

PROPOSAL FOR THE INITIATION OF A NEW INSTRUCTIONAL PROGRAM
LEADING TO A

GRADUATE CERTIFICATE IN TRANSPORTATION

PORTLAND STATE UNIVERSITY

COLLEGE OF URBAN AND PUBLIC AFFAIRS
SCHOOL OF URBAN STUDIES AND PLANNING
CENTER FOR TRANSPORTATION STUDIES

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

DESCRIPTION OF PROPOSED PROGRAM

1. Program Overview

An equitable and efficient transportation system for people and goods has a significant influence on the well-being of every citizen, impacting quality of life and the economy. Social, environmental and technological trends must be anticipated and incorporated into a “smart” transportation system in order to ensure resource preservation and enhancement of the region’s economic productivity. The proposed certificate program will be designed to build the technical and analytical knowledge of those who wish to enter the transportation field, to attract new students or professionals to the field or to further develop the skills of professionals already working in the transportation field.

To develop such a program, the University will utilize current courses that are offered by the School of Urban Studies and Planning, as well as the Department of Civil and Environmental Engineering. Thus, the program could be operational as early as Fall 2003. Faculty from various units in the University has formed a Center for Transportation Studies to help coordinate the new certificate and research efforts. The proposed certificate program is a key building block for the University’s initiative to develop a signature transportation center focusing on research, education and outreach. We anticipate that all courses will be taught using active participation from transportation industry participants.

Students enrolled in the certificate program will possess a Bachelor’s degree but would have a variety of backgrounds. Ideal candidates would be students with backgrounds in planning, civil & environmental engineering, business administration, geography, mathematics, statistics, economics, political science, computer science and/or other liberal arts majors who find themselves in need of additional coursework in transportation. A second target group includes professionals who are interested in freshening up or intensifying their knowledge in transportation without making a commitment to a graduate degree program. Supplementary coursework to prepare students for entry into the Certificate Program is available within the University’s existing course offerings. As the courses will be offered at the graduate level, they can be subsequently transferred into PSU graduate programs. The coursework will also qualify for continuing education credits for industry practitioners.

2. Purpose and Relationship of Proposed Program to the Institution's Mission and Strategic Plan

“The mission of Portland State University is to enhance the intellectual, social, cultural and economic qualities of urban life by providing access throughout the life span to a quality liberal education for undergraduates and an appropriate array of professional and graduate programs especially relevant to the metropolitan area. The University will actively promote development of a network of educational institutions that will serve the community and will conduct research and community service to support a high quality educational environment and reflect issues important to the metropolitan region.”

The development and management of “smart” transportation systems is a vital function of the urban and regional economy. The Graduate Certificate in Transportation will offer graduate education for those hoping to build upon their undergraduate training and expand their capabilities in the transportation field. Students in the program will develop skills to analyze and improve existing transportation systems on the basis of extensive knowledge provided in a range of relevant courses. As the university expands its transportation initiative toward developing a signature research and education center, this certificate program will help cement our place in the transportation community and build toward additional future offerings.

The University has a long and respected history of providing transportation research for the Oregon Department of Transportation, the City of Portland, TriMet, Metro, and other transportation-related organizations. These unique partnerships will be leveraged by providing future employers with more and better prepared graduate students.

Oregon is a state where rapid growth of population and travel over the past decade has out-paced the resources available to expand and maintain the region's transportation system, resulting in worsening congestion. The present levels of congestion are a threat to the region's economic productivity, and are increasingly viewed as undermining the region's livable and sustainable reputation. Few are optimistic about the prospects for a substantial increase in resources, which means that efforts to better manage the region's transportation system and enhance the effective capacity of what is already in place or added at the margin, has surfaced as the only truly workable strategy to maintaining or improving mobility. These issues, plus a rapid attrition rate in the transportation field, have heightened the need for this certificate program.

3. Course of Study

The Graduate Certificate in Transportation will be a 21 credit-hour program based on the following courses:

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| USP 556 | Urban Transportation: Problems and Policies (3 credits) |
| USP 544 | Urban Transportation Planning (3 credits) |
| USP 570 | Transportation and Land Use (3 credits) |
| USP/CE | Elective graduate courses (12 credits) |

This program could be completed in a single year on a full-time basis or over two years on a part-time basis. All of the courses are either existing courses in the PSU Bulletin or are being offered on a trial basis during the 2001-02 academic year.

Elective Graduate Courses:

The electives in the Graduate Certificate Program in Transportation enable the students to build particular skills from the wide selection of courses offered by both Schools. Course descriptions for the electives appear in the University Schedule of Classes:

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| USP 537 | Economics of Urban Transportation (3 credits) |
| USP 539 | Statistical Methods in Regional Science and Planning |
| USP 543 | Geographic Applications in Planning (3 credits) |
| USP 591 | Geographic Information Systems I (4 credits) |
| USP 593 | Advanced GIS Applications |
| CE 551 | Traffic Control & Analysis (4 credits) |
| CE 552 | Highway Design for Capacity (4 credits) |
| CE 555 | Intelligent Transportation Systems (4 credits) |
| CE 556 | Traffic Engineering (4 credits) |
| CE 557 | Pavement Design (4 credits) |
| CE 558 | Public Transportation (4 credits) |
| CE 559 | Transportation Operations (4 credits) |
| CE 560 | Access Management (4 credits) |
| CE 510 | Transportation Data Analysis (4 credits) |
| CE 510 | Geometric Design Transportation Facilities (4 credits) |
| CE 510 | Computer Aided Highway Design (4 credits) |
| CE 510 | Highway Materials & Construction (4 credits) |
| CE/USP 507 | Transportation Seminar (1 credit) |
| CE/USP 510 | Travel Demand Modeling (3 credits) |

4. Recruitment and Admission Requirements

The Center for Transportation Studies has conducted surveys, interviews and meetings with transportation professionals in both public agencies and private consulting firms to seek advice and understand the need for the development and format of the program. The Center has also developed an email notification list and an internet website describing current offerings. Once approved, the website will describe and publicize the certificate program. Agencies and firms in the transportation field have indicated a strong interest in encouraging their employees to take either individual courses or the entire certificate course sequence to enhance their education.

The Center will also use internal recruitment techniques, focusing on upper division undergraduates in planning, civil & environmental engineering, business administration, geography, mathematics, statistics, economics, political science, computer science and/or other liberal arts majors. Some faculty members teaching core courses in those programs have joined the Center as faculty affiliates and more will be contacted.

Admission to the program will require an undergraduate degree at an accredited university and a 2.75 undergraduate GPA. Admissions will be handled by the College of Urban and Public Affairs.

5. Accreditation of the Program

The Graduate Certificate in Transportation will not be an accredited degree program.

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6. Evidence of Need

Employers that we surveyed have indicated a need for both continuing education among existing transportation professionals and a need for newly trained workers with additional training in the transportation field. Our research has also found that companies particularly value graduate-level courses. 66 percent of the 89 surveyed professionals would recommend universities to introduce graduate certificate programs in transportation, while 23 percent expressed high, and 35 percent expressed some interest within their companies for enrolling in a graduate certificate program in transportation. Currently enrolled students also support the idea of introducing a graduate certificate program in transportation: 55 percent of the 30 survey participants stated that they were interested in enrolling such a program. The certificate program would particularly help students in the Master of Urban and Regional Planning program who have chosen to specialize in another field but wish to achieve some documented proficiency in transportation.

OUTCOMES

7. Program Evaluation

The program will be evaluated in a number of ways. Courses within the graduate certificate program in transportation will utilize student evaluation forms produced and tabulated by the School of Urban Studies and Planning, and the Department of Civil and Environmental Engineering in their respective colleges. In addition, members of the Center for Transportation Studies will observe at least one class session of all courses taught in the program. These in-class observations will assist faculty members in coordinating their material and learning from each other. Faculty will also be encouraged to develop their own assessment instruments, and will work with the Center for Academic Excellence to develop these tools. We also envision developing exit surveys for students completing the certificate program. Finally, the Center for Transportation Studies is establishing an External Advisory Committee, consisting of about 13 government agency executive management officials to monitor the overall Center priorities. We are also developing a Curriculum Advisory Committee, consisting of government agency and industry professionals to monitor the development of the curriculum sponsored by the Center for Transportation Studies

8. Assessment of Student Learning

Members of the Center for Transportation Studies will advise students and seek placement of graduates in the transportation field. The Center sponsors weekly seminars including students and employers that have encouraged interaction leading to possible placement in internships and permanent positions. Faculty will continue to develop links to the profession in order to make helpful placements. Working with employers of placed students and the Center for Transportation Studies External Advisory Committee and Curriculum Advisory Committee, the Center will continually assess whether student learning is meeting the needs of students and firms/agencies in the field. In the same way that current efforts to interview and survey transportation professionals and employers is helping the Center design the initial curriculum, future meetings of the External Advisory Committee and Curriculum Advisory Committee will help the Center modify the program in future years. Finally, the Center will track the progress

of students with the program, to make sure they are making timely progress towards Certificate completion.

INTEGRATION OF EFFORTS

9. Similar Programs in the State

- a. There are no other similar graduate certificate programs in the state. The School of Urban Studies and Planning currently offers its own three-course professional development certificate in Transportation Policy and Planning. The proposed Transportation Certificate Program would be officially advertised in the catalog and on the Office of Graduate Studies website.
- b. We do not anticipate using resources from other institutions in the proposed Certificate Program. We communicate regularly with faculty teaching urban planning at the University of Oregon and civil engineering at Oregon State University and the Oregon Institute of Technology. These other institutions offer some transportation courses, but there are some courses focusing on urban transportation planning and engineering courses that are offered only at PSU in its urban setting. We have several examples of students from these institutions enrolling in coursework and programs at PSU and we anticipate that this cooperation will continue in the future.
- c. There is no projected impact on other institutions in terms of student enrollment and/or faculty workload.

RESOURCES

10. Faculty

Robert L. Bertini is Assistant Professor of Civil and Environmental Engineering, and Director of the Center for Transportation Studies. He received his Ph.D. in civil engineering at the University of California at Berkeley in 1999 and has over fifteen years of professional/consulting, research and teaching experience in the field of transportation.

James Strathman is a Professor of Urban Studies and Planning and Director of the Center for Urban Studies. He became the Center's director in 1998, after 16 years of serving as the Center's assistant and then associate director. Dr. Strathman comes to the Center from the University of Iowa where he received his Ph.D. in Geography in 1981. His research interests include regional science and transportation planning.

Jennifer Dill is an Assistant Professor of Urban Studies and Planning. She received her Ph.D. in City and Regional Planning from the University of California at Berkeley in 2001. Dr. Dill teaches courses in urban planning, transportation policy and planning, and planning theory. Her research interests focus on transportation and environmental planning, travel behavior, air quality, and transportation-land use interactions.

Anthony Rufolo is a professor of Urban Studies where he specializes in state and local finance, transportation, urban economics, and regional economic development. He received his Ph.D. in Economics from UCLA. Prior to joining the faculty at Portland State in 1980, he spent six years as a senior economist with the Federal Reserve Bank of Philadelphia.

B. Kent Lall is a professor of Civil and Environmental Engineering and has received a Ph.D. in Civil Engineering from the University of Birmingham (England) in 1969. He has more than 30 years of experience in transportation engineering education and research.

Adjunct faculty include Joel Freedman, PB Consult; Mia Birk, Alta Planning + Design; Christopher Monsere, Oregon Department of Transportation; Peter Koonce, Kittelson and Associates; Elizabeth Wemple, Kittelson and Associates; and John Coplantz, Oregon Department of Transportation.

11. Reference Sources

With the assistance of inter-library loan and on-line journal access, the Portland State University library resources appear to be adequate for this program. It will be important for current subscriptions to key transportation journals to continue.

12. Facilities, Equipment, and Technology

No specialized space or equipment needs to be added. Existing instructional and computer facilities and resources are adequate for the program. The program will use existing instructional facilities and computing facilities within the School of Urban Studies and Planning and the Department of Civil and Environmental Engineering.

14. Budgetary Impact

Courses within the program utilize existing course offerings in the School of Urban Studies and Planning and the College for Engineering and Computer Science. No additional faculty, facilities or equipment will be required.

SEQUENCE OF ACTION:

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| Approved by Library_____ | Date_____ |
| Approved by Dept. Curriculum Comm._____ | Date_____ |
| Approved by Dept. Chair_____ | Date_____ |
| Approved by College/School Curr. Comm._____ | Date_____ |
| Approved by College/School Dean_____ | Date_____ |