

UTCA Newsletter

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Want to Know More About UTCA?

See our website at
<http://utca.eng.ua.edu>

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TRANSPORTATION EDUCATION PROGRAMS

UTCA Goals

Two goals of UTCA are to provide a strong, multidisciplinary education program, and to increase the number of students, faculty and staff involved in transportation. These echo the goals of USDOT.

During our first two years (1999-2000), UTCA devoted substantial efforts to these goals by creating new educational programs and devising new recruiting techniques.

New Degrees

Three first-year UTCA projects were conducted to create new degrees and new degree options for transportation students.

1) New PhD UAB and UAH received approval for a new type of degree, a "joint" PhD in Civil Engineering in Fall 2001. This was a major accomplishment, as almost no new doctoral degrees are being approved by the UA System Board of Trustees and ACHE.

This was an important step. Doctoral degrees are vital to research programs because of the analytical skills and productivity of advanced graduate students. In requesting this degree, UAB and UAH cited UTCA as a base reason for close cooperation between the two campuses. UTCA projects were listed as examples of joint activities, and UTCA graduate assistantships were listed as assets in recruiting doctoral students.

2) Business Major/Minor A multi-disciplinary business option was

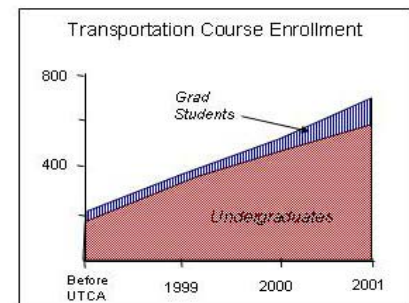
established at UA, using courses from three colleges to create a transportation-supply chain management concentration in the business logistics discipline.

The major combines existing courses from two undergraduate business programs - Marketing and Industrial Management. The minor combines courses from Geography in Arts & Sciences, and Computer Science in the College of Engineering.

3) MS in Transportation UAH added a transportation option to its MSCE degree in 1999, focusing on traffic, urban planning and geographic information systems. The first graduates are expected in Spring 2002. In addition, the program has attracted traffic and urban planning professionals from the City of Huntsville.

Good Results

The new degrees are paying off, as shown in the following figure.



In addition to enrollment on the three campuses, there has been solid growth in other areas like:

- faculty conducting research,
- graduate student enrollment, and
- MS/PhD degrees awarded.

Based upon these trends, the new education program is working and the future looks bright.

UTCA EXECUTIVE COMMITTEE AWARDS 2002 PROJECTS

General Projects

Airport Inspection And Licensing (02101) Dr. Charles Haynes of UA will conduct this project for the ALDOT Aeronautics Bureau to prepare a new system for inspecting and licensing for general use airports. It will use a weighting system to help inspectors rank safety and utility features of airports. The results will then be up linked to the ALDOT website to provide public access to the license status through the ALDOT home page.



Dr. Hardin

Crash Safety Improvements Through Data Mining (02115) Dr. Mike Hardin at UA will work with the Alabama Traffic Safety Center at the University of Montevallo to construct traffic safety weighted risk profiles on a county basis. In effect, each county will be analyzed to determine highway situations and driving behaviors that pose the greatest risk of crash and severe injuries. These are the most likely candidates for safety programs and safety treatments.

Red-Light Running (02112) Dr. Jay Lindly of UA will create the first national tool to quickly identify candidate intersections for red light running (RLR) remediation actions. He will relate national RLR experience to geometric and traffic data to develop a model to predict locations most likely to experience RLR crashes and violations. This will allow police to increase

enforcement at such sites to diminish the safety problem.



Dr. Hale

GIS Resource Visualization (02114) Drs. David and Joanne Hale of UA will apply new technology to create GIS visualization systems that use multi-criteria decision models and sensitivity analyses. The goal is to help ALDOT quickly evaluate maintenance data to improve decision-making based on safety, economics, engineering and political concerns. This project could be the forerunner for other technology applications to ALDOT databases.

Telework Support (02205) Dr. Gary Grimes (UAB) plans to lay the groundwork to establish a statewide support organization to encourage telework and telecommuting. The research will address technical, business, policy, and legal issues that affect telework in the workplace. In the long run, the potential shift from commute-to-work to telework can be a powerful tool to shift travel patterns and improve effectiveness and safety of Alabama transportation systems.



Dr. Grimes

Transportation Education Projects

Transportation Summer Institute (02301) Dr. Kate Leonard of UAH will repeat her successful summer program to encourage diversity in transportation-related educational programs. This will be the third summer in which she leads a team of professors and students in teaching middle school women and minority students about transportation careers.

High School Education Program (02209) Dr. Steven Jones of UAB is conducting a project for ALDOT to introduce high school students in Jefferson County to the transportation profession. He is mentoring students in six-week sessions at four local high schools. UTCA is supplementing the ALDOT project by providing student assistants to prepare instructional materials, establish a website, and visit the schools.



Mrs. Little

Advanced Summer Transportation Institute (02113) Dr. Dan Turner and Mrs. Brandi Little of UA will conduct a summer transportation program for high school juniors in the Montgomery area. Successful engineers and contractors will serve as role models and mentors for the students. Field visits, lab demonstrations, and other activities will introduce the students to transportation as a career field.

Hazmat Crash Education (02215)

Dr. Shirley Clark of UAB and Dr. Bob Pitt of UA are conducting this project to develop materials for use in workshops and university classrooms (and available on an Internet site) to present an integrated approach to Hazmat accident planning and response. The materials will be delivered to planners, responders, and the interested public as a stand-alone course at one or more of the campuses and a series of seminars in the state.

Environmental Projects

Ozone Migration (02109) Drs. Derek Williamson and Bob Pitt at UA will make aerial measurements in the Birmingham area to map ozone migration into surrounding areas. Knowledge of air quality patterns is crucial in helping ALDOT and ADEM identify "non-attainment" areas and develop treatments to meet national air quality standards. Failure to do so could result in loss of federal transportation funds and restriction of development.



Dr. Williamson

Catalysts for Diesel Exhaust (02201)

Dr. Robert Peters of UAB will develop and test a catalyst/zeolite system for diesel exhaust fumes to help reduce petroleum hydrocarbons, nitrogen oxides (NOx), particulates and other byproducts of incomplete combustion. His partner in this preliminary work will be Argonne National Laboratory.

Structures/Bridges ProjectsCantilevered Sign Structures (02216)

Dr. Fouad Fouad and Mrs. Elizabeth Calvert of UAB are evaluating the safety and economy of cantilevered overhead sign supports in Alabama. The study will assess the effect of new wind load and fatigue provisions published earlier this year by AASHTO. Knowledge gained in the study will be conveyed to ALDOT engineers and designers through a half-day workshop.



Dr. Lin

Monitoring Bridge Strain (02304)

Dr. Mike Lin of the UAH Mechanical and Aerospace Engineering Department is developing a technique to use distributed strain sensors to monitor deterioration of concrete bridges. As a general rule, long-term deterioration of concrete bridges is very hard to detect and monitor, and Dr. Lin's technique could provide an excellent tool for prolonging the life of Alabama structures.

Bridge Damage Resource Materials (02303)

Dr. Houssam Toutanji of UAH will develop and document guidelines for evaluating damage to transportation structures. His web-based resource materials will also include step-by-step instructions for repairing this damage. This should be a useful tool for transportation agencies, since almost one-third of current bridges in Alabama are in need of repair or replacement.

Standardized Bridge Systems

(02306) Dr. V. J. Gopu, UTCA Associate Director for UAH, will continue his bridge research with this project. His objective is to produce several standard designs that are economical and efficient, and that can be used for normal reoccurring situations. This should prove especially useful to county engineers.

Want More Project Info?

Follow these easy steps:

- (1) Visit our webpage at <http://utca.eng.ua.edu>
- (2) At the webpage, look under the "projects" page
- (3) Use the hot link to view a list of all projects, or to search by PI, project name, project number, or general topic
- (4) Follow the hot links for a description of the project, or to read the final report (if available)

STUDENT OF THE YEAR

Mr. Stephen Hill is the 2001 UTCA Student of the Year. He is a UA MSCE student working on intercity busing and work zone safety research projects.

Mr. Hill received his BSCE from UA in 2000, with a minor in political science. He was a Student Government Senator; Chi Epsilon president; and a member of Tau Beta Pi, Golden Key, and ASCE.

He authored two refereed research reports, and co-authored another report and two conference papers. He wrote and presented a paper at the Traffic Records Forum in New Orleans in August 2001. He was co-author and co-presenter of a paper at the 2001 Annual Meeting of ITE, and of a poster paper at the 2001 Annual TRB Meeting.

UTCA ENTERS CRUCIAL USDOT COMPETITION

In November, UTCA submitted an extensive proposal to the U.S. Department of Transportation as part of limited competition among designated "university transportation centers." The competition was mandated by the Transportation Equity Act for the 21st Century (the same act that created UTCA) for all centers created between 1991 and 1997.

Good News - Bad News

Seventeen centers across the country are being evaluated to determine those that are most productive in meeting the goals of USDOT. The good news is that the highest-rated

centers will receive significant federal funding increases. The bad news is that funding will be discontinued for the remaining centers.

Our Thanks

We are grateful to many people who helped UTCA grow over the past two years, and who helped prepare our competition proposal. We are indebted to our Advisory Board for many things, but especially for their personal support. We thank faculty members and students who conducted projects and published their results. We thank everyone who helped identify a strategy for our competition proposal, who

helped prepare it, and who provided letters of support.

USDOT will announce the results of the competition in February 2002. Obviously, this competition is extremely important to the future of UTCA and we look forward to hearing good news on that date.



UTCA Advisory Board and Executive Committee



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