

**INLS 089**  
**Smart Cities**  
**Spring2016**

Tue/Thu, 12:30 – 01:45, Manning 304

**Instructors:**

Arcot Rajasekar & Cor Rademaker

**Office:** Manning 021

**Office Hours:** 11:00 – 12:15 Tue/Thu, and by appointment

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**Course Description:** The seminar will present students with topics and trends in sustainable and smart cities. Role of information in the design of network resources and impact on urban design, development and urban living will be explored.

**Prerequisite(s):** None

**Grading Scheme:**

- |                                     |                 |
|-------------------------------------|-----------------|
| 1. Class attendance & participation | 20%             |
| 2. Blog participation               | 10%             |
| 3. Journal                          | 10%             |
| 4. Project Assignment               | 40%             |
| 5. Exams                            | 20% (two exams) |

## 1. Course Objectives

A smart city is one where the needs of a populace meet the needs of environmental sustainability. The balance between the social and environmental issues is governed by Information and Communication Technologies (ICT) that power a smart city infrastructure. In this course, we learn about the influence of urban networks, smart city urban planning, energy as a catalyst of sustainable development, smart city infrastructure, sustainable transportation, flow of information and communications, smart grids, digital infrastructure and the role of data and information technology. We will discuss criteria for measuring the smartness of a city, including quality of life, citizen governance, and discuss issues that go towards the making of a future smart city. Several case studies will be presented with guest lecturers invited to present on critical thinking and practices in smart city development.

## 2. Graded Work

Your grade will be based on class and blog participation and for keeping a digital journal.

### Attendance and Participation

We require all students to participate actively in class discussions throughout the class. At the beginning of each class, we will have a common discussion period, where we will discuss current events related to

topics in the course. As the class proceeds, we will be looking for questions, comments and a lively dialogue on the presented material as well as on any required reading materials.

### **Blogging**

Apart from class participation, we also expect students to actively participate in blog posts on topics related to the course. Sometimes we will start a thread of conversation, but we also expect students to take initiative in starting new threads of discussions. The sakai site used by the course has facilities for blogs.

### **Journal**

Each student is expected to maintain a journal. This is something of a personal digital library where one will keep all materials related to this course, gathered in the course or elsewhere. We expect material beyond the reading list to be part of your journal. Current events and class discussion topics can also be part of your journal. We also expect tags, metadata and your own commentary added for each material as an outcome of your reading the material. It is strongly recommended to use of the SILS Lifetime Library (<http://lifetime-library.ils.unc.edu/>) for maintaining the journal as it allows controlled sharing. This journal will be a persistent digital library that may help you later after the course and which you can grow as you gather more relevant material.

### **Assignments**

We plan to give a term-long assignment related to smart cities. These assignments will involve group participation and will require research and writing on topics chosen by the instructors. Information for previous project will be available to help students.

### **Exam**

There will be two exams, a mid term and a final.

## **3. Grading Policies**

The following grade scale will be used AS A GUIDELINE (subject to any curve):

A 100-90%

B 89-80%

C 79-70%

D 69-60%

F Below 60%

This scale will be used as a GUIDELINE ONLY. The final grade scale may differ.

### **Requests for Extensions and Absences**

If a serious illness or other events prevents you from coming to any of the ta classes, send your instructor an e-mail message, or a friend with a note, describing your condition before the class or as soon as possible. Also, to establish a valid excuse for an illness you must get a note from a physician or the University infirmary.

## **4. Course Communication (Sakai)**

Sakai-based course website has been set up and it is the responsibility of every student to **check the Sakai website regularly** for announcements, presentation materials and other digital handouts. The Announcements section of the website will be the source for all **official announcements** related to the class. Your instructor may announce tests, assignments, or changes to assignments in class, but there is no guarantee or promise that such announcements will be made in class. The Announcements section of the website is the **only** official, reliable source for announcements, changes, etc. from the instructor. If something the instructor says in class conflicts with information posted by the instructor on the website,

then the information posted on by the instructor **on the Sakai website takes precedence**. Verbal instructions are easily misinterpreted, and they do not leave a documentation trail. All students should be able to access the system.

## **5. Honor Code**

The UNC Honor Code is in effect for all work in this course. When work or ideas are not your own, you must attribute them. Unless otherwise stated, all assignments in this class are individual assignments, meaning that the substance of the work you turn in must be your own. If you have any doubts or questions about a course of action or a specific situation, please ask for clarification. Students should NOT receive (or give) major creative assistance or ongoing minor support on individual assignments. If you have any questions about this, please ask me.

## **6. Special Accommodations**

If any student needs special accommodations, please contact the instructor during the first week of classes.

## 7. Course outline (tentative schedule)

Cl No	Date	Topics in Smart Cities	Topics in Information Science	Class Discussion Topics
1	Jan 12	Introduction	Introduction	What is a Smart City?
2	Jan 14	Smart City	What is Data?	
3	Jan 19	Smart City Contd.		Complexities of smart cities
4	Jan 21	Urban Network	Data organizations	
5	Jan 26	Urban Network Contd.		Role of urban networks
6	Jan 28	Trends in Urban Development	Databases	
7	Feb 02	<b>Guest Lecture - 1</b>		
8	Feb 04	Urban Planning	Sensor Networks	
9	Feb 09	Urban Planning Contd..		Principles of urban planning
10	Feb 11	Case Study	Decision Making	
11	Feb 16	Energy		
12	Feb 18	Energy Contd.	Data Mining	Energy as a catalyst for sustainable transformation
<b>13</b>	<b>Feb 23</b>	<b>Exam – 1 (In Class)</b>		
14	Feb 25	Cohesion and Efficiency of Smart Cities	Privacy, security and Ethics	
15	Mar 01	Grids and Networks		
16	Mar 03	Grids and Networks Contd.	Data Grids	Visible and Invisible grids
17	Mar 08	Smart Grids		
18	Mar 10	<b>Guest Lecture - 2</b>		
19	Mar 22	Smart Grids Contd.		Smart grids
20	Mar 24	Smart Grids Contd.	Information Visualization	
21	Mar 29	Urban Planning		
22	Mar 31	Urban Planning Contd.	Community Resource Sensing	Role of planning in Smart Cities
23	Apr 05	Case Studies		
24	Apr 07	Case Studies	Smart City Informatics	Smart City Metrics
25	Apr 12	Future of Smart Cities		
26	Apr 14	<b>Guest Lecture - 3</b>		
27	Apr 19	Presentations		
28	Apr 21	Presentations		
29	Apr 26	WrapUp		
<b>30</b>	<b>May 03</b>	<b>Final Exam</b>	<b>12:00-1:00 (note change in timing)</b>	<b>In Classroom</b>