

**Ph.D. in Business Administration
Logistics & Supply Chain Management (LSCM) Emphasis**

This packet includes supporting materials for the proposed Logistics & Supply Chain Management (LSCM) emphasis for the Ph.D. in Business Administration.

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Fact Sheet

- Business logistics is the science of managing the transportation and storage of goods and related information. Supply chain management is a more comprehensive and integrated concept that includes procurement and the creation of goods and services, with special attention to *coordination* and *collaboration* among the different organizations involved in the supply chain.
- Logistics and supply chain management are key areas of growing importance for 21st century economies locally, nationally and internationally. Supply chain management was recently ranked as the 3rd most significant business innovation (after only quality management and process engineering) in a world-wide survey of business executives. Logistics and supply chain management costs consume about 10% of the GDP in the U.S. and greater amounts in other countries (~20% in China).
- The instructional component of the LSCM Ph.D. program will provide a solid grounding in business, with special coverage of international business and analytical modeling. Coursework will cover the latest developments in LSCM and current technology, complemented with expertise in international and analytical aspects of LSCM. The primary focus of the research component of the program is applied research to help better manage LSCM systems. This will contribute to the knowledge base in an operating environment that is increasingly complex, international, data-rich and technologically-driven. Graduates of the program will be well qualified for positions in leading academic institutions, as well as the private and public sectors.
- The program will efficiently and effectively leverage existing academic infrastructure at UM St. Louis (e.g., Center for Transportation Studies, Ph.D.-IS emphasis, International MBA, International Business Institute), faculty research strengths from Logistics & Operations Management (LOM) and Marketing, and partnerships with regional public and private sector organizations. (Chief Logistics Officer magazine recently ranked St. Louis as the 10th most logistics friendly city in the US.)
- The LSCM Ph.D. program has strong faculty support and major themes (international business and analytical modeling) aligned with the College's mission and strengths. The new Ph.D. also helps UM St. Louis achieve its mission, goals and aspirations to provide high quality research and graduate education. (The Ph.D. program also supports development of an undergraduate transportation program in the College of Business Administration.)
- There is a growing demand for logistics and supply chain management doctoral graduates and there are no comparable doctoral programs in the state or region.

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Background

The Ph.D. in Business Administration with a Logistics & Supply Chain Management (LSCM) emphasis features major themes of analytical modeling and international business. This is a full-time program that accommodates traditional students with baccalaureate or graduate degrees in a relevant area (e.g., business, management science, transportation, operations research), as well as more experienced individuals seeking a career change through in-depth study leading to a doctoral degree. Some part-time students can also be accommodated (e.g., those not seeking an assistantship), such as mid-career managers with an MBA. The primary market for graduates is academic institutions and research organizations, nationally and internationally. Recent studies project a strong demand for new faculty in LSCM, well in excess of the projected supply from current doctoral programs. Graduates will also find opportunities in the growing private sector demand for advanced LSCM expertise.

Start date: Admit first students in Fall 2006.

Length of program: Students entering with a bachelor's degree in business should complete the program in 4-5 years depending on their background. Students entering with an MBA should complete the program in 3 years.

Program size: We anticipate a program with 12 students, following the initial ramp-up period (3 years). There would be 2-3 graduates per year on average. A mix of bachelor's level and master's level students could be admitted each year, with attention to the implications on course enrollments. LSCM course enrollment targets (minimum 8-10 students/course) can be met with careful scheduling of courses (some offered every other year) and with some enrollments from students in other Ph.D. programs using LSCM as a supporting field.

Format: The Ph.D. in Business Administration with a LSCM emphasis is structured in four parts, similar to the IS emphasis:

- I. Business & Research Foundation Requirement
- II. Supporting Field Requirement
- III. Emphasis Area Requirement
- IV. Other Requirements

The details of the program are included on the Program Change form.

Student support: Most students would receive an \$18,000/year assistantship, with the opportunity for an annual \$2000 performance-based award. Students with a graduate research assistantship receive a waiver of educational fees from the University, and Academic Affairs has agreed to include this in their budget when needed. The letter of acceptance to students will specify the type and length of support being offered, subject to adequate progress, along with the teaching expectations

Teaching: Most students would be expected to teach two-three courses per year following their first year, with a reduction in teaching in their final year to facilitate completion. At full-size the program would result in doctoral students teaching on average approximately 20 sections per year, depending on the mix of students. (Note that the new doctoral students facilitate launching an undergraduate transportation program.)

Resources: A variety of resources are required to launch the program. The two largest needs are for student support and for new faculty.

Student Support: The Center for Transportation Studies is committed to support 3-6 students on a variety of research projects (\$60,000 – 120,000 per year). Teaching by doctoral students would generate a “savings” of approximately \$60,000 per year (the equivalent of support for approximately 3 students). Thus, in a program with 12 students additional support is needed for additional 3 - 6 students. Additional support for students would initially be provided by the University, with the expectation that faculty members active in the program would work diligently to generate external funds to contribute to the support of students.

New Faculty: The LSCM group includes six full-time regular faculty members (James Campbell, Joe Martinich, Ray Mundy, Bob Nauss, David Ronen, and Doug Smith), three of whom have substantial administrative responsibilities as Center Directors (Mundy and Smith) or as Area Coordinator (Nauss). Two new full-time regular faculty members are needed to allow regular offerings of doctoral courses (once every two years in some cases) and to achieve the critical mass for a sustainable program. New faculty would ideally specialize in international LSCM, and these individuals could teach courses for the Ph.D. and the International MBA programs.

Additional Resource Needs: Additional resources to support the College’s Ph.D. and graduate programs (not only for the LSCM emphasis) include: visiting professorship with expertise in LSCM and one or more of IB and IS; visiting speaker series (2 speakers/year) to bring in renowned researchers; visiting professor position to bring leading researchers to campus for a semester; and administrative, facilities and IS/IT-related support (including a supply chain research laboratory). These additional resource needs might be co-sponsored by relevant entities within and outside the College (e.g., the Center for Transportation Studies, the International Business Institute, the Center for International Studies, etc.).

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Market Conditions for LSCM Ph.D.'s

Introduction

The purpose of this addendum is to document the current demand and supply conditions in the market for logistics and supply chain management doctoral program graduates. There is substantial evidence that the demand for graduates of doctoral programs in logistics and supply chain management is strong and growing both in academic institutions and in private industry. At the same time, the total supply of graduates from logistics and supply chain management doctoral programs appears to be stable with a somewhat broadening base of academic institutions supplying the market with doctoral graduates. The gap between the demand for and supply of logistics and supply chain doctoral graduates provides a unique opportunity for the College of Business Administration at the University of Missouri - St. Louis to add a desired emphasis area to our existing doctoral program.

The Demand for LSCM Ph.D.'s

The Council of Supply Chain Management Professionals, CSCMP (formerly the Council of Logistics Management - CLM), tracks the number of academic institutions offering education opportunities in the field of logistics and supply chain management. According to their most recent published survey of academic institutions completed August 12th, 2003, there are now at least 137 colleges and universities worldwide that offer courses in logistics or supply chain management.¹ These schools will be the primary academic market for our doctoral graduates.

The growth in the number of academic institutions offering courses and programs in logistics and supply chain management is ultimately driven by the growth in private industry demand for employees with these skills. In addition to a growing market for employees with LSCM expertise, there is a shift in industry demand towards prospective employees that have advanced skills learned at the graduate level. CSCMP reports that “studies consistently reveal that the majority of the logistics managers surveyed hold at least a four-year degree and an increasing number have earned graduate degrees.”² A recent survey provides further evidence: “The proportion of respondents with graduate degrees changed dramatically over the past decades ... There appears to be a broadening in the respondent base to include advanced degrees in engineering, information technology, global business, etc.”³ Still another recently published study describes the consequences of this growth in demand for LSCM courses with, “The rise in demand now appears to have outstripped supply. According to our observations of the past several years, a dearth of qualified applicants is available to fill the open positions. Equally

¹ Council of Supply Chain Management Professionals, <http://cscmp.org/Website/Education/EduListing.asp> (accessed 1/6/2005).

² Council of Supply Chain Management Professionals, <http://www.cscmp.org/Downloads/Career/careerstudy.pdf> (accessed 1/6/2005).

³ Bernard J. LaLonde and James L. Ginter, “The Ohio State University 2004 Survey Of Career Patterns In Logistics”, Council of Logistics Management, 2004.

important, anecdotal information suggests that the situation is unlikely to change anytime soon because of limited logistics and supply-chain doctoral program enrollments.”⁴

There is also evidence of an increasing demand for logistics and supply chain doctoral program graduates in the private sector. Universities with existing logistics or supply chain management doctoral programs report increasing recruitment from such large private sector firms as: Accenture, IBM, Samsung, Manugistics, NCR, TRW, Intel, Colgate-Palmolive and I2 Technologies.⁵ Our own survey of 2003 and 2004 job openings advertised in *ORMS Today*⁶ also indicates a growing demand for logistics and supply chain doctoral graduates.

Supply of LSCM Ph.D.’s

Historically, the supply of traditional logistics doctoral graduates in the United States has been dominated by a handful of universities: Arizona State University, University of Arkansas, University of Maryland, Michigan State University, Ohio State University, Pennsylvania State University, and the University of Tennessee. At each of these universities, the logistics doctoral program has usually been located as a specialty of a broader business education area— most often in conjunction with the marketing area. In response to growing industry demand for logistics and supply chain management graduate education programs, a handful of American universities developed new logistics and supply-chain management programs in the 1990s and early 2000s (e.g., the University of Memphis, the University of Oklahoma, the University of Wisconsin). There are currently only 13 United States schools offering logistics and supply chain related doctoral degrees.⁷

There is no other academic institution in the state of Missouri that offers a Ph.D. in Business Administration with an emphasis in Logistics & Supply Chain Management. The two nearest academic institutions offering somewhat similar Ph.D.’s are the University of Illinois where supply chain management is a specialty field offered under their emphasis area of Process Management, and the University of Memphis which offers a Ph.D. in Business Administration with an emphasis in Marketing and Supply Chain Management. Our proposed program will differ significantly from these two regionally established programs as our graduates will not be just specialists under other more broad emphasis areas, but instead will be the product of their own emphasis area supported by other strong areas such as Management Information Systems and International Business.

⁴ Golicic, Susan, Bobbitt, L.M, Frankel, R., and Clinton, S.R., “And Who Will Teach Them? An Investigation of the Logistics PhD Market”, *Journal of Business Education*, September/October 2004, Heldref Publications, page 47.

⁵ See, for example, Syracuse University’s job announcements at <http://whitman.syr.edu/supplychain/jobs.htm> last accessed on 12/21/04.

⁶ *ORMS Today* is published by The Institute for Operations Research and the Management Sciences (INFORMS).

⁷ Golicic, Susan, Bobbitt, L.M, Frankel, R., and Clinton, S.R., “And Who Will Teach Them? An Investigation of the Logistics PhD Market”, *Journal of Business Education*, September/October 2004, Heldref Publications, page 47.

Market Imbalance of Demand and Supply

The Logistics Academic Hiring Survey conducted annually by Ohio State University highlights the differences between the supply of and demand for logistics and supply chain management Ph.D.'s.⁸ Table 1, below, summarizes the current market for logistic and supply chain management doctoral graduates and presents the number of domestic academic positions, the number of industry and international academic positions and the number of domestic logistics graduates entering the market. The differences evident in the table between the demand for and supply of doctoral program graduates results primarily from the growing demand for faculty members with a specialty in logistics at domestic institutions that have not traditionally had a LSCM focus (e.g., Iowa State University and Western Michigan University). These universities contribute to the demand for logistics and supply chain scholars, but these universities do not contribute to the supply of logistics and supply chain scholars. Our own research further indicates that there is a growing and strong demand for logistics and supply chain doctoral graduates at foreign academic institutions and in private industry. Our proposed Ph.D. emphasis area in Logistics & Supply Chain Management will position our graduates to take advantage of the gap between demand and supply and to compete successfully for positions in both the growing academic and private industry markets.

Table 1
Demand and Supply of Logistics and Supply Chain Ph.D.'s

| Year | Domestic Academic Positions⁹ | Industry Positions & International Academic Positions¹⁰ | Total Market Demand | Ph.D. Logistics Graduates¹¹ |
|-------------|--|---|----------------------------|---|
| 2000 | 16 | NA | 16 | 3 |
| 2001 | 18 | NA | 18 | 6 |
| 2002 | 20 | 3 | 23 | 6 |
| 2003 | 20 | 6 | 26 | 4 |

⁸ Martha C. Cooper, Logistics Ph.D. Hiring Survey, 2001, 2002, 2003, 2004, The Ohio State University.

⁹ Source: Martha C. Cooper, Logistics Ph.D. Hiring Survey, 2001, 2002, 2003, 2004, The Ohio State University.

¹⁰ Source: UM St. Louis survey.

¹¹ Source: Golicic, Susan, Bobbitt, L.M, Frankel, R., and Clinton, S.R., "And Who Will Teach Them? An Investigation of the Logistics PhD Market", Journal of Business Education, September/October 2004, Heldref Publications.