Graduate Council Report
4 January 2007

New Course Request

A601 URSC 642 Analytic Methods in Landscape and Urban Research II (3-0) Credit 3.
Provides students in urban & regional science with a survey of hands on experiences with advanced
techniques and procedures related to conceptual measurement and operational issues, data set
development and manipulation and data analysis issues critical for conducting academic research.
Prerequisite(s): STAT 651, CARC 601, URSC 641, permission.
Texas A&M University

artmental Request for a New Course

Undergraduate Graduate Professional
Submit original form and 25 copies. Attach a course syllabus to each.*

1. This course is submitted by the Department of Landscape Architecture & Urban Planning

2. Course prefix, number and complete title of course: URSC 642 Analytic Methods in Landscape and Urban Research II

3. Course description (not more than 50 words): Provides students in urban & regional science with a survey of hands on experiences with advanced techniques and procedures related to conceptual measurement and operational issues, data set development and manipulation and data analysis issues critical for conducting academic research.

4. Prerequisite(s) STAT651, CARC601, URSC641, permission Cross-listed with N/A

5. Is this a variable credit course? Yes No If yes, from to

6. Is this a repeatable course? Yes No If yes, this course may be taken times. Will the course be repeated within the same semester/term? Yes No

7. Has this course been taught as a 489/689? Yes No If yes, how many times? Spring 2007

8. This course will be:
a. Required for students enrolled in the following degree program(s) (e.g., B.A. in history) URSC Students

b. An elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix Course # Title (exclude punctuation)
    URSC 642 Analytic Methods
    | Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Academic Year | FICE Code |
    | 0 | 3 | 13 | | | | 01036 |

Approval recommended by:

Head of Department

Date 8/1/06

Chair, College Review Committee

Dean of College

Date 11/9/06

Submitted to Coordinating Board by:

Director of Academic Support Services

Date

Effective Date 2 of 11 E
Analytic Methods in Landscape and Urban Research II

The successful researcher in urban planning and landscape architecture is required to fully integrate theory, data, measurement and analysis in a coherent fashion in order to, more often than not, test theoretically derived hypotheses. Unfortunately, the pedagogical pathways for acquiring and mastering these elements are often diverse, disparate, and divergent. Theory courses discuss theory, methods course discuss data collection and maybe some analysis, statistics course discuss statistical methods. It is rare to find a course that addresses measurement issues in more than a cursory fashion. A research methods course will touch on these topics but will rarely discuss the actual operational procedures in sparse and rich data environments. It is even more uncommon to find courses that discuss data set creation, cleaning, and manipulation. One may learn fairly simple examples of data manipulation in some of their courses, however it is unusual to learn procedures to facilitate complex data manipulations to create variables that will be employed in their research. Indeed it is often the case that many research situations will require the creation of complex data sets consisting of data from multiple sources (i.e., tax-appraisal data, census data, environmental quality data and survey data). Linking these potentially complex data sets together and creating new variables out of existing data all require expertise that is rarely discussed in classes. Furthermore, undertaking analysis utilizing these integrated complex data sets can demand special considerations.

The purpose of this two-part course sequence, Analytic Methods in Landscape and Urban Research I and II (URSC 641 and URSC 642I), is to explicitly address many of the above issues, as well as others, by offering graduate student who are focusing on research careers in urban and regional planning and landscape architecture with hands on experiences in which issues related to theory, measurement, data, and analysis are addressed in concert to answer research relevant questions. The specific goals of this course sequence are as follows:

1) To explore the wealth of quantitative and mathematical approaches utilized by researchers to analyze their data. These topics will range from fairly simple approaches for describing data and making inferences, to much more complex approaches allowing for one to consider multiple relationships, causality and functional forms. We will explore all forms of bivariate and multivariate approaches with both quantitative and qualitative measures.

2) To explore the variety of data that one is likely to employ in urban and regional planning research with an emphasis on data manipulation, merging, and restructuring. Additional data topics will include: survey data, secondary data, combining data, weighting data, census data (block, block-group, tracks, TAZ, etc.), PUMS data (Census), Economic data (ESA, BLS, BEA, local tax-folio data); problems and issues with aggregate data, multi-level data, etc.
3) To explore a host of measurement issues, with an emphasis how researchers tackle the problem of operationalization, with real data, in urban and regional planning research. Additional measurement issues will include: levels of measurement, scale and index construction, tools and methods for establishing validity and reliability actor analytic approaches, information theoretic approaches for measuring inequality.

4) To explore using statistical packages to manipulate and analyze data. Our focus will be SPSS, the Statistical Package for the Social Sciences. There are a variety of packages we could employ. SPSS, however, is the most often utilized, particularly for learning how to use analyze and manipulate data, however it does lack some flexibility and utility when we get into more esoteric techniques. So we will explore the use of other packages, particularly in URSC 642. Nevertheless, SPSS does provide us with a good platform and, most importantly, it does provide us with the ability to explore employing menus and syntax (programming language) to perform more complex data manipulations.

The goal for Analytic Methods in Landscape and Urban Research II (URSC 642) is to continue lay a foundation upon which to build an understanding of more complex data set development and analysis strategies that are critical for the successful researcher in urban and regional planning. However, in this course we will also begin to explore some of the more advanced analysis strategies and play with more complex measurement issues, touching on a host of topics important for the academic researchers. To a very real extent, I will only begin to scratch the surface of some of these topics, but I want you to be aware of them so you might explore them further in additional course work and professional development. For some of these discussions I will include computer examples with real data which the class will play with, while for others I will simply have examples for the lecture from work undertaken by myself or other researchers.

Course Organization: Class periods will again be devoted to lecture and using the computer to get output. The lecture material will follow its own course, predominantly in PowerPoint presentation, which will draw upon required materials from the assigned books and supplemental readings. During the latter part of the class period, on selected days, we will discuss your homework assignments. I personally think that working with data and data analysis, much like other enjoyable activities, should be practiced more than once a week. Therefore, I would like to suggest the class attempt to create a study session during the week. I will gladly attend if it is on a day I can be there. I also request that you be to class ON TIME! Since we will be using the computers for power point lectures and data examples, it will be easier if you power them up, log on, get into SPSS, bring up the lectures, and be prepared to begin when the class is scheduled to start.

TEXTS: Unfortunately there is not a single text that I can assign in this course, which will cover many of the issues that will be covered in this course. Therefore, all texts are in some sense supplemental, and yet some required. I will however have two required texts and a number of supplemental readings from which I will draw materials for my
lectures, and from whence homework assignments will be drawn.

**Required:**


**Supplemental Texts and materials:** The following are some supplemental books that will be particularly useful and I will make reference to in my lectures. In addition there will be multiple articles and sources that I will suggest throughout the lectures. Students are encouraged to read these materials. The following some examples:


**Software:** We will, as mentioned above, be using SPSS. This package is available in all labs through the Langford Architecture center and is available from SELL for $30. We will also explore using STATA for addressing certain analysis approaches.
GRADING: Your grade in this course is based on two exams, a paper on a measurement topic, and a number of homework assignments. The tests will count 30% each for a total of 60% of your final grade. The paper will for 25% of your grade and homework assignments will make up the final 15% of your grade. I reserve the right to alter this grading scheme should the need arise.

EXAMS: Exams will not be open book/notes, however, you may bring in one 8.5" by 11" sheet of paper with as much information as you can fit on it. DO NOT make the mistake of thinking that this means they are easy. My exams are long and will require you to do a considerable number of computer operations, thinking and writing. If you have not kept up with the lectures, reading and homework assignments you will not do well on the exams. The content of the exam will depend upon the materials we have covered by the exam and I will make this clear prior to the exam day.

THE PAPER: The paper for this class will focus on a research/measurement issue of relevance to urban and regional planning research and hopefully of relevance to your own research interest, if not dissertation topic. Ideally I would like your paper to focus on a particular measurement issue or research topic. If it is a measurement issue the focus will be on how a particular concept has been defined and operationalized in the literature, what are the data requirements, what are the flaws or problems with how it is measured particularly as it relates to theory testing. If the paper focuses on a particular research topic, than it should explore what types of data and analysis techniques are generally employed with researching this topic. It should critically evaluate the current research published on the topic, draw conclusions for how this research might be better undertaken and suggest alternative approaches. The point is that the paper should really get into the extant research literature, critically evaluate the nature of the research or measurement being employed and suggest alternative approaches for handling these issues. By the third week you will provide me with a paragraph or two regarding the topic you are considering. The week after the midterm, I want page describing in some detail what you plan to do with your paper. The last week of class, each student will present a 10-15 minute PowerPoint on their paper (this will be worth 25% of the paper grade) and the final paper (worth the remaining 75% of the grade) will be due the day of the final.

HOMEWORK: I will assign problems from the GDA book, most will be problems with answers provided in the back, or I may give you an assignment I have made up myself. You simply have to do them and hand them in on time. Each assignment is due on the day specified during the class period. You will lose 10% for everyday it is late and that includes non-class days and weekends. You may (in fact should) work together on homework assignments, but for your own sake, do not simply copy someone else's homework. Actually doing the homework will provide you with valuable practice for the test. The purpose of homework is to provide you with feedback about what you do not understand. If you are not getting something when you are doing your homework, ask about it in class! Do not wait for me to return your homework to ask questions.

Here are some tentative dates for exams and chapters covered:
Mid-Term Exam: Week 7.

Final Exam Day:

**Course Outline:** The following is the course outline and schedule for URSC 642 along with required readings. Given the flow of the course, we may have to make modifications to the schedule. I reserve the right to do so, but will always discuss changes with the class and keep you informed of these modifications.

**Week 1 and 2:** Are your models doing what you think they are doing? Multiple regression, residual analysis, and regression diagnostics.
Readings: GDA chapters 22 and 24; SPC, chapter 13.

**Week 3 and 4:** Housing and housing policy: do all God's children benefit equally?
Qualitative measures, alternative coding schemes and interactions.
Readings: GDA chapters 22 and 24; SPC, chapter 13; Agresti and Finlay, Chapter 13.

**Week 5:** Creating and developing population trend data sets, modeling trends, and making projections.

**Week 5 and 6:** Operationalization Part III: Data reduction techniques and the role of theory and empirical observations.
Readings SPC, Chapter 17; DeVellis;

**Week 7:** Mid-Term

**Week 8:** Do planning policies and programs influence behavior I: Modeling household decisions with respect to hurricane evacuation. An introduction to logistic regression.
Readings: SPC, Chapter 14 and 15; Menard; Pampel.

**Week 9:** Do Planning Policies and program influence behavior II: Modeling household decision with respect to transportation mode choice. An introduction to multinominal logistic regression.
Readings: ASPC, Chapter 3; Agresti and Finlay, chapter 15

**Week 10:** Do Planning policies and programs influence behavior III: Modeling housing safety and building code compliance. An introduction to generalized linear models.
Readings: ASPC, Chapter 4; Agresti and Finlay, chapter 15

**Week 11:** Measuring community structure: accessibility and complexity and inequality.
Readings: Klosterman and Krizek

**Week 12:** Measuring community structure: Inequality.
Readings: McLean and Voytek; Coudouel et al.

Week 13 Student presentations.

Week 14: Final Exam

The following two statements are required by Texas A&M University:

1. ADA Syllabus Statement: The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Student Services Building. The phone number is 845-7637.

2. Academic Integrity Syllabus Statement: “An Aggie does not lie, cheat, or steal or tolerate those who do.” The definition of academic misconduct pertaining to cheating, fabrication, falsification, multiple submission, plagiarism, and complicity are part of the Aggie Honor Code. Check the following website if you have any questions: http://www.tamu.edu/aggiehonor/faq.html. Please, please, please do not violate the Aggie Honor Code! I am required to turn you in if you do!
Student Questionnaire and Aggie Honor Code Statement:

Name: ________________________________
(please print clearly).

Local Phone or Cell Number: ________________________________.

Email Address: ______________________________________________
(please print clearly!!)

Undergraduate Major(s): ______________________________________
___________________________________________________________

Undergraduate Minor(s): ________________________________
___________________________________________________________

Graduate degree(s) if any: ________________________________
___________________________________________________________

If you have had any research methods courses please give the course number, title and brief description:
___________________________________________________________
___________________________________________________________
___________________________________________________________

If you have had any statistic courses please give me the course number, title and brief description:
___________________________________________________________
___________________________________________________________
___________________________________________________________

Academic Integrity Syllabus Statement:

"An Aggie does not lie, cheat or steal or tolerate those who do."

Please familiarize yourself with the Aggie Honor Code and the Honor Council Rules and Procedures that can be found at: www.tamu.edu/aggiehonor.

Please read the following and signify your agreement by your signature:

"On my honor as an Aggie, I will follow the Aggie honor code in all things I do related to this class."

___________________________________________________________
Your signature
Signature Sheet for College of Architecture New Course Requests

As a courtesy to your departmental representative on the Academic Affairs Committee, we ask that you submit this form as a cover sheet to all new course requests within the College of Architecture. This use includes all 489, 689 and permanent course requests effective November 1, 2004.

1. Department submitting the request: Landscape Architecture & Urban Planning

2. Prefix and number of new course: URSC 642

3. Complete course title: Analytic Methods in Landscape & Urban Research II

4. Justification for offering this course:
   This course, the second of a sequence of two courses, is fundamentally necessary to ensure that all URSC students receive adequate training in developing, manipulating and analyzing data utilized in scholarly academic research.

5. Has this course been reviewed by your departmental Academic Affairs Committee?
   Yes, Date July 2006

Please attach the appropriate new course request form and a course syllabus complete with the following items required by the Dean of Faculties:

- Course Title and Number
- Course Description (see reverse for examples from the catalog)
- Instructor information (will be included when course is approved)
- Prerequisite(s)
- Course topics/calendar
- Grading
- List of assignments, tests, etc.
- No statements contrary to University rules re. attendance, approved absences, etc.
- Textbook and/or resource materials listing
- Americans with Disabilities Act (ADA) Policy Statement
- Academic Integrity Statement

(For copies of the appropriate ADA and Academic Integrity statements, please see http://www.lemu.edu/dof/faculty/syllabus.php)

Signature of faculty member proposing course

[Signature]

Signature of departmental AAC representative (see reverse for current membership)

[Signature]
From: Rick Giardino <rickg@tamu.edu>
To: Suzie Brynildsen <SBrynildsen@vprmail.tamu.edu>
Date: Monday, January 22, 2007 10:40 am
Subject: Fwd: URSC 642

Begin forwarded message:

> From: "Doug Sherman" <sherman@geog.tamu.edu>
> Date: January 22, 2007 10:37:09 AM CST
> To: "Rick Giardino" <rickg@tamu.edu>
> Subject: URSC 642
> Return-Path: <sherman@geog.tamu.edu>
> Received: from sr-7-int.cis.tamu.edu (smtp-relay.TAMU.EDU
> [165.91.22.120]) by vprmail.tamu.edu with ESMTP; Mon, 22 Jan 2007
> 10:37:20 -0600
> Received: from localhost (localhost.tamu.edu [127.0.0.1]) by sr-7-
> int.cis.tamu.edu (Postfix) with ESMTP id 137194E8CC for
> <rickg@tamu.edu>; Mon, 22 Jan 2007 10:37:20 -0600 (CST)
> Received: from shermanpc (sherman-pc.GEOG.tamu.edu
> [128.194.108.199]) by sr-7-int.cis.tamu.edu (Postfix) with SMTP id
> F399F4E8CB for <rickg@tamu.edu>; Mon, 22 Jan 2007 10:37:18 -0600 (CST)
> Message-Id: <003e01c73e43$8fb0ad40$c76ac280@geog.ad.tamu.edu>
> Mime-Version: 1.0
> Content-Type: multipart/alternative; boundary="----
> =_NextPart_000_003B_01C73E11.45115B40"
> X-Priority: 3
> X-Msmail-Priority: Normal
> X-Mailer: Microsoft Outlook Express 6.00.2900.3028
> X-Mimeole: Produced By Microsoft MimeOLE V6.00.2900.3028
> X-Virus-Scanned: amavisd-new at tamu.edu
>
> Hi Rick,
>
> I have had a chance to review the course proposal for URSC 642,
> from the college of Architecture. There is no conflict with the
> graduate curriculum in geography, and may be a course that we would
> recommend to some of our own students. Please let me know if you
> have additional questions concerning this course.
>
> Cheers, Doug
>
>
John R.(Rick) Giardino, Ph.D., P.G.
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Professor of Geology & Geophysics and
Hydrological Sciences
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