New Special Faculty Classification for UGPTI

NDSU President Dean Bresciani recently approved a new special faculty classification for UGPTI staff members who have Ph.D.'s. These newly-approved Professor of Transportation position classifications include: Assistant Professor of Transportation, Associate Professor of Transportation, and Professor of Transportation.

The position classifications better reflect the contributions made to NDSU by individuals with Ph.D.'s who conduct advanced research, supervise graduate students and teach courses in transportation. The classifications will facilitate greater collaboration among UGPTI staff and departments within NDSU as well as with other academic institutions across the state and nation. The classifications will be administratively located within the UGPTI and academically associated with the interdisciplinary graduate program in transportation logistics. The classifications are non-tenure track special faculty positions as provided by NDSU policy relating to academic appointments. Upon approval of the classifications,

Provost Rafert initiated a request to name UGPTI’s Director Denver Tolliver as Professor of Transportation. The Provost's request was approved by President Bresciani in June. A committee is currently being established (headed by Dr. Szmerekovsky) to review applications from existing UGPTI personnel. The promotion committee will make recommendations to the UGPTI director, who will forward them to the Provost and President for potential approval. Director Tolliver will make additional information available shortly regarding the process for submitting applications.

Preliminary Infrastructure Study Results Presented
UGPTI Director Denver Tolliver shared preliminary results of a study on infrastructure needs of North Dakota’s county, township and tribal roads and bridges with the ND Legislature Budget Section and Economic Impact Committee at meetings in Bismarck June 25. The study projects that more than $8.4 billion will need to be invested over the next 20 years to maintain and upgrade bridges and paved and unpaved roads.

View the presentation here. The ND Association of Oil and Gas Producing Counties featured the presentation in its June 27 newsletter.

NDSU and UND Apply for Provisional Patent for UAS antenna concept

NDSU and UND have filed a provisional patent application for technology that integrates antennas into the body or other large components of manned and unmanned aircraft systems (UAS).

This whole-body antenna concept will reduce the weight of the aircraft and reduce the drag associated with traditional antennas. That’s important, particularly with the relatively small UAS, because the concept will allow for greater range, longer endurance and enhanced reliability of UAS.

The antenna system will also enhance the ability to collect and transmit data from stationary antennas or electronics such as RFID tags. In one configuration, rotating or moving sections of the vehicle such as propellers, wheel rims, ailerons, elevators or rudders would allow for the physical movement of antenna beam patterns to improve communications and reliability.

Collaborators on the project are Michael Corcoran, UAS Course Manager with the John D. Odegard School of Aerospace Sciences at UND and Raj Bridgelall, program director for the Upper Great Plains Transportation Institute’s Center for Surface Mobility Applications & Real-time Simulation environments at NDSU. Corcoran has extensive experience at UND and in the military with UAS. Bridgelall is an expert on RFID and other electronic data collection and communication technology.

A provisional patent application with the U.S. Patent and Trademark office signals the intent of NDSU and UND to patent the technology and establishes a date for locking in any potential patent rights and benefits.

This is the second provisional patent application filed jointly by the two universities in the past year. Earlier, researchers filed a provisional patent application for a concept in which aircraft bodies serve as capacitors for storing electrical charges. The capacitors could be assembled in
such a way that they increase the structural strength of the aircraft while increasing efficiency and stored power available for flight time or other functions. Bridgelall notes that the joint patent applications are evidence of the growing collaboration between UGPTI and UAV researchers at UND.

Bridgelall receives Rising Star Award

Raj Bridgelall recently received the “Rising Star Award” by Sensors Magazine at the 2014 Best of Sensors Expo in Rosemont, IL. Bridgelall’s award was one of 11 awards presented to focus attention on applications and innovations in the world of sensors. The awards focused on sensor applications, excellence among engineers and sensor technology innovations. Bridgelall has been leading development of sensor, wireless, software and big data technology and business solutions. His current project is to assess and develop means of optimizing hyperspectral remote sensing for use with lightweight unmanned aircraft systems.

Transportation student earns award for airline research

Ju Dong Park, a NDSU transportation and logistics doctoral student, recently was awarded the Best Paper Award from the Transportation Research Forum at its 55th annual forum.

Park’s paper, “The Magnitudes of Economic and Non-Economic Factors in Demand for U.S. Domestic Air Passengers,” analyzed air carriers’ behavior in capturing market share by examining demand for air-passenger services, and price structure and economic factors affecting passenger behaviors toward air travel.

The study also examined other non-economic factors such as seasonality, unexpected events or airline mergers affecting passenger behaviors. Co-author of the paper was Won W. Koo, Chamber of Commerce distinguished professor in the NDSU Department of Agribusiness and Applied Economics.

The annual forum was held March 13-15 in San Jose, California.
SURTC at CTAA EXPO

SURTC staff participated in this year's Community Transportation EXPO, June 8-13 in St. Paul. Jill Hough, SURTC director, presented "Ethics in Decision Making," as part of the conference's series of professional development leadership sessions.

SURTC researcher Del Peterson presented "Improving Veteran Mobility in Small Urban and Rural Areas," which highlighted results from a recent SURTC study on veterans' transportation. The presentation was part of a session on veterans mobility. SURTC was also an exhibitor at the conference, with a booth that highlighted its training and research activities. Other SURTC staff attending the conference included Ranjit Godavarthy, Rob Lynch, and Jeremy Mattson.

Completing the Travel Voucher

When completing a travel voucher for reimbursement to an employee, all of the expenses incurred for the trip should be included. This includes the expenses paid directly by the employee, as well as the expenses directly paid by the university. The costs of travel include such things as registration fees, transportation costs, lodging, meals and some various miscellaneous expenses. The travel voucher should be fully completed and reviewed before sending it to the Accounting Office to be processed for payment. Here is a list of items that may help in expediting the process.

Link: Completing the Travel Voucher

Tune up your computer skills

NDSU's Information Technology Services has more than 20 summer training sessions designed to help you use technology more effectively. There are sessions on Excel, PowerPoint, InDesign, thesis formatting in Word, and other applications. Sessions have already begun and some have waiting lists, but many others have openings. Check out the class descriptions, the current schedule,
and/or register for the session(s) you want at http://www.ndsu.edu/its/training/facstaff

Sessions continue through July. Pre-registration is required.

**UGPTI helps host ASHE meeting**

The American Society of Highway Engineers held its 2014 National Conference in Bismarck June 12-15. Staff from UGPTI's ND Local Technical Assistance Office assisted the NDDOT with hosting duties. In return, information from UGPTI was included in registration packets for the approximately 200 attendees and UGPTI was given an exhibit space among the conferences commercial and sponsorship exhibits. "It was a great opportunity for us to network with professionals from across the country and it was also great visibility for UGPTI," noted NDLTAP director Dale Hegland. ASHE has more than 6,000 members which include staff from state departments of transportation, contractors, consulting engineers, government agencies, materials producers, utility companies, and other highway-related agencies.

**UGPTI exhibits at Williston Basin Petroleum Conference**

UGPTI was among the exhibitors at the 2014 Williston Basin Petroleum
Conference May 20-22 in Bismarck. More than 4,250 people attended from 48 states and Washington, D.C., 6 Canadian provinces, Australia, Cameroon, China, France, Nigeria, Norway, Singapore and the Virgin Islands. Presenters at the conference emphasized long-term capital investments in oil SHIPPING infrastructure. UGPTI shared information at its exhibit about academic programs and its infrastructure needs research. Jody Bohn, Alan Dybing, Chris DeHaan, Dale Heglund and EunSu Lee attended on behalf of UGPTI.

Lee presents webinar for FHWA

UGPTI research associate EunSu Lee presented a webinar June 26, "Using FAF Data in Economic Analysis/Case Study: North Dakota" to about 160 participants across the United States. The webinar was one of FHWA's Quarterly Freight Analysis Framework (FAF) Webinars. Lee described the use of FAF in transportation modeling and planning in North Dakota as an example of how practitioners across the country can use Freight Analysis Framework (FAF) data to support economic analysis, such as cost-benefit studies, freight investment scenarios and other activities. Slides from the webinar can be viewed at http://www.ugpti.org/resources/presentations/

Benson named to Quarter Century Club

Doug Benson was recently named to NDSU's Quarter Century Club, recognizing 25 years of service to the university. Benson has spent his entire NDSU career with the UGPTI, serving as an associate research fellow. He earned an M.S. degree in computer science from NDSU and has B.S. degrees in education, history and psychology from UND. Most recently, Benson's research has focused on inland waterway commodity analysis, railroad operations and economics as well as short line railroad infrastructure and capital investment needs.

Avoiding 'death by PowerPoint'

The lights go down and the projector powers up and we brace ourselves. Will we be treated to an exciting, informative
presentation? Or will we be subjected to "death by PowerPoint?" UGPTI instructional design specialist Rachel Leigh recently shared this handout, "10 Before & After Slide Examples," that contains numerous tips for improving slides and presents some alternative ways of thinking about how to present information on your slides.

Link: 10 Before & After Slides

Recent Publications

"Quantifying the Impact of Large Percent Trucks Proportion on Rural Freeways" by Edward Offei and Rhonda Young at the University of Wyoming was published as MPC-13-265. The report develops a statistical model of the relationship between the high percent trucks and crash rates.

"Improving Veteran Mobility in Small Urban and Rural Areas" by Del Peterson describes a study in which veterans with mobility needs in rural Minnesota, Montana, and North Dakota were identified. The cost of providing feasible transportation options for meeting those needs were then quantified.

"A Novel Methodology for Quantifying the Performance of Constructed Bridges in Cold Regions" by Yail Jimmy Kim at the University of Colorado Denver was published as MPC-14-266. The report presents a two-part research program examining the performance of constructed bridges in a cold region and the behavior of concrete members strengthened with carbon fiber reinforced polymer composite sheets.

"Improving Rural Emergency Medical Services (EMS) through Transportation System Enhancements" by Haifa Samra, Xiao Qin, and Zhaoxiang He at South Dakota State University was published as MPC-14-267. The project identified issues with respect to the delivery of quality
EMS to rural residents in South Dakota and conducted a needs assessment from the rural transportation system perspective.

"A Two-Stage Approach for Estimating a Statewide Truck Trip Table" by Sarawut Jansuwan, Seungkyu Ryu, Anthony Chen, and Kevin Heaslip at Utah State University was published as MPC-14-269. The research develops a two-stage approach for estimating a statewide truck origin-destination (O-D) trip table.

"A Framework for Assessing Transportation Sustainability Rating Systems for Implementation in U.S. State Departments of Transportation" by Sherona P. Simpson, Mehmet E Ozbek, Caroline M. Clevenger, and Rebecca A. Atadero at Colorado State University was published as MPC-14-268. The report presents a four-step framework that identifies the most important capabilities in a transportation sustainability rating system as preferred by a state DOT and then facilitates weighting of those capabilities to help DOTs select a system that best suits their needs.

To view these reports and others, go to the UGPTI Research Reports Page.

The last laugh

"I never suspected that dad was stealing from the highway department, but when I opened the shed, all the signs were there!"

Submit news and events to: UGPTI Communications Coordinator Tom Jirik at Thomas.Jirik@ndsu.edu