

EVDS 683.46

Fall 2016

H (3-0)

Advanced Special Topics in Environmental Design (Smart Communities)

LEC 8 MW 12:30-13:45 PF 2140

Instructor: Dr. Thomas P. Keenan, FCIPS

Instructor contact information: keenan@ucalgary.ca (403) 220-7437

Office location: PFB 4184

Office hours: By appointment, after class, and by email
Thematic inquiry and design related to environmental design topics.
This course may be repeated for credit.

Introduction

Smart (also known as Intelligent) Communities may be large or small, physical or virtual, and the concept is more about the creative use and application of technology than simply acquiring and using the latest high tech gadgets... In many ways, Smartness is a “platform technology” to develop and implement leading-edge ideas that involve some aspect of technology. The social, economic, technical, design and ethical aspects of Smart Communities must all be considered.

As an example of the complexity in building smart communities, Christchurch, NZ has deployed an extensive network of sensors to provide early warning of future earthquakes. They are now realizing that these sensors can also be used to monitor traffic, and even the movements of people. Wholesale invasion of privacy is a real possibility, so they need to be cognizant of all aspects of a “smart” technology before implementing it.

The NYC-based Intelligent Community Forum (<http://www.intelligentcommunity.org/>) defines Intelligent Communities as those which are responding astutely to the challenges presented by globalization, the enormous changes in communications and information technology that have taken place over the past few decades, and the resulting economic transformations.

They note that these communities tend to display six key indicators:

- Excellent access to high speed communications
- An extensive knowledge workforce
- A culture of innovation in businesses, governments, and institutions such as universities and hospitals
- Digital equality in both technology access and skills

- Sustainability, in terms of improving living standards without comprising the ability of future generations to do the same
- Advocacy to encourage others to embrace change as well as the courage and determination to help drive it.

This course will involve a study of Smart Communities principles as well as how existing and proposed communities are trying to be “intelligent”. Each student will make presentations on aspects of “smartness” that are of personal interest, then, singly or in groups, formulate a well-informed personal vision of what makes a particular community “Smart”. This understanding may provide a significant advantage as you pursue your chosen career, be it Planning, Architecture, or something else.

This course is suitable for graduate students in any of the course or thesis-based programs of EVDS, as well as from other faculties. Diversity of backgrounds is definitely a strength of this program.

Objectives

1. To create a personal definition of “a Smart Community” that is consistent with, and expands upon, the generally accepted ones, and relates, in a meaningful way, to the student’s own interests and research endeavor.
2. To acquire sufficient technological background to appreciate the decisions that must be made in becoming a Smart Community
3. To critically evaluate existing communities that claim to already be, or in the process of becoming, a Smart Community.
4. To understand the relationship between Smart Communities and concepts such as urban sprawl, energy conservation, economic opportunity, and sustainability.
5. To appreciate the past, present and future of the Smart Community movement, and how it relates to, and differs from, concepts such as Teleports, Creative Cities and infrastructure projects such as Alberta’ SuperNet and Australia’s NBN.
6. To complete a substantial research project relating to the design of an actual or envisioned Smart Community, as well as an electronic “Resource Binder” consisting of relevant information, suitably annotated.

Teaching Approach

This is a seminar course. Active participation will be expected. No specific technical background is required as relevant concepts will be introduced in class and through background readings. The course will begin with a brief immersion in information and communications technology, intended to prepare those with only a general knowledge of this field to adequately understand and evaluate the technological issues and decisions involved in building and sustaining a Smart Community. Existing communities that make “Smart Community” claims will be assessed through written materials, their web pages, interviews and guest speakers. Students will prepare both a minor and a major presentation, the first on a very limited topic area chosen in consultation with the instructor, and the latter on a vision and roadmap for creating a specific Smart Community. The major presentation will also be documented in written form. Students may opt to work in groups of two for the major presentation and written paper. In doing so, they agree to accept the grade assigned to their group as their own grade for these components, and acknowledge that the expectation for the quantity and quality of these components is substantially higher if two students are working on it.

Content: Topic Areas and Detailed Class Schedule

1. ICT primer for non-specialists, covering the terminology and concepts of information and computer technology, especially as it relates to Smart Community applications.
2. The definition(s) of a Smart Community and why everyone wants to be one.
3. Applications that foster Smart Communities.
4. The non-commercial and NGO Smart Communities movements
5. Commercial smart community programs, e.g. IBM's Smarter Planet
6. The social, economic, political and other implications of being a Smart Community.
7. Privacy and security aspects of Smart Communities
8. Networking among Smart Communities.
9. Are virtual Smart Communities fundamentally the same or different from geographical ones?
10. Future trends

Course Expectations and Means of Evaluation

Students will be expected to attend all seminar meetings, and should notify the instructor by email if an emergency prevents attendance. Students will also be expected to read assigned readings and come to class prepared to discuss the issues and concepts raised in the readings and other assignments. Discussions will be respectful of all opinions.

Quality of writing (spelling, grammar, clarity) or other forms of communication will be a component of the assessment of all assignments.

The course components and weight are as follows:

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|--|------|
| 1. Open book quiz on information technology concepts | 10% |
| 2. Class presentation and discussion facilitation on a limited scope topic ("Minor project") | 25% |
| 3. Annotated Resource Binder (to be described in class) | 15% |
| 4. Class presentation on your vision of a Smart Community | 15% |
| 5. Written Report on your vision of a Smart Community | 35% |
| Total | 100% |

There will be no final exam.

It is not necessary to pass any specific component to obtain a passing grade in the course.

Grading Scale

Final grades will be reported as letter grades, with the final grade calculated according to the 4-point range. Assignments will be evaluated by numerical grades, with their letter grade equivalents as shown.

| Grade | Grade Point Value | 4-Point Range | Percent | Description |
|-------|-------------------|---------------|----------|---------------------------------------|
| A+ | 4.00 | 4.00 | 95-100 | Outstanding - evaluated by instructor |
| A | 4.00 | 3.85-4.00 | 90-94.99 | Excellent - superior performance |

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|----|------|-----------|----------|--|
| | | | | showing comprehensive understanding of the subject matter |
| A- | 3.70 | 3.50-3.84 | 85-89.99 | Very good performance |
| B+ | 3.30 | 3.15-3.49 | 80-84.99 | Good performance |
| B | 3.00 | 2.85-3.14 | 75-79.99 | Satisfactory performance |
| B- | 2.70 | 2.50-2.84 | 70-74.99 | Minimum pass for students in the Faculty of Graduate Studies |
| C+ | 2.30 | 2.15-2.49 | 65-69.99 | All final grades below B are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements. |
| C | 2.00 | 1.85-2.14 | 60-64.99 | |
| C- | 1.70 | 1.50-1.84 | 55-59.99 | |
| D+ | 1.30 | 1.15-1.49 | 50-54.99 | |
| D | 1.00 | 0.50-1.14 | 45-49.99 | |
| F | 0.00 | 0-0.49 | 0-44.99 | |

Notes:

- A student who receives a "C+" or lower in any one course will be required to withdraw regardless of their grade point average (GPA) unless the program recommends otherwise. If the program permits the student to retake a failed course, the second grade will replace the initial grade in the calculation of the GPA, and both grades will appear on the transcript.

Course Readings

Weekly **required readings** will be available on the course D2L site, and students are encouraged to share additional resources with the class through the **D2L discussion groups**.

It is important that you check D2L every week.

Special Budgetary Requirements

None.

Notes:

1. Written work, term assignments and other course related work may only be submitted by email if prior permission to do so has been obtained from the course instructor. Submissions must come from an official University of Calgary (ucalgary) email account.

2. Academic Accommodations. Students who require an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to their Instructor or the designated contact person in EVDS, Jennifer Taillefer (jtaillef@ucalgary.ca). Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/

3. Plagiarism - Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Most commonly plagiarism exists when:(a) the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test),(b) parts of the work are taken from another source without reference to the original author,(c) the whole work (e.g., an essay) is copied from another source, and/or,(d) a student submits or presents work in one course which has also been submitted in another course(although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved. While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism is an extremely serious academic offence. It is recognized that clause (d) does not prevent a graduate student incorporating work previously done by him or her in a thesis. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.

4. Information regarding the Freedom of Information and Protection of Privacy Act (<http://www.ucalgary.ca/secretariat/privacy>) and how this impacts the receipt and delivery of course material.

5. Emergency Evacuation/Assembly Points (<http://www.ucalgary.ca/emergencyplan/assemblypoints>)

6. Safewalk information (<http://www.ucalgary.ca/security/safewalk>)

7. Contact Info for: Student Union (<https://www.su.ucalgary.ca/contact/>); Graduate Student representative (<http://www.ucalgary.ca/gsa/>) and Student Ombudsman's Office (<http://www.ucalgary.ca/ombuds/>).