Center for Transportation Studies
Faculty Leadership

Daniel L. Rust, Ph.D
Assistant Director for Undergraduate Program Development, CTS

Ray A. Mundy, Ph. D.
Director, CTS

Donald C. Sweeney II, Ph.D.
Associate Director, CTS

Haitao Li, Ph.D
Assistant Professor of Logistics & Supply Chain Management

Carlos A. Schwantes, Ph.D.
St. Louis Mercantile Library Endowed Professor for Transportation Studies
Current CTS Scholars

Michael Sciaroni, MBA
Ph.D. in Logistics & Supply Chain Management

Jeremy North, MBA
Ph.D. in Logistics & Supply Chain Management

Trisha Moon
MBA, MSIS, Graduate Certificate in Logistics and Supply Chain Management

David Long, BSc.MIS
MBA, Emphasis in IS
Our Mission

- To conduct excellent research in the field of transportation, logistics, and supply chain management; teaching students through practical applications.
Research Areas

- **Business Logistics Systems**
  - Facility Locations
  - Distribution Costs vs. Service Levels
  - Transportation Alternatives

- **Supply Chain Management**
  - Procurement Alternatives Analysis
  - Supply Chain Integration
  - Inventory Management

- **Public Policy**
  - Infrastructure Management
  - Airport Ground Operations
  - Military Logistics
Research Methodologies

- Students working at CTS receive classroom instruction on state-of-the-art supply chain and logistics systems analyses, and apply this knowledge to real-world applications, under the guidance of senior faculty.

- Specific methodologies studied and employed include statistical analyses, mathematical programming (LP/IP/MIP), simulation modeling, survey administration, and other transportation and supply chain research.
  - Leading software packages are utilized to provide the computing power necessary to solve large problems.
Software Capabilities

- CTS utilizes state-of-the-art software packages to perform analyses
  - Optimization
    - Insight SAILS
    - iLog OPL Studio
    - ARC Logistics
  - Simulation
    - ARENA
    - MicroSaint
  - Statistical
    - SAS
    - SPSS
    - Microsoft Access & Excel
Optimization Studies

- Transportation & Inventory Optimization
  - Minimizing system-wide production and distribution costs given a set of customer service requirements and demands
  - Identifying where and how much inventory to store in order to minimize working capital requirements while meeting specified service levels

- Networks Studied:
  - Federal Mogul
  - Sigma Aldrich
  - Emerson Electric
  - Israel Chemicals Ltd (ICL)
Past Projects: **Federal Mogul**

- $6B Global Supplier of Aftermarket & Original Equipment for Automotive parts
- 38 Manufacturing sites and 9 Distribution Centers in U.S.
- Project was initiated to rationalize shipments throughout existing network, by altering the roles of distribution centers

- Implementation of CTS recommendations resulting in annual operating cost reductions of over $10M
Simulation Studies

- **System Simulation for Managerial Decision Support**
  - Understanding system performance (lead times, distribution costs, resource requirements, etc.) under conditions of uncertainty

- **Systems Simulated:**
  - Upper Mississippi River Traffic
  - Denver Intl. Airport, Miami Intl., etc.
  - Others
Upper Mississippi River Traffic Management

- Simulated barge traffic through a congested segment of the Mississippi River
- Identified alternative operating policies to optimize movement of tows and barges
- **Recommended a strategy to reduce congestion by 40%**
Airport Ground Operations Analyses

- Simulated ground traffic flows through airports such as Denver Intl. and Miami Intl.
- Identified alternative operating policies to optimize value of ground transportation assets
- **Recommended and implemented strategies which led to improved productivity and reduced customer wait times**
Presentation of Results

CTS Project reports are created with attention to detail and presented in ways that are easily understood by management and provide insight into key aspects of the business.
Excellence in Scholarship

- CTS Supports the following academic programs which prepare students for the logistics and supply chain professions:
  - B.S.B.A Emphasis in Logistics and Operations Management (LSCM)
  - MBA Emphasis in LSCM
  - Graduate Certificate in LSCM
  - PhD in LSCM
Prepared for Success

- CTS Scholars have gone on to excel in industry and have been placed at leading organization such as:
  - Council on Foreign Relations
  - Emerson Electric
  - Cisco Systems
  - Jacobson Logistics
  - LMS Logistics
  - Israel Chemical Ltd.
Industry / Academic Partnerships

- Designed to meet industry’s need
- Flexible arrangements to meet research partner requirements
- Offers “real world” problems & solutions for students
- Easy to set up – simple collaborative agreement
- Can be a few weeks engagement to ones lasting a year or more
- Ability to maintain a Supply Chain Model “on line” for your company
Industry Partnerships
Questions?