



ITS-Davis e-news is the electronic newsletter of the UC Davis Institute of Transportation Studies. Written for alumni and friends, *ITS-Davis e-news* reports information from ITS-Davis and affiliated campus departments that host transportation-related programs. For previous issues, see the [e-news archives](#).

- [Education Highlights](#)
 - [SHAPING TTP'S FUTURE: Curriculum Review Involves Faculty and Students](#)
 - [STUDENT ACCOMPLISHMENTS: Students Gain Experience in the Field](#)
 - [DEADLINE COMING: Admissions Applications Due Soon](#)
 - [CONSTANTLY GROWING: New Students Add Insight and Breadth to Institute](#)
- [Research Results](#)
 - [FEATURED PUBLICATIONS: Joan Ogden, Environmental Science and Policy](#)
 - [TRANSPORTATION PUBLICATIONS FROM UC DAVIS: Hot off the Presses](#)
- [ITS-Davis and Campus Highlights](#)
 - [UBIQUITOUS UC DAVIS: Students, Faculty Have High Profile at International Conference](#)
 - [OPEN HOUSE A BIG SUCCESS](#)
 - [CALLING ALL ALUMNI: Join *Friends of ITS-Davis*](#)
 - [INSTITUTE PEOPLE: Retirements and New Hires](#)
 - [INSTITUTE PEOPLE: Board of Advisors Accomplishments](#)
 - [NEW LOOK: College of Engineering Unveils New Logo](#)
 - [EXTRA! READ ALL ABOUT IT: ITS-Davis and Associated UC Davis Colleagues in the News](#)

Education Highlights

SHAPING TTP'S FUTURE: Curriculum Review Involves Faculty and Students



Random scribbles? No. It's the work of creative academic minds planning the TTP curriculum.

With another round of Transportation Technology and Policy (TTP) graduate admissions applications due in early 2004 (see story below), ITS-Davis is reflecting on its academic offerings. The recent arrival of six new UC Davis faculty members who are affiliated with the Institute is fueling a review and evaluation of the TTP core curriculum. The curriculum has been stable for several years, but the new in-house academic and research expertise is providing the impetus to refine the program to keep up with changing times.

“Our goal is to offer a solid, well-rounded program,” says ITS-Davis Associate Director for Education Pat Mokhtarian. “With our new colleagues on board, we realized it was the perfect opportunity to identify gaps in the existing program that they could fill, and evaluate a structure by which to refine the curriculum.”

For the past couple of months, a group of faculty and students have been meeting to help shape the new curriculum. New courses are developed in two ways: either faculty identify needs based on their experience and student input, and recommend courses to fill the needs, or faculty offer courses that reflect

their expertise and shape the courses to meet curriculum and student demands.

The final TTP core curriculum plan is subject to the approval of all TTP faculty. New courses will be phased in over the next several quarters; the final curriculum should be complete in time for the next full academic year, starting with Fall Quarter 2004.

In the meantime, several of ITS-Davis's newest professors are offering new winter or spring quarter courses that will likely be incorporated in some form into the final core curriculum revision. They include:

- Transportation Engineering Fundamentals (an introduction to thermodynamics, heat transfer and fluid mechanics for those not familiar with engineering principles) - Paul Erickson
- Transportation Policy - Susan Handy

Additional "ad hoc" courses to be offered in the upcoming winter or spring quarters but not as part of the core curriculum include the following:

- Fuel Cell Fundamentals - Bob Moore
- Current Transportation Funding Policies for California and the Bay Area - Lewison Lem
- Study of a Dual Transportation-Infrastructure/New Town Plan (Or, "How We Can Have Safe, Convenient, Affordable, Pleasant Transportation Without Making People Drive Less or Give Up Suburban Living") - Mark Delucchi, Mark Francis, Ken Kurani and Tom Turrentine

Students play an important role in curriculum development, Mokhtarian adds. "Their existential questions about the role and content of this unique multi-disciplinary program of which they are an enthusiastic part have helped catalyze and influence the discussion."

Final curriculum details will be announced in a forthcoming issue of ITS-Davis *e-news*.

DEADLINE COMING: Admissions Applications Due Soon

Know someone thinking about applying to UC Davis for Fall Quarter 2004? The deadline is approaching. Applications from international students are due February 1. Applications from domestic students are due March 1. For more information contact Joan Tolentino at jstolentino@ucdavis.edu.

The UC Davis Extension program also offers a certificate in transportation management and a recent emphasis has been in the area of road ecology. For more information, visit: http://universityextension.ucdavis.edu/certificateprograms/cert_transport.html.

STUDENT ACCOMPLISHMENTS: Students Gain Experience in the Field

Students affiliated with ITS-Davis enhance their academic studies with hands-on experience working in the field for companies, non-profits and government. Here are just a few examples of recent internships:

Thomas Barron (Transportation Technology and Policy), who won the National Park Transportation Scholars Fellowship through the ENO Transportation Foundation, is working for six months in Yellowstone Park, then heading to Puerto Rico for three months. At Yellowstone, he's studying the feasibility of an employee and visitors transit system using alternative fuel buses.

Monterey Gardiner (Materials Science) is working to build the next generation of a hydrogen storage device (based on cryoadsorption) at the Hydrogen Research Institute in Canada. He will use superactivated carbon to store hydrogen at liquid nitrogen temperature.

Tara Goddard (Transportation Technology and Policy) has a one-year assignment with the Executive Fellowship Program through the governor's office and CSU Sacramento. Her interest in environmental policy, specifically public outreach and stakeholder-intergovernmental interactions, is leading her to explore opportunities and create projects in Caltrans' planning and local assistance divisions.

Kurt Kornbluth (Mechanical Engineering) is interning at DEKA in New Hampshire working on components of the Segway personal transporter.



Meena Sundaresan

Meena Sundaresan (Transportation Technology and Policy) recently completed a one-year internship with DaimlerChrysler in its Fuel Cell and Alternative Powertrain Vehicles division in Nabern, Germany. She developed a computer model for fuel cell vehicle cold start analysis using Matlab®/Simulink®, assisted with the planning and execution of a cold start bench test, and used the test results to validate her model.

Jonathan Weinert (Transportation Technology and Policy) recently completed a fall quarter internship with the South Coast Air Quality Management District, where he says he learned a lot about the political process of funding and building hydrogen fueling stations. "My focus has been on the economics of hydrogen fueling. I'm finding out the real cost of installing hydrogen infrastructure," he said.

Ph.D. Candidate Named to TCRP Committee

Jill Hough is completing her Ph.D. in Transportation Technology and Policy while working for the Upper Great Plains Transportation Institute at North Dakota State University. She has been named to the Oversight and Projects Selection (TOPS) Committee of the Transit Cooperative Research Program (TCRP). The TOPS Committee helps set the research agenda for TCRP, which is a research program designed to focus on the needs of transit operating agencies.



Jonathan Weinert at the AQMD booth at EVS-20.

CONSTANTLY GROWING: New Students Add Insight and Breadth to Institute

ITS-Davis welcomes 20 new students in different affiliated academic programs. They are:

Transportation Technology and Policy

- Ted Buehler
- Rusty Heffner
- Adam Henry
- Zhenhong Lin
- Meng-Cheng (Jason) Ni
- Nathan Parker
- Justin Regnier
- Jeroen Van Houtte
- Peng Wu

Civil Engineering

- David Cuellar
- J. Willem du Toit
- Haining Du
- Ken Kwong
- Charles Lee
- Takumi Uno
- Guihua Wang

Mechanical Engineering

- Lars Dorr
- Bryce Dudgeon
- Kihyung Kim
- David Vernon

There are now almost 80 students affiliated with the Institute.

FEATURED PUBLICATIONS: Joan Ogden, Environmental Science and Policy

Joan Ogden, who joined the faculty this fall, brings to the Institute a wealth of highly respected research. Following is a sampling of her more recent work:

J.M. Ogden and T. Kreutz, M. Steinbugler, Fuels for fuel cell vehicles: vehicle design and infrastructure issues, *Society of Automotive Engineers* paper No. 982500, October 1998.

J. Ogden, Developing a Refueling Infrastructure for Hydrogen Vehicles: A Southern California Case Study, *International Journal of Hydrogen Energy*, vol. 24, pp. 709-730, 1999.

J. Ogden, M. Steinbugler and T. Kreutz, A Comparison of Hydrogen, Methanol and Gasoline as Fuels for Fuel Cell Vehicles, *Journal of Power Sources*, vol. 79, pp. 143-168, 1999.

J. Ogden, Prospects for Building a Hydrogen Energy Infrastructure, chapter in *Annual Review of Energy and the Environment*, vol. 24, pp. 227-79, 1999.

J. Ogden, *Hydrogen*. article in J. Zumerchik, ed., *Macmillan Encyclopedia of Energy*, Macmillan, New York, 2001.

Joan M. Ogden, Alternative Fuels and Prospects – Overview, chapter 1 in W. Vielstich, A. Lamm, and H.A. Gasteiger, ed.s., *Handbook of Fuel Cells: Fundamentals, Technology and Applications*, vol. 3, John Wiley and Sons, Ltd., West Sussex, England, 2003, pp. 3-24.

Ogden, J.M., Hydrogen: The Fuel of the Future?, *Physics Today*, vol. 55, No. 4, April 2002, p. 69-74.

H.Y. Benson and J.M. Ogden, *Mathematical Programming Techniques for Designing Minimum Cost Pipeline Networks for CO2 Sequestration*. Proceedings of the GHGT-6 Conference, October 2002, <http://www.rite.or.jp/GHGT6/>.

J.M. Ogden, *Prospects For Large-Scale Use Of Hydrogen In Our Future Energy System*. Testimony to the Committee on Science, United States House of Representatives, Washington, DC, March 5, 2003.

J.M. Ogden, E. Kaijuka and W. Wang, *Modeling Fossil Hydrogen Energy Systems with CO2 Sequestration*. Proceedings of the 2nd National Carbon Sequestration Meeting, Arlington, VA, May 5-8, 2003.

J. Ogden, R.H. Williams and E.D. Larson, *A Societal Lifecycle Cost Comparison of Cars with Alternative Fuels/Engines*. Energy Policy, 2003.

TRANSPORTATION PUBLICATIONS FROM UC DAVIS: Hot off the Presses

The following is a complete list of 2003 ITS-Davis publications.

2003 REPRINTS

Transportation, Energy and Environmental Policy: Managing Transitions. Sperling, Dan, Ken Kurani. VIII Biennial Asilomar Conference. September 2001, *Transportation Research Board of the National Academies*. Publication No. UCD-ITS-RP-03-12.

Societal Lifecycle Costs of Cars with Alternative Fuels/Engines. Ogden, Joan, Robert Williams, Eric D. Larson. *Energy Policy*. November 2003. Publication No. UCD-ITS-RP-03-11.

Regional Driving Characteristics, Regional Driving Cycles. Niemeier, D.A., Jie Lin. *Transportation Research Part D: Transportation and Environment*. November 2003. Publication No. UCD-ITS-RP-03-10.

Regional Driving Characteristics, Regional Driving Trends. Lin, Jie; D. A. Niemeier. *Transportation Research Part D: Transportation and Environment*. September 2003. UCD-ITS-RP-03-9.

Enthalpy of Formation of Cubic Yttria-Stabilized Zirconia. Lee, T.A.; A. Navrotsky. *Journal of Materials Research*. Vol. 18, no. 4. April 2003. Publication No. UCD-ITS-RP-03-8.

Bridging the Last Mile: A Study of the Behavioral, Institutional, and Economic Potential of the Segway Human Transporter. Shaheen, S., R. Finson. *Transportation Research Board*, January 2003. pp. 13. Publication No. UCD-ITS-RP-03-7.

PM10 Conformity Determinations: The Equivalent Emissions Method. Kear, T. P. and D. A. Niemeier. *Transportation Research* v.8D, No. 2. March 2003. Publication No. UCD-ITS-RP-03-6.

Enhancing Hydrogen Production for Fuel Cell Vehicles by Superposition of Acoustic Fields on the Reformer: A Preliminary Study. Erickson, P. A., R. Vernon. *SAE 2003 World Congress & Exhibition*, March 2003, Detroit, MI, USA. Publication No. UCD-ITS-RP-03-5. www.sae.org.

Fuel Cell Commercialization Perspectives - Market Concepts, Competing Technologies and Cost Challenges for Automotive and Stationary Applications. Lipman, T., and D. Sperling. *Handbook of Fuel Cells - Fundamentals, Technology and Applications*. Publication No. UCD-ITS-RP-03-4.

FreedomCAR and Fuel Cells: Toward the Hydrogen Economy? Sperling, D., *Progressive Policy Institute*, Policy Report, January 23, 2003. Publication No. UCD-ITS-RP-03-2.

Catalytic Burner for an Indirect Methanol Fuel Cell Vehicle Fuel Processor. Sundaresan, M., S. Ramaswamy, R.M. Moore, M.A. Hoffman. *Journal of Power Sources*, January 2003, pp. 19-36. Publication No. UCD-ITS-RP-03-1.

2003 RESEARCH REPORTS

U.S. Shared-Use Vehicle Survey Findings: Opportunities and Obstacles for Carsharing & Station Car Growth. Shaheen, S., M. Meyn, K. Wiprywski. *Transportation Research Board*, January 2003. pp. 18. Publication No. UCD-ITS-RP-03-15.

University of California, Davis Long-Range Development Plan: A Davis Smart Mobility Model. Shaheen, Susan A., C. Rodier, R.S. Finson. *California PATH Research Report*. October 2003. Publication No. UCD-ITS-RR-03-14.

Carsharing and Car-free Housing: Predicted Travel, Emission and Economic Benefits: A Case Study of the Sacramento, California Region. Rodier, Caroline and Susan A. Shaheen. October 2003. Publication No. UCD-ITS-RR-03-13.

U.S. Carsharing & Station Car Policy Considerations: Monitoring Growth, Trends & Overall Impacts. Shaheen, Susan A., Andrew Schwartz, Kamill Wiprywski. ITS-Davis. October 2003. Publication No. UCD-ITS-RR-03-12.

The Potential for Shared-Use Vehicle Systems in China. Barth, Matthew and Susan Shaheen. October 2003. Publication No. UCD-ITS-RR-03-11.

Unsafe at Any Speed?: What the Literature Says About Low-Speed Modes. Rodier, Caroline, Susan A. Shaheen, Stephanie Chung. October 2003. Publication No. UCD-ITS-RR-03-10.

Prospecting the Future For Hydrogen Fuel Cell Vehicle Markets. Kurani, Kenneth S., Thomas Turrentine, Heffner R. Reid, Christopher Congleton. October 2003. Publication No. UCD-ITS-RR-03-9.

Applying Integrated ITS Technologies to Carsharing Management: A CarLink Case Study. Shaheen, Susan A., and Kamill Wiprywski. June 2003. Publication No. UCD-ITS-RR-03-8.

Modeling of Line-Haul Truck Auxiliary Power Units in ADVISOR 2002. Wallace, John Paul. August 2003. Publication No. UCD-ITS-RR-03-7.

Davis Smart Mobility Modeling Project Scoping and Planning Project. Shaheen, Susan A. and Rachel Finson. March 2003. Publication No. UCD-ITS-RR-03-6.

Applying Integrated ITS Technologies to Carsharing System Management: A Carlink Case Study. Shaheen, Susan A. and Kamill Wiprywski. June 2003. Publication No. UCD-ITS-RR-03-5.

Fuel Cells for Auxiliary Power in Trucks: Requirements, Benefits and Marketability. Lutsey, Nicholas. July 2003. Publication No. UCD-ITS-RR-03-4.

Modeling the Individual Consideration of Travel-Related Strategies. Cao, Xinyu and Patricia Mokhtarian. May 2003. Publication No.

UCD-ITS-RR-03-3.

A Feasibility Study of the Hybrid Carbon/Lead Oxide Ultracapacitor: Analysis, Assembly, Testing, and Projection of Future Potential. Burke, Andrew, Theodore Kershaw, Marshall Miller. *Prepared for Calstart*. May 2003. Publication No. UCD-ITS-RR-03-2.

Hybrid Electric Vehicle Design: Retail and Lifecycle Cost Analysis. Lipman, Timothy E. and Mark Delucchi. *Prepared for the Energy Foundation*. April 2003. Publication No. UCD-ITS-RR-03-1.

Publications can be ordered by fax, e-mail or mail. Some are now available online.

ITS-Davis is in the process of getting all research reports in downloadable PDF format online.

Ordering information: <http://www.its.ucdavis.edu/publications>

E-mail: itspublications@ucdavis.edu

Fax: 530-752-6572

Mail: Publications, Institute of Transportation Studies, UC Davis,
One Shields Avenue, Davis, CA 95616-8762

[ITS-Davis Home](#) | [Top](#) | [Research Results](#) | [Education Highlights](#) | [ITS-Davis and Campus Highlights](#) | [e-news archives](#) |

ITS-Davis and Campus Highlights

UBIQUITOUS UC DAVIS: Students, Faculty Have High Profile at International Conference



Anthony Eggert, Ling Li and Rusty Heffner at ITS-Davis booth at EVS-20.

"I've heard UC Davis mentioned in almost every session I've attended," an observer noted in a conversation on the exhibit hall floor at EVS-20, the International Electric Vehicle Symposium held last month in Long Beach, Calif. In addition to staffing a well-attended display, students and faculty presented at least six papers, asked challenging questions during Q&As, participated in the ride and drive, and made sure that conference attendees understood the extent of UC Davis's involvement in the environmental vehicles industry.

Students working on Prof. Andy Frank's FutureTruck program took one of their plug-in hybrid SUVs to the conference for the ride and drive. The Institute's Toyota Fuel Cell Hybrid Vehicle was also there; even keynote speaker and Hollywood producer Rob Reiner took it out for a spin.

A quick look at the attendance list revealed at least 15 current students, faculty or alumni attending the conference and working at organizational booths including the South Coast Air Quality Management District, California Fuel Cell Partnership, Toyota, Nissan, Ford, and Electric Power Research Institute.

OPEN HOUSE A BIG SUCCESS

It was standing-room only at the Unitrans Maintenance Yard, where approximately 250 people came to see the university's new hydrogen fueling station, new hydrogen enriched natural gas bus, and second Toyota fuel cell vehicle. Click here for the [online event report](#) and photos. The "[In the News](#)" section offers a glimpse of the event news coverage.

CALLING ALL ALUMNI: Join *Friends of ITS-Davis*

As the year comes to an end, the Institute is pleased to announce that 44 donors, 24 of whom are alumni, have given or pledged to *Friends of ITS-Davis* for 2003, with gifts totaling \$24,605. The *Friends*



program kicked off earlier in the year with a \$20,000 matching gift pledge from General Hydrogen, whose founder Geoffrey Ballard is a member of the Institute's Board of Advisors. So far, 11 individuals have pledged \$1,000. ITS-Davis can receive up to 20 matches, but the \$1,000 gifts must be made in 2003.

During the fall, ITS-Davis began its year-end push to ensure an outstanding first year for *Friends*. Staff mailed out 380 letters to alumni, and, together with several enthusiastic students, made follow-up phone calls with personal appeals in mid-November.

In an effort to engage alumni, ITS-Davis recently completed an alumni survey. Trish Hendren (Ph.D. alumna), Joshua Cunningham (M.S. alumnus) and Emily Winston (current student) have taken the lead to implement the survey results. An upcoming issue of ITS-Davis *e-news* will highlight some of the survey findings and report on the accomplishments and diverse activities of UC Davis alumni working in the transportation field.

Friends has two equally important thrusts:

- To organize and engage graduates and other friends of ITS-Davis; and
- To build a culture of individual giving in support of student fellowships and student projects.

To give to *Friends of ITS-Davis*, [download the contribution form](#). For more information, contact Joe Krovoza (530-754-6006) or Renee Pearl (530-754-6514).

INSTITUTE PEOPLE: Retirements and New Hires

After four years as ITS-Davis's chief administrative services officer and seven years with the Institute, Shirley Long is retiring. Her leadership has been key to the strengthening and expansion of ITS-Davis's administrative and outreach capabilities, says director Dan Sperling. "Shirley has guided the Institute as it added its graduate program, fundraising office, and expanded its computing capability. She's been diligent and conscientious, and committed to the Institute. We are grateful for her years of service and leadership." Long has 17 years of service with the university. We wish her good luck and good health.



Shirley Long

Beth O'Neill joined ITS-Davis October 1 as purchasing and payroll coordinator. An employee of the university for almost five years, she has worked as a payroll specialist in the central payroll office and as a payroll/personnel assistant in the Pomology department.

INSTITUTE PEOPLE: Board of Advisors Accomplishments

ITS-Davis is blessed with an accomplished Board of Advisors. Some members of the board have recently been recognized in their fields:

Jananne Sharpless, who chaired the board from 1999-2002, has received the Cal Aggie Alumni Association's 2003 Outstanding Alumna Award. Sharpless ('67) served as California's secretary of environmental affairs from 1985 to 1991, and was appointed the first female chair of the California Air Resources Board. An independent consultant, she is currently under contract to the UC Office of the President to develop a five-year environmental research plan for the Energy Commission's Public Interest Electricity Research Program. The Outstanding Alumnus(a) Award honors a UC Davis graduate who is in the mid-point of his or her career and who has displayed outstanding achievement, promoted innovative change and made outstanding contributions professionally, to the community, and to UC Davis.

Joseph L. Schofer, a board member since 1998, has received the Institute of Transportation Engineers (ITE) Wilbur Smith Distinguished Educator Award. Schofer is professor of civil engineering and transportation and associate dean for faculty affairs of the Robert R. McCormick School of Engineering and Applied Science at Northwestern University. He was recognized for his outstanding achievements in education and mentoring of students in the field of transportation.

NEW LOOK: College of Engineering Unveils New Logo



The UC Davis College of Engineering rolled out its new logo last month. ITS-Davis is proud to co-brand with the College, says the Institute's Joe Krovoza. "We are delighted to expand our bond with the College and to extend all the appropriate credit for the role of the College in our success."

EXTRA! READ ALL ABOUT IT: ITS-Davis and Associated UC Davis Colleagues in the News

Dan Sperling, on Sacramento radio station KNCI 105.1 FM, November 23, in a public affairs program on alternative fuel vehicles and transportation.

Pat Mokhtarian and student David Ory, in the *Los Angeles Times*, November 18, in a light-hearted column examining how Los Angeles drivers communicate with each other with actions such as waving and horn-honking.

Dan Sperling, in *Show Times*, November 15, in a center page feature on the Institute and its October Open House. The magazine was produced and distributed at the EVS-20 conference in Long Beach.

Dan Sperling, in the *Los Angeles Times*, October 21, in an article on biodiesel at the naval base in Ventura County.

The Institute's October 20 Open House received excellent broadcast and print coverage, including from the following media outlets: Wired Online, Dow Jones Newswire, KFBK-AM 1530, KQED-FM 89.3, KCRA-3, KXTV-10, KOVR-13, Fox 40, KMAX-31, Capitol Television News Service, *California Aggie*, *Davis Enterprise*, *Woodland Daily Democrat*.

In addition, the following industry trade publications featured the event: *Fleets & Fuels*, November 3; *Green Car Journal*, December 2003; *Electric Vehicle Progress*, November 2003; *Fuel Cell Industry Report*, December 2003, www.h2cars.biz, October 23.

Andy Frank's plug-in hybrid research program was mentioned in *New Technology Week*, October 20

Dan Sperling, Joan Ogden and others provided reporters attending the Michelin Challenge Bibendum a wealth of story material. In addition to the media representatives who attended press conferences and invitation-only meals, the following news outlets followed up individually with ITS-Davis representatives or featured the Institute in stories about the event: *Wired*, *AutoWeek*, *San Jose Mercury-News*, *Contra Costa Times*.

Dan Sperling and John Tillman, in the *Chronicle of Higher Education*, October 10, in a feature on advanced technology vehicle and hydrogen research at UC Davis and other universities.

ITS-Davis Alumnus David Friedman, now with Union of Concerned Scientists, in *Reuters* and numerous other national print and broadcast stories, September 16, on UCS's more fuel-efficient SUV.