

Ⓜ

424

CURRICULUM PROPOSAL FORM 1999-2000

ROWAN UNIVERSITY SENATE

NON-GENERAL EDUCATION PROCESS A

*DEADLINES: Deadline dates for 1999/2000 submissions: Regular proposals: October 22, 1999 to be implemented in Fall 2000; Short-Term proposals: December 10, 1999 to be implemented in Fall, 2000; Regular proposals February 18, 2000 to be implemented in Spring 2001; March 24, 2000 for short-term courses to be implemented in Spring 2001

PROPOSAL TITLE: Advanced Transportation Planning and Demand Analysis
(0908.563)

SPONSOR(S): CARLOS SUN

DEPARTMENT: CIVIL ENGINEERING

COLLEGE: ENGINEERING

IF LAS CHECK ONE: History/Humanities Math/Science Social/Behavioral Sciences

Check one: Undergraduate Graduate

0908-563

THE ATTACHED **NON-GEN-ED** PROPOSAL IS BEST DESCRIBED BY THE ITEM(S) CHECKED.

New non-gen-ed course

Short-term non-gen-ed course

Minor curricular changes (fewer than three) to:

- existing non-gen-ed course
- non-gen-ed degree requirements
- major
- minor, specialization, concentration, track certificate program

DEPARTMENT

(Signature indicates approval) *Richard R. ...* 2/24/00

Dept. Curriculum Chair/Date *Richard R. ...* 2/24/00

Dept. Chairperson/Date

ACADEMIC DEAN

Approved Not Approved Comments:

Dean's Signature/Date *J. Tracy* 2/24/00

COLLEGE CURRICULUM COMMITTEE

Date of open hearing (if necessary) 2/28/01 Approved Not Approved

Comments:

Signature of College Chair/Date: [Signature] 2/28/01

UNIVERSITY CURRICULUM COMMITTEE

Date Received/Processed 5/29/01

Comments:

Curriculum Chair Signature: [Signature] Date Announced At Senate 2/9/01

EXECUTIVE VICE PRESIDENT/PROVOST

Approved Not Approved If no, reasons are as follows:

Student Credit Hours: _____ Faculty Load Hours: _____ Equalized Credit Hours 6/5/01

Official Copy & Approval Sheet Filed (Date): _____ Executive VP/Provid Signature/Date [Signature]

REGISTRAR

Date Approved Course Description Required _____

Hegis Taxonomy & Course Number Assigned _____

Registrar Signature/Date [Signature] 6/8/01

NOTIFICATION FORWARD

Senate Curriculum Committee Chairperson Academic Dean(s) 8/13/01

Department Chairpersons Registrar _____ Sponsor(s) _____

Course Proposal:

1. Details:

- a) Course Title: Advanced Transportation Planning and Demand Analysis (0708.563)
- b) Sponsor: Dr. Carlos Sun & College of Engineering Curriculum Committee
- c) Credit Hours: 3 credit hours
- d) Course Level: Graduate
- e) Curricular Effect: Part of M.S. Curriculum in Civil and Environmental Engineering
- f) Prerequisites: Graduate standing or permission of instructor
- g) Suggested Time/Scale of Implementation: One section during spring semesters
- h) Resources
 - Faculty: Existing faculty can teach this course.
 - Library: No library acquisitions will be required.
 - Equipment: No laboratory equipment will be required.
 - Computers: Computer laboratory access will be required.

2. Rationale:

The proposed course is an elective course for all graduate civil and environmental engineering students. The inclusion of this course in the civil engineering curricula is consistent with the goals of the Civil Engineering Masters program.

This course is an advanced course in transportation planning and analysis and involves detailed study of the theory and mathematics behind common planning techniques and models. Multivariate statistical methods will be emphasized. Computer implementation of models will be utilized to illustrate the statistical theory.

3. Essence of the Course:

a) Objectives:

Upon completion of the course, graduate students will be able to understand and perform civil engineering analysis and design including the ability to execute the following tasks:

- Formulate empirical demand functions
- Analyze demand elasticities
- Develop cost and supply functions
- Utilize maximum likelihood and least squares for estimation
- Use logit models to analyze travel choice
- Derive travel demand forecasts using statistical techniques

b) Topical Outline:

The topical outline of the course may vary to some extent depending on the interests of the instructor and the students. Topics to be covered include the following:

- Introduction to demand analysis and transportation planning
- Concept of derived demand
- Microeconomic demand theory
- Choice under budget constraint
- Characterization of consumer demand functions
- Elasticities
- Demand, revenues, and benefits
- Consumers Surplus
- Cost functions
- Supply functions
- Stochastic models
- Estimators and properties
- Maximum likelihood
- Least squares
- Statistical tests
- Multinomial logit
- Discrete choice theory

c) Evaluation and Grading Procedure of Students:

Student grades will be based on individual examinations, individual and group homework, research papers, engineering reports, oral presentations, and data collection and assessment activities.

d) Course Evaluation:

The proposed course will be evaluated based on student evaluations and curriculum review by civil engineering faculty.

4. Results of Consultations:

The proposed course is an elective course in the Civil Engineering Masters program. The course does not appear to overlap with existing courses.

Catalog Description:

Advanced Transportation Planning and Analysis (0908.XXX)
(Prerequisites: graduate standing or permission of the instructor)

This course is an advanced course in transportation planning and demand analysis and involves detailed study of the theory and mathematics behind common planning techniques and models.

Travel demand modeling and statistical analysis will be discussed. Computer implementation of models will be utilized to illustrate statistical theory.