GPHY 421.01: Sustainable Cities

Ulrich Kamp

University of Montana - Missoula, ulrich.kamp@umontana.edu

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Sustainable Cities
(GPHY 421)

- Spring 2014 -
Class Meets: MWF 12:10-1:00 pm; Location: Health Science 207

Professor Ulrich Kamp, Ph.D.
Department of Geography
Stone Hall, Room 205
Tel.: 243-6469, Fax: 243-4840
ulrich.kamp@umontana.edu
http://www.cas.umt.edu/geography/people/facultydetails.cfm?id=609
Office Hours: M 3-4 pm and W 2-3 pm; and by appointment

Course Description

Today, more than 50% of the World’s population lives in urban environments and this urbanization comes at high environmental costs: a typical city covers only 1% of its ecological footprint, i.e. 99% of its ecological footprint is beyond its city borders. Many cities around the world understood this dilemma and are part of a “green cities” movement that aims to make cities more livable and sustainable.

The course is a discussion of “green” initiative efforts in cities around the world and follows a multidisciplinary approach by integrating urban-focused concepts from history, sociology, ecology, geography, and architecture and planning. Topics include, for example, the history of cities, occidental and oriental cities, air pollution and climate change, urban sprawl and smart growth, alternative energy, public transportation, waste management, water management, green architecture, environmental and social (in)justice, cultural diversity, and urban forestry and agriculture. We will discuss how “green” cities of today are, and how serious they take the concept of urban sustainability. We will cover examples such as Amsterdam, Auckland, Beijing, Berlin, Chicago, Copenhagen, Curitiba, Portland, San Francisco, Seattle, Singapore, Toronto, Vienna, and Zurich. We will also discuss experiments of sustainable urban design such as Arcosanti, Masdar, and New Urbanism. We will learn that many of the success stories of “greening” the city were actually initiated by grassroots, non-profit, and non-governmental organizations, and by individuals who took the function of responsible citizenship seriously. However, beyond this, we will also learn that the “greening a city” undertaking must root in supporting relationships and interactions between the three fundamental sustainability pillars: social, environmental, and economic.

Facing the problems of current urban environments, we have to find answers to the questions:

- Are cities “livable” places?
- What are the World’s “greenest” and most livable cities?
- How can a city become “green”?
- How does the character of the civil society influence the “greening” of a city?
- What are the communitarian foundations for “greening” a city?
- What is the future of our cities?
Goals

The overall course goal is to increase students' knowledge of the special environmental and socio-economic problems that cities in around the globe face, and to develop solution strategies. Critical thinking is important for an objective assessment of past, present, and future developments. Students will learn that only an urban society that is based on communitarian principles is successful in becoming "green" and sustainable. To achieve this, individuals have to take on a responsible citizenship that aims to improve urban live for all. By the end of this course, you should be able to:

1. Identify and discuss topics related to "green" cities around the world.
2. Identify and discuss existing sustainability programs in cities around the world, and evaluate to what degree these cities are serious about their sustainability initiatives.
3. Evaluate multiple perspectives about urban live and urban sustainability by integrating a diverse key of disciplines.
4. Access and evaluate primary literature, identify a study question, collect and analyze data to address the question, and summarize findings in standard formats (written text and oral presentations).
5. Evaluate the work or class peers in a constructive and respectful manner.

Learning Outcomes

1. Demonstrate an understanding of the way how cities can become more livable and sustainable places.
2. Demonstrate an understanding of the way that responsible citizenship makes for a communitarian society, and a communitarian society makes for a more sustainable society.
3. Evaluating ways that help in becoming a responsible local citizen, and a responsible global citizen.

Course Policies

Class Attendance and On-time Appearance

Attendance will be noted. Attendance during the lectures is essential to your general success in class. Excessive lateness disturbs everyone else – please appear on time. You should have your lunch before or after class.

Readings


While you have to purchase the required textbook, the reports by Siemens will be made available on Moodle on time. The scheduled readings will be discussed in class, so please read the assigned text before class in order to be prepared.
Attendance

Attendance is recorded. Class attendance is essential to your success in class. Excessive lateness disturbs everyone else – please appear on time. You should have your lunch before or after class.

Additional Course Material

All additional course material will be made available online through Moodle after the lectures in class. Download and use these resources for your studies in preparation for assignments and exams.

Open Door & Discussion

Please feel free to stop by during office hours or when my door is open to ask any questions you may have regarding the class. Please use this opportunity WHEN NEEDED.

Research Paper and Presentation

Together with two partners you will write a research paper on a specialized topic that matches the main topics of the course (see “Tentative Schedule”). The main body (text) of this research paper is approximately 15 pages long (double-spaced, Times Roman 12, including cover page, table of content, and references) plus appendix including figures and tables. This must be submitted by the due date. You (and your peer/s) will develop your paper in steps by submitting five “Preparation” assignments: 1 – Reference List 1; 2 – Table of Content; 3 – Reference List 2; 4 – Abstract; 5 – Draft.

Your group will give a class presentation at the end of the term about your topic. The presentation is 15 minutes long followed by a brief discussion.

All work has to be submitted in the two following ways by each group member. Documents that do not have such file names will be deleted and not counted as submitted documents.

   1. Hard copy of Microsoft Word, Excel, and/or Powerpoint documents including all names.
   2. Electronic version, uploaded to Moodle. The document file name has to follow this structure:
      “referencelist1_yourlastname_yourtopic.docx”
      “tableofcontent_yourlastname_yourtopic.docx”
      “referencelist2_yourlastname_yourtopic.docx”
      “abstract_yourlastname_yourtopic.docx”
      “finalpaper_yourlastname_yourtopic.docx”
      “presentation_yourlastname_yourtopic.pptx”

An excellent reading for preparing a research paper is:


Graduate Increment

Graduate students will be required to develop and present a more comprehensive research paper that includes analytical elements coming from techniques learned in the course. The analysis must follow the approach presented in the textbook and answer the question: how seriously does the city of choice take its sustainability initiatives?

Examinations

All three exams will take place in the classroom. They are subjective, not comprehensive; this means that the exam will encompass only the material that is covered in lectures and discussions between exams. In general, each examination will be a combination of multiple choice or, if the class size is small enough, essay questions may be included. The rules for the examinations are as follows:
1. You will take each exam as scheduled. Make-up exams are not allowed—except as listed in the Make-up exam policy below.

2. Material for the exam will be from the required textbook and other readings and all other distributed material. Attendance for each lecture is recommended (and taken) in order that you take notes for each exam.

3. Make-up Exam Policy:
   • All Students must take the final exam as scheduled. Conflicts must be settled with the Dean. This is University Policy and there are no exceptions.
   • All Students must take each exam as scheduled. If an exam is missed, the student will receive a zero (0) on the exam.
   • These are the only exceptions that will warrant a make-up exam: university events—such as sporting or music events; military obligations; religious holidays; serious family emergency; medical emergencies or serious illness; court-imposed legal obligations such as subpoenas or jury duty; serious weather conditions; special curricular requirements such as judging trips or field trips.
   • Any student requiring an exception under this policy must do so prior to the scheduled exam—unless in the case of an actual emergency (sudden hospitalization). A student must provide official documentation of the reason for absence in advance.
   • If a make-up exam is approved. It must be completed within one week of the original exam and scheduled with the Teaching Assistant.

Accommodations

Students with disabilities who need assistance should contact the instructor immediately so that necessary forms and procedures can be completed. Please review the university’s website if there are any questions: http://www.umt.edu/dss/default.htm.

Academic Integrity

“All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at: http://life.umt.edu/vpsa/student_conduct.php.”

Work Evaluation and Final Grading

| Three exams (50 points each) | 150 points |
| Six Research Paper Preparation Assignments (25 points each) | 150 points |
| Research Paper (Final Version) | 100 points |
| Presentation | 100 points |
| Class Attendance | 100 points |

**Total Points** 600 points

Grading Scheme

<table>
<thead>
<tr>
<th>97-100</th>
<th>A+</th>
<th>87-89</th>
<th>B+</th>
<th>77-79</th>
<th>C+</th>
<th>67-69</th>
<th>D+</th>
<th>&lt;60</th>
<th>F</th>
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<tbody>
<tr>
<td>93-96</td>
<td>A</td>
<td>83-86</td>
<td>B</td>
<td>73-76</td>
<td>C</td>
<td>63-66</td>
<td>D</td>
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<tr>
<td>90-92</td>
<td>A-</td>
<td>80-82</td>
<td>B-</td>
<td>70-72</td>
<td>C-</td>
<td>60-62</td>
<td>D-</td>
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Missed Classes

| 0-3 | A |
| 4   | B |
| 5   | C |
| 6   | D |
| >6  | Expulsion from Class |
Late assignments will be penalized. An assignment that is turned in one day late will have 10% of the available points deducted from the score. An assignment that is turned in two days late will have 20% of the available points deducted from the score. No credit will be awarded for assignments that are more than two days late. "Day" denotes a business day (Monday through Friday) not the time interval between class meetings. For example, an assignment that is due on Thursday but turned in on Monday will be counted two days late.
# Tentative Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Other</th>
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<tbody>
<tr>
<td><strong>WEEK 1</strong></td>
<td></td>
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<tr>
<td>27-Jan</td>
<td>Introduction to the Course</td>
<td></td>
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<tr>
<td>29-Jan</td>
<td>Lecture: Sustainability Concepts</td>
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<td></td>
<td>Reading Discussion: Textbook Chapter 1 – Conceptual Framework</td>
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<tr>
<td>31-Jan</td>
<td>Lecture: Global Urbanization</td>
<td>Submit Topic Preference</td>
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<tr>
<td><strong>WEEK 2</strong></td>
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<tr>
<td>03-Feb</td>
<td>Lecture: The History of Cities</td>
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<tr>
<td>05-Feb</td>
<td>Reading Discussion: Textbook Chapter 2 – Measuring Sustainability</td>
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<td></td>
<td>Team Meeting</td>
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<tr>
<td>07-Feb</td>
<td>Lecture: Transportation</td>
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<tr>
<td><strong>WEEK 3</strong></td>
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<tr>
<td>10-Feb</td>
<td>Guest Lecture: Bob Giordano (Missoula Institute for Sustainable Transportation)</td>
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<tr>
<td>12-Feb</td>
<td>Movies: The Suzuki Diaries – Copenhagen (Bikes), Madrid (Trains)</td>
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<td></td>
<td>Reading Discussion: Textbook Chapter 3 – Environment, Energy and Sustainability</td>
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<tr>
<td>14-Feb</td>
<td>Movie: Understanding Urban Sprawl</td>
<td>Submit Reference List 1</td>
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<tr>
<td><strong>WEEK 4</strong></td>
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<tr>
<td>17-Feb</td>
<td><strong>Holiday: President’s Day</strong></td>
<td>No Class</td>
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<tr>
<td>19-Feb</td>
<td>Lecture: Urban Sprawl and Smart Growth</td>
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<tr>
<td>21-Feb</td>
<td>Movie: Design e² – Amsterdam (Residential Reuse)</td>
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<td>Reading Discussion: Textbook Chapter 4 – Growth vs. Smart Growth</td>
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<tr>
<td><strong>WEEK 5</strong></td>
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<td>24-Feb</td>
<td>Lecture: Noise and Visual Pollution</td>
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<tr>
<td>25-Feb</td>
<td>Lecture: Climate and Air Pollution</td>
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<td></td>
<td>Reading Discussion: Textbook Chapter 5 – Communitarian and Participatory Foundations</td>
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<tr>
<td>27-Feb</td>
<td>Guest Lecture: Cherie Peacock (UM, Greening UM)</td>
<td>Submit Table of Content</td>
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<td><strong>WEEK 6</strong></td>
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<tr>
<td>03-Mar</td>
<td><strong>Exam 1</strong></td>
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<tr>
<td>05-Mar</td>
<td>Guest Lecture: Kevin McManigal (UM, Geography: Living Off the Grid)</td>
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<td>07-Mar</td>
<td>Lecture: Energy</td>
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<td>Movie: The Suzuki Diaries – Denmark (Wind Energy), Spain (Solar Energy)</td>
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<td><strong>WEEK 7</strong></td>
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<td>10-Mar</td>
<td>Lecture: Water (Chicago)</td>
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<tr>
<td>12-Mar</td>
<td>Guest Lecture: David Shively (UM, Geography: Sustainable Water Use in Montana)</td>
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<tr>
<td>14-Mar</td>
<td>Movie: Design e² – New York (Affordable Green Housing)</td>
<td>Submit Reference List 2</td>
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<td>Reading Discussion: Textbook Chapter 6 – Equity and Justice</td>
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<td><strong>WEEK 8</strong></td>
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<tr>
<td>17-Mar</td>
<td>Lecture: Waste (Chicago and Berlin)</td>
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<tr>
<td>19-Mar</td>
<td>Lecture: Urban Forestry (Green Belts United Kingdom)</td>
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<tr>
<td>21-Mar</td>
<td>Movie: Design e² – Cairo (Greening Efforts)</td>
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<tr>
<td></td>
<td>Reading Discussion: Textbook Chapter 7 – Sustainability Policies</td>
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| WEEK 9 | 24-Mar | Reading Discussion: Green City Index – Latin America  
Lecture: Brasilia  
26-Mar | Movie: Sustainable Urban Living (Curitiba) (25 min)  
Reading Discussion: Textbook Chapter 11 – Correlative Patterns  
28-Mar | Movie: Design e² – Bogota (Sustainable Urban Planning)  
Reading Discussion: Textbook Chapter 12 – Summary and Conclusion  
Submit Abstract  

| WEEK 10 | 31-Mar | Spring Break  
02-Apr | Spring Break  
04-Apr | Spring Break  
No Class  

| WEEK 11 | 07-Apr | Reading Discussion: Green City Index – Europe  
Movie: The Suzuki Diaries – Berlin (Energy)  
09-Apr | Guest Lecture: Chase Jones (City of Missoula, Office of Planning and Grants)  
11-Apr | Exam 2  

| WEEK 12 | 14-Apr | Reading Discussion: Green City Index – Asia  
Movie: Design e² – China (Sustainable Design)  
16-Apr | Reading Discussion: Green City Index – Africa  
Reading Discussion: Green City Index – U.S. and Canada  
18-Apr | Lecture: Future Cities (Arcosanti, Dubai, Masdar)  
Submit Draft  

| WEEK 13 | 20-Apr | Student Presentations: (1) New York, (2) Los Angeles  
22-Apr | Student Presentations: (3) Chicago, (4) Houston  
25-Apr | Student Presentations: (5) Philadelphia, (6) San Francisco  

| WEEK 14 | 28-Apr | Student Presentations: (7) Seattle, (8) Portland  
30-Apr | Student Presentations: (9) Denver, (10) Albuquerque  
02-May | Student Presentations: (11) Austin, (12) Jacksonville  

| WEEK 15 | 05-May | Student Presentations: (13) Boston, (14) Boulder  
07-May | Student Presentations: (15) Santa Monica, (16) Chattanooga  
09-May | Student Presentations: (17) TBA, (18) TBA  
Submit Paper + PPT  

| WEEK 16 | 13-May | Exam 3, 10:10 am – 12:00 pm  

Potential Readings

(Only excerpts will be assigned rather than entire books).


  - Chapter 14: Human Effects. Air Pollution and Heat Islands (Pages 424-444).


  - Chapter 27: Urban Environments (Pages 575-597).


  - Chapter 13: Land-Use Planning (Pages 269-288).


  - Chapter 6: The Urban Physical Environment (Pages 97-118).
  - Chapter 9: Transportation Processes (Pages 157-199).


  - Chapter 25: Sustainable Cities. Urban Land Use and Management (Pages 660-688).


• Chapter 16: Nonagricultural Uses of Soils (Pages 374-394).


**Internet Sources**
