3610	Basic Information Systems																							
MATH	Mathematics		MKTG 3650	Principles of Marketing																							
MGMT	Management		MSCI 3710	Business Statistical Analysis Using Spreadsheets																							
MKTG	Marketing		FINA 3770	Finance																							
MSCI	Management Science		MGMT 3720	Organizational Behavior																							
			BUSI 4940	Business Policy																							
			One of the following courses:																								
			MGMT 3330	Communicating in Business																							
			MKTG 3010	Professional Selling																							
			BCIS 3615	Visual Display of Business Information																							
			Major Core																								
			MKTG 4260	Global Logistics Management						X	X		X	X	X	X				X	X	X		X			
			MKTG 4280	Global Marketing Issues and Practice								X				X											X
			MKTG 4520	Strategic Marketing Channels		X		X																	X		
			MKTG 4530	Global Distribution Alliances and Partnerships			X				X	X				X							X		X		
			MKTG 4560	Business Transportation Management									X			X	X			X	X						
			MKTG 4860	Advanced Logistics Management								X	X	X						X	X	X					X
			Logistics Elective (12 HOURS):																								
			MKTG 4800	Internship																							
			3 of the following courses:																								
			ACCT 3270	Cost Accounting													X			X	X						
			MGMT 3830	Operations Management						X							X	X		X	X						
			MGMT 4810	Purchasing and Materials Management				X						X			X	X				X					
			MGMT 4820	Manufacturing Planning and Control													X					X					
			MKTG 3010	Professional Selling																							
			MKTG 3700	Marketing Tools and Skills																		X					X
			MKTG 4650	Sales Management								X								X							
			MSCI 3870	Management Science																	X			X		X	

University	Program																														
Ohio State University - Transportation & Logistics						I.T.	General Body of Knowledge															Technical Analysis									
						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools				
			Course No.	Course Title	Hrs																										
			General Education Curriculum																												
			Hrs. (101-123																												
			Business Administration Requirements																												
			BUS-ADM499		4																										
			BUS-ADM555		4												X														
			FIN510		4																										
			501,502,520	Economics	4																										
			FIN620																	X											
			MGS630		4					X	X								X		X	X			X	X				
			MKTG650		4															X										
			MHR701		4																										
			BUS-ADM799		4		X													X					X					
			Core Courses																												
			780	Marketing	4					X	X		X	X	X																
			781	Marketing	4					X	X	X													X	X				
			784	Marketing	4								X							X	X									
			799	Bus. Admin (Senior Seminar)	4																										
			Two of the following:																												
			721	Finance																X											
			731	Management Science						X								X			X			X						
			758	Marketing																											
			782	Marketing									X	X					X	X	X						X				
			501	Economics																											
			645	Geography									X								X			X						
			647	Geography																											

University	Program					I.T.	General Body of Knowledge														Technical Analysis								
Penn State University - Business Logistics						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msrmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools		
			Course No.	Course Title	Hrs																								
			Core Courses																										
			BLOG 305	Supply Chain Management	3					X		X							X										
			BLOG 320	Transport Systems	3					X				X							X								
			BLOG 421	Logistic Analysis	3							X		X	X							X			X	X			
			BLOG 425	Management of Logistics Supply Chains	3		X			X		X													X				
			2 of the following																										
			BLOG 405	Warehousing and Terminal Management	3						X	X			X	X					X		X			X			
			BLOG 410	Transport Economics and Policy	3									X							X								
			BLOG 415	Strategic Sourcing and Supply Management	3				X	X		X								X	X	X							
			BLOG 420	Urban Transportation	3									X				X											
			BLOG 430	Transport Problems	3									X															
			BLOG 432	Logistics Systems in Service Industries	3					X	X	X														X			
			BLOG 455	International Logistics	3							X					X								X				
			Support of Major (12 credits at least 3 credits at 400 level)																										
			Additional Support of Major courses (any 300/400 level business course)																										
			General Education (45 credits)																										
			Electives (4-16 credits)																										
			Minimum of 128 credits required for graduation																										

University	Program					I.T.	General Body of Knowledge															Technical Analysis							
Syracuse University - Supply Chain Management						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Costs-Srvc / CM / TCM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BP	Network Design	Strategic Planning	Software Tools		
			Course N	Course Title	Hrs																								
			Group I Analytical Skills																										
			MAT 183	Elements of Modern Mathematics	3																								
			MAT 284	Differential and Integral Calculus	3																								
			MAS 261	Introductory Statistics for Mgt.	3																								
			SOM 123	Intro to Information Systems for Managers	3		X																						
				decision tool course for major	3																								
				science electives	6																								
			Group II Communication Skills																										
			WRT 105	Writing Studio 1	3																								
			WRT 205	Writing Studio 2	3																								
			WRT 405	Writing Studio 4	3																								
			SPC 325	Presentational Speaking	3																								
			Group III Environmental Studies		3																								
			LPP 255	Into to the Legal System	3																								
			ECN 101	Introductory Mico	3																								
			ECN 102	Introductory Macro	3																								
				history, political science, public affairs, economics,	6																								
				or geography																									
			Group IV Behavioral Sciences																										
				anthropology, psychology, or sociology	9																								
			Group V Arts and Humanities																										
				fine arts, foreign language, literature, philosophy,	6																								
				linguistics, or religion																									
			Group VI Management Core																										
			SOM 122	Perspective of Business an Mgt.	3																								
			ACC 252	Intro to Financial Accounting	3		X						X								X	X							
			SHR 247	Strategy and Leadership	3																						X		
			SOM 254	Managing in a Global Setting	3												X												
			FIN 355	Money and Banking	3																								
			FIN 356	Corporation Finance	3																X								
			MAR 355	Marketing and Society	3																X								
			OPM 365	Management of Operations	3														X						X				
			EEE 457	Strategic and Entrepreneurial Mgt.	3																								
				required course in strategic human resource mgt.	3																								
			Group VII Major Field Specialization																										
			SCM 401	Fundamentals of Supply Chain Mgt.	3					X	X	X		X	X		X			X			X		X				
			SCM 402	Supply Chain Mgt. Systems	3		X			X						X			X							X			
			Choose one of the following electives:																										
			OPM 400	Intro to Mgt. Science	3																								
			MIS 335	Computer-based Mgt. Informations Systems	3		X																						
			MIS 435	Principles of Data-Base Mgt.	3		X																						
			MAR 356	Marketing Research	3																								
			MAR 456	Global Marketing Strategy	3												X												
			EEE 443	Consulting in Entrepreneurial Practice	3																								
			MFE 535	Intro to Manufacturing Systems	3														X										
			MFE 400	Manufacturing Simulation	3														X										
																											X		
				management electives	6																								
			Group VIII Global/Diversity Electives		6																								
			Group IX Nonmanagement Free Electives		12																								
			At least 120 credit hrs. required																										

University	Program					I.T.	General Body of Knowledge														Technical Analysis								
University of Tennessee - Logistics & Transportation						ECR (VMI, CPR, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msrmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools		
			Course N	Course Title	Hrs																								
				Freshman Year																									
				English 101	3																								
				English 102	3																								
				Math 123 and 125 or	6																								
				Math 141 and 142	8																								
				Foreign Language	6																								
				Natural Science	8																								
				Social Science	6																								
				Sophomore Year																									
				Humanities	6																								
				Business Administration 220	1																								
				Accounting 201	3																								
				Accounting 202	3																								
				Economics 201	4																								
				Statistics 201	3																								
				Oral Communications	3																								
				Management 203	3																								
				History																									
				Junior Year																									
				Marketing 301	3																								
				Finance 301	3																								
				Management 301	3																								
				Electives	3																								
				Logistics and Transportation 411	3							X		X							X	X			X		X		
				Business Law 301	3																								
				Logistics and Transportation 301	3					X	X	X		X	X					X			X		X	X			
				Logistics and Transportation 302	3									X															
				Ethics	3																								
				Written Communications	3																								
				Senior Year																									
				Management 401	3																								
				Logistics and Transportation 461 or								X													X	X			
				Logistics and Transportation 462	3									X												X			
				Statistics 365	3																								
				Arts Elective	3																								
				Logistics and Transportation Electives	9																								
				LT 401 Mat'ls & Traffic Mgmt					X		X	X	X	X				X	X										
				LT 402 Transp Oper'ns & Cost Mgmt									X							X	X								
				LT 441 Global Logistics & Transp												X									X				
				LT 450 CIS Analysis & Design		X																					X			
				Electives	6																								
				Totals																									
					123																								

University	Program					I.T.	General Body of Knowledge														Technical Analysis								
Texas A&M University - Industrial Distribution						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking BPR	Network Design	Strategic Planning	Software Tools		
			Course N	Course Title	Hrs																								
		IDIS	144	Computer Applications in Distribution	3		X					X		X															
			240	Introduction to Industrial Distribution	1			X		X		X	X																
			340	Manufacturer Distributor Relations	3			X		X																			
			344	Distributor Information and Control Systems	3		X					X				X			X	X									
			364	Distributor Operations and Financial Management	3			X												X		X	X						
			414	Distribution Logistics	3					X		X		X	X						X	X	X						
			424	Purchasing Applications in Distribution	3			X		X							X			X	X	X			X		X		
			434	The Quality Process for Distributors	3		X	X			X									X		X					X		
			444	Distributor Customer Base Management	3			X			X											X		X			X		
	Special Features of program			24 hours of Engineering Technology Courses																X	X	X							
				24 hours of Business Related Courses																									
				Marketing (9 hours)																									
				Accounting (6 hours)																									
				Business Law (3 credits)																									
				Economics (6 credits)																									
				300-level Statistical Methods course																									
				Electronics Distribution Specialty																									
				an additional concentration																									

University	Program					I.T.	General Body of Knowledge															Technical Analysis							
Wayne State University - Logistics						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custm Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msrmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools		
			Course No.	Course Title	Hrs																								
			General Education Requirements																										
			Pre-Business Requirements																										
			ENG 1020	Intro. College Writing	3																								
			MAT 1500	Finite Mathematics	3																								
			ECO 2010	Microeconomics	3																								
			ECO 2020	Macroeconomics	3																								
			ACC 3010	Financial Accounting	3																								
			ACC 3020	Managerial Accounting	3																								
			ACC 3510	Business Law I	3																								
			FBE 3300	Quantitative Methods I	3																								
			Core Business Curriculum																										
			FBE 4290	Business Finance	3															X	X								
			FBE 4400	Quantitative Methods II	3																								
			ISM 4630	Business Info. Systems	3	X																							
			MGT 4530	Mgt. Organization Behavior	3																								
			MGT 4600	Production/Operations Management	3													X				X							
			MKT 4300	Marketing Management	3												X						X						
			MKT 4330	Business Communication	3																			X					
			MGT 6890	Business Policy	3																								
			Major Core																										
			BLG 5600	Transportation & Distribution Mgt.	3						X		X					X										X	
			BLG 5620	Business Logistics Mgt.	3	X			X		X						X												
			BLG 6997	Business Logistics Analysis and Planning	3				X		X									X	X						X	X	
			Three of the following electives:																										
			ISM 5820	System Analysis and Design	3	X																							
			ISM 5860	Data Communications and Networks	3	X																							
			ISM 5992	Database Systems	3	X																							
			MGT 5680	Operations Strategy in a Global Environment	3													X											
			MGT 5996	Advanced Topics in Operations Mgt.	3					X							X												
			MKT 4990	Directed Study	3																								
			MKT 5410	Marketing Research	3																								
			MKT 5430	Professional Selling	3																								
			MKT 5450	Consumer Behavior	3																								
			MKT 5460	Sales Mgt.	3																								
			MKT 5650	Purchasing Mgt.	3		X		X	X						X			X	X		X					X		
			MKT 5700	Retail Mgt.	3		X		X	X												X							
			MKT 5750	International Marketing Mgt.	3											X				X				X					
			MKT 5820	Automotive Marketing	3		X		X			X																	
			MKT 5890	Internship in Marketing	3																								
			MKT 6996	Marketing Policy	3																								

University	Program					I.T.	General Body of Knowledge																Technical Analysis								
Weber State University - Logistics						EOR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools			
			Course No.	Course Title	Hrs																									
			General Education Requirements																											
			Business Requirements																											
			Liberal Support Curriculum (13 or 14 hrs.)																											
			Business Foundation (13)																											
			Business Cross-Functional Core (19)																											
			Business Functional Core (15)																											
			Core (27 credit hours)																											
			IS&T 3110	Info Technology for Business	3		X																							
			MGMT	Managerial Communications	3																									
			LOM 3500	Computer Models/Applications	3							X		X					X		X	X			X	X			
			LOM 3720	Transportation Systems and Mgt.	3									X			X												
			LOM 4050	Contemporary Logistics/Oper Pract.	3						X	X							X			X					X		
			LOM 4100	Quality Management	3						X		X						X										
			LOM 4410	Materials & Inventory Mgt.	3							X							X				X						
			LOM 4600	Simulation	3							X							X							X	X		
			LOM 4730	Purchasing Mgt.	3			X	X		X								X	X	X						X		
			Elective Courses																											
			One of the following:																											
			ACCCTNG	Cost Accounting	3																									
			BUS ADM	Intro to Business Research	3																									
			BUS AMD	Business & Society	3																									
			BUS ADM	Survey of Business Law	3																									
			BUS ADM	Entrepreneurship	3																									
			FIN 3500	Capital Budgeting	3																									
			LOM 4860	Operations/Logistics Intern	3																									
			BUS ADM	Senior Consulting Project	3																									
			MGMT 330	Human Resource Mgt.	3																									
			MGMT 430	Influence and Group Effectiveness	3																									
			MGMT 465	Negotiations	3																									
			MKTG 440	Marketing Strategy	3																									

University	Program					I.T.	General Body of Knowledge															Technical Analysis								
Western Michigan University - Integrated Supply Management						ECR (VMI, CRP, etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Mgmt.	Custmr Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Matl Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking & BPR	Network Design	Strategic Planning	Software Tools		
			Course No.	Course Title	Hrs																									
			General Education Requirements																											
			Pre Business																											
			BIS 110	End User Computing	3																									
			BIS 142	Information Writing	3																									
			BUS 175	Business Enterprise	3																									
			ACTY 210	Principles of Accounting	3																									
			MATH 116	Finite Mathematics	3																									
			MATH 216	Business Statistics	3																									
			ECON 201	Principles of Micro	3																									
				behavioral science course	3																									
			Business Admin Core																											
			MGMT 250	Organizational Behavior	3																									
			MKTG 250	Principles of Marketing	3																									
			BUS 270	Information and Communication Infrastructure	3																									
			BUS 370	Analytical Foundations for Decision-Making	3																									
			BUS 375	Integrated Communication in Business	3																									
			BUS 475	Strategic Business Solutions	3																									
			FCL 320	Business Finance	3																									
			FCL 380	Legal Environment	3																									
			Major Core																											
			ECE 100	Fundamentals of Circuits and Electronics	3																									
			FCL 486	Marketing and Sales Law	3			X											X											
			IME 142	Engineering Graphics	3													X												
			IME 328	Quality Assurance and Control	3						X							X		X										
			IME 487	Manufacturing Productivity Techniques	3					X								X												
			ME 220	Process & Materials in Manufacturing	3								X					X												
			MGMT 464	Production Management and Control	3					X	X		X					X				X								
			MGMT 480	Materials Management Strategies	3					X	X	X					X	X	X			X								
			MGMT 481	Integrated Materials Systems	3								X					X		X			X							
			MKTG 372	Purchasing Management	3		X	X	X	X	X		X				X		X	X	X	X	X				X			
			MKTG 484	Business Logistics	3				s	s	s	X	X	X	X	X	s	s					X							
			MKTG 485	Applied Process Re-Engineering	3																			s						
			or																											
			IME 488	Applied Process Re-Engineering	3						m							m												
			One of the following:																											
			CS 104	Introductory C/C++	3		s																							
			CS 111	Computer Science I	3		s																							
			ECE 101	Fundamentals of Electronic and Machines	3		s																							
			IIME 305	Work Analysis	3																									
			IME 315	Work Analysis/Design Lab	3																									
			IME 508	Advanced Quality Management	3																									

Appendix B

Proposed Academic Advising Checksheets:

Industrial Management Majors

Marketing Majors

CULVERHOUSE COLLEGE OF COMMERCE & BUSINESS ADMINISTRATION
ACADEMIC ADVISING CHECKSHEET
CURRICULUM I - 2000 CATALOG
MAJOR IN INDUSTRIAL MANAGEMENT

TRANSPORTATION SUPPLY CHAIN MGT

NAME_____ **SSN#(**_____-___-_____)

GENERAL EDUCATION COURSES (22 HRS)

(C required in each course)	HRS	GRD
(IV)EC 110 PRIN. MICRO-EC		
(IV)EC 111 PRIN. MACRO-EC		
(I) EN 101 FR. COMP. I		
(I) EN 102 FR. COMP. II		
(III)MATH 112 OR MATH 115		
(III)MATH 121 OR MATH 125		
CS 114, INTRO PROGRAMMING		
CS 116, INTRO PROG. LAB		

FUNCTIONAL FIELD COURSES (28 HRS)

Lower Division

(C required in each course)		
(V) AC 210, INTRO TO AC		
(C)(V) ST 260, STAT METH I		
(V) LGS 200, BUS LAW & SOC		

Upper Division

(C required in each course)		
MGT 300, ORG THEORY		
MKT 300, MARKETING		
IM 300, PRODUCTION MGT		
FI 302, BUSINESS FINANCE		
(W) MGT 395, MGT COMM STRAT		
(W) GBA 490, POLICY STRAT		

MAJOR PROGRAM COURSES (27 HRS)

("C" required in each course)		
MGS 310 INTRO TO MGT SCIENCE	3	
MIS 385 INTRO TO MGT INFO SYS	3	
IM 321 PROD PLAN & CONTROL	3	
IM 420 COMPUTER SIMULATION	3	
IM 423 INVENTORY MGT	3	
MKT 411 SUPPLY CHAIN MGT	3	
MKT 422 STRATEGIC LOGISTICS	3	
MKT 455 INT'L MARKETING	3	
MKT 446 MEASURING MKT EFFECT	3	
NOTE: POSSIBLE SUB FOR MKT 446 IS:		
AC 351 MANAGERIAL AC DEC	3	

RECOMMENDED C&BA ELECTIVES (7 HRS)

GBA 145 Orientation to C&BA	**1**	**P\F**
IM 422 SCHEDULING	3	
ST 475 STAT QUALITY CONTROL	3	
OR APPROVED DEPT. ELECTIVES		
_____	3	
_____	3	

ADVISOR: _____ DATE: _____

RESTRICTED NON-C&BA ELECTIVES (32 HRS)

(III) NATURAL SCIENCE (8 HRS)
8 semester hours of science courses including two hours of laboratory experience (or the equivalent).

	HRS	GRD
_____		
_____		

(II) HUMANITIES & FINE ARTS (12 HRS)
12 semester hours consisting of at least 3 hrs of **Literature***, and at least 3 hrs in the **Fine Arts.**
The remaining 6 hrs are to be chosen from the **Humanities and\or Fine Arts**

EN LITERATURE_____		
Fine Arts_____		
***Lit II** or Humanities\Fine Arts		
Humanities\Fine Arts_____		

(IV) HISTORY, SOCIAL & BEHAVIORAL SCIENCES (6 HRS)
12 semester hours with at least 3 hours in **History*** and at least 6 hrs chosen from among other disciplines in the **Social & Behavioral Sciences.**
EC 110 and EC 111 (required above) satisfy 6 hours of this requirement.

***History**_____		
***History** or Soc\Behav Science		

COMPUTER(C) OR FOREIGN LANGUAGE (6 HRS)

This core curriculum requirement is satisfied by taking the two **(C)** computer designated courses listed below.

(C) CS 302 COMP DATABASE SYSTEMS	3	
(C) CS 385 VISUAL BASIC PROGRAM	3	

REQUIRED MINOR IN GEO INFO SYS (12 HRS)

GY 110 PRIN OF HUMAN GEOGRAPHY	3	
GY 430 GEOGRAPHIC INFO SYSTEMS	3	
GY 436 ADV GEOGRAPHIC INFO SYS	3	
CHOOSE ONE (1) OF THE FOLLOWING:		
GY 304 MAP & AIR PHOTO INTERP	3	
GY 335 COMP MAPPING APPS IN BUS	3	

TOTAL HOURS REQUIRED FOR DEGREE 128 HRS

CULVERHOUSE COLLEGE OF COMMERCE & BUSINESS ADMINISTRATION
ACADEMIC ADVISING CHECKSHEET
CURRICULUM I - 2000 CATALOG
MAJOR IN MARKETING

TRANSPORTATION SUPPLY CHAIN MGT

NAME_____ **SSN#(**_____-___-_____)

GENERAL EDUCATION COURSES (22 HRS)

(C required in each course)	HRS	GRD
(IV) EC 110 PRIN. MICRO-EC		
(IV) EC 111 PRIN. MACRO-EC		
(I) EN 101 FR. COMP. I		
(I) EN 102 FR. COMP. II		
(III) MATH 112 OR MATH 115		
(III) MATH 121 OR MATH 125		
CS 114, INTRO PROGRAMMING		
CS 116, INTRO PROG. LAB		

FUNCTIONAL FIELD COURSES (28 HRS)

Lower Division

(C required in each course)		
(V) AC 210, INTRO TO AC		
(C)(V) ST 260, STAT METH I		
(V) LGS 200, BUS LAW & SOC		

Upper Division

(C required in each course)		
MGT 300, ORG THEORY		
MKT 300, MARKETING		
IM 300, PRODUCTION MGT		
FI 302, BUSINESS FINANCE		
(W) MGT 395, MGT COMM STRAT		
(W) GBA 490, POLICY STRAT		

MAJOR PROGRAM COURSES (27 HRS)

("C" required in each course)		
MGS 310 INTRO TO MGT SCIENCE	3	
MIS 385 INTRO TO MGT INFO SYS	3	
IM 321 PROD PLAN & CONTROL	3	
IM 420 COMPUTER SIMULATION	3	
IM 423 INVENTORY MGT	3	
MKT 411 SUPPLY CHAIN MGT	3	
MKT 422 STRATEGIC LOGISTICS	3	
MKT 455 INT'L MARKETING	3	
MKT 446 MEASURING MKT EFFECT	3	
NOTE: POSSIBLE SUB FOR MKT 446 IS:		
AC 351 MANAGERIAL AC DEC	3	

RECOMMENDED C&BA ELECTIVES (7 HRS)

GBA 145 Orientation to C&BA	**1**	**P\F**
MKT 427 BUS TO BUS MARKETING	3	
MKT 310 PRIN OF E-COMMERCE	3	
OR APPROVED DEPT. ELECTIVES		
_____	3	
_____	3	

ADVISOR: _____ DATE: _____

RESTRICTED NON-C&BA ELECTIVES (32 HRS)

(III) NATURAL SCIENCE (8 HRS)
8 semester hours of science courses including two hours of laboratory experience (or the equivalent).

	HRS	GRD
_____		
_____		

(II) HUMANITIES & FINE ARTS (12 HRS)
12 semester hours consisting of at least 3 hrs of **Literature***, and at least 3 hrs in the **Fine Arts.**
The remaining 6 hrs are to be chosen from the **Humanities and\or Fine Arts**

EN LITERATURE_____		
Fine Arts_____		
***Lit II** or Humanities\Fine Arts		
Humanities\Fine Arts_____		

(IV) HISTORY, SOCIAL & BEHAVIORAL SCIENCES (6 HRS)
12 semester hours with at least 3 hours in **History*** and at least 6 hrs chosen from among other disciplines in the **Social & Behavioral Sciences.**
EC 110 and EC 111 (required above) satisfy 6 hours of this requirement.

***History**_____		
***History** or Soc\Behav Science		

COMPUTER(C) OR FOREIGN LANGUAGE (6 HRS)
This core curriculum requirement is satisfied by taking the two **(C)** computer designated courses listed below.

(C) CS 302 COMP DATABASE SYSTEMS	3	
(C) CS 385 VISUAL BASIC PROGRAM	3	

REQUIRED MINOR IN GEO INFO SYS (12 HRS)

GY 110 PRIN OF HUMAN GEOGRAPHY	3	
GY 430 GEOGRAPHIC INFO SYSTEMS	3	
GY 436 ADV GEOGRAPHIC INFO SYS	3	
CHOOSE ONE (1) OF THE FOLLOWING:		
GY 304 MAP & AIR PHOTO INTERP	3	
GY 335 COMP MAPPING APPS IN BUS	3	

TOTAL HOURS REQUIRED FOR DEGREE 128 HRS

Appendix C

Curriculum Evaluation Form for the Proposed Multi-Disciplinary Program

University	Program																															
University of Alabama - Supply Chain Management						**I.T.**		**General Body of Knowledge**																	**Technical Analysis**								
						ECR (VMI, CRP etc.)	Information Systems	Channel Management	Outsourcing	Supply Chain Management	Cust. Srvce / QM / TQM	Logistics Management	Organization	Transportation	Warehousing	Packaging / Mat'l Handling	Global Logistics	Environmental	Manufacturing	Purchasing	Financial Dimensions	Performance Msmt.	Inventory Management	Benchmarking	Network Design	Strategic Planning	Software Tools						
			Course No.	Course Title	Hrs																											
			Major Courses																													
			MGS 385	Intro to MIS	3		X																									
			MGS 310	Intro to Management Science	3																X	X		X	X	X						
			IM 321	Production Planning and Control	3										X			X	X		X	X				X						
			MKT 411	Supply Chain Management	3	X		X	X	X	X	X							X	X	X	X	X	X								
			IM 423	Inventory Management	3														X			X										
			IM 420	Computer Simulation	3														X			X		X		X						
			MKT 422	Logistics Management and Systems	3				X	X	X	X		X	X	X			X		X	X	X		X	X		X				
			MKT 460	Export - Import Management	3												X									X						
			One of the following two:																													
			AC 351	Managerial Accounting Decisions	3																X	X										
			MKT 446	Measuring Mktg. Effectiveness	3																X	X										
			Prescribed Minor (18 HRS.)																													
			GY 110	Principle of Human Geography	3																					X						
			GY 430	Geograhic Informations Systems	3		X																			X		X				
			GY 436	Advanced Geographic Informations Systems	3		X															X				X		X				
			One of the following two:																													
			GY 304	Map and Air Photo Interpretation	3																					X						
			GY 335	Computer Mapping Applications for Business	3																							X				
			CS 302	Computerized Database Systems	3		X																					X				
			CS 385	Visual Basic Programming	3		X																					X				
			SCM Recommended Electives (Choose Two)																													
			EC 421	Regional Economics	3																X											
			FI 311	Intermediate Financial Mgmt.	3																X											
			IM 422	Scheduling	3														X													
			MKT 310	Principles of e-Commerce	3	X	X													X												
			MKT 427	Business to Business Marketing	3															X												
			Upper Division																													
			MGT 300	Organizational Theory & Behavior	3								X																			
			MKT 300	Marketing	3																											
			IM 300	Intro to Production Management	3														X				X									
			FI 302	Business Finance	3																											
			MGT 395	Managerial Communication Strategies	3																											
			GBA 490	Strategic Management	3																											
			Lower																													
			AC 210	Intro to Accounting	4																											
			ST 260	Statistical Data Analysis	3																											
			LGS 200	Legal Environment of Business	3																											
			General Education Courses																													
			EC 110	Principles of Microeconomics	3																											
			EC 111	Principles of Macroeconomics	3																											
			EH 101	English Composition I	3																											
			MATH 112	Pre-calculus Algebra	3																											
			MATH 121	Calculus	3																											
			CS 114/116	Intro to Computer Programming / Lab	4		X																									

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