

INLS 073

Smart Cities

Spring 2019

Tue/Thu, 9:30 – 10:45, Manning 304

Instructors:

Arcot Rajasekar

Office: Manning 021

Office Hours: 11:00 – 12:15 PM 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 and connected communities. 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. Personal Digital Library | 20% |
| 3. Project Assignment | 30% |
| 4. Exams | 30% (two exams – 15% each) |

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 the following:

Attendance and Participation

I require all students to participate actively in class discussions throughout the class. Attendance is required. Every three unexcused absence will drop a grade. For each class, there will be some material to read before coming to class. One or two students will be randomly asked to lead discussion on the topics covered by the reading material. Rest of the class will participate in the discussions. Apart from this, as the class proceeds, we will be looking for questions, comments and a lively dialogue on the material presented by the instructor. Don't be afraid of asking questions, raising doubts or making a point. We want everyone to participate and equally guide the discussions.

Personal Digital Library

Each student is expected to maintain a personal digital library where one will keep all materials related to this course, gathered during the course or elsewhere. I expect material beyond the reading list to be part of your PDL. Current events and class discussion topics can also be part of it. I also expect students to annotate their library with descriptive metadata 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 PDL as it provides all features needed to maintain a PDL. This 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. Information about how to use the Lifetime library will be presented in class. Please apply for an account as soon as possible at the website.

Project Assignment

I 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 instructor. I will provide information about the assignment in class.

Exam

There will be two exams, one mid-term and a final. Each will carry equal weight.

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 classes, send your instructors 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. 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 sakai 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 non-project 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 us.

6. Special Accommodations

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

7. Course outline (tentative schedule)

CI No	Date	Topics in Smart Cities	Topics in Information Science
1	Jan 10	Introduction	
2	Jan 15	Smart Governance	
3	Jan 17	Smart Environment	
4	Jan 22	Smart Economy	
5	Jan 24	Smart Living	
6	Jan 29	Smart People	
7	Jan 31	Smart Mobility	
8	Feb 05		What is Data?
9	Feb 07		Data Organizations & Databases
10	Feb 12		Sensor Networks
11	Feb 14		Data Grids
12	Feb 19	Exam – 1 (In Class)	
13	Feb 21	Smart Energy & Smart Water	
14	Feb 26	Urban Planning	
15	Feb 28	Urban & Smart City Platforms	
16	Mar 05		Information Analytics
17	Mar 07		Cloud Computing
		SPRING BREAK	
18	Mar 19		Machine Learning & Deep Learning
19	Mar 21	Guest Lecture – 1	
20	Mar 26	Smart City Networks	
21	Mar 28		Visual Informatics
22	Apr 02	Cohesion and Efficiency of Smart Cities	
23	Apr 04	Standards & Normalization	
24	Apr 09	Guest Lecture – 2	
25	Apr 11	Guest Lecture – 3	
26	Apr 16	Future of Smart Cities	
27	Apr 18	Project	
28	Apr 23	Presentations	
29	Apr 25	Presentations	
30	May 03 FRIDAY	Final Exam (Exam-2) In Classroom: FRIDAY	8:00-9:30 AM (note change in date/timing)