Course Description

Taken collectively, the recent emergence of an obesity pandemic, increasing awareness of the environmental destruction associated with auto dependence, and increasing energy costs collectively suggest that investments in non-motorized transportation may soon emerge as a form of win–win public policy. At a time when Canadian and U.S. federal mandates are calling for reductions in air pollution associated with vehicular travel, currently dominant approaches to designing urban environments often serve to inhibit non-motorized travel.

This class is set within this socio-political backdrop, students will learn about the role of non-motorized transportation as a tool for the improvement of personal and environmental health. This class will familiarize students with factors that impact the choice to walk and bike and how to apply findings from research to specific transportation planning and programming (investment) processes and projects.

To meet clean air requirements, promote physical activity and public health, and to generate more lively / viable urban spaces, it is essential that site planning and urban design principals be re-introduced which encourage walking and biking as viable and even competitive travel options. This course will examine the historical relationship between urban design and demand for non-motorized travel. Moreover, the manner by which we design our communities dictates the relative ease of access to opportunities on foot, bike car, or transit. A focus of the class will be on exploring the synergies between transit as a form of regional mobility and non-motorized transportation as a form of local accessibility – or otherwise stated, how these two modes rely on one another to be viable.

Often, it is the nature of the transportation network that is the single most distinct feature that characterizes a place or gives it a sense of uniqueness. For example, the type of a roadway network (e.g. grid vs. cul-de-sac) used in a new subdivision will affect not only
the number of buildable lots or the amount of money required to complete the project, but will also affect the ability for the future inhabitants to walk to shopping, recreational opportunities, or employment. In addition, this transportation decision will affect the ability to use public transportation to access these and other activities.

Transportation decisions, when coupled with land use or development decisions, have arguably the greatest collective impact on the quality of life of the inhabitants of a community. This becomes particularly the case with elderly and disabled populations. Research on the relationship between land use and travel choice indicates that the design of the “pedestrian environment” has a dramatic impact on the ability to reduce polluting forms of travel (single occupant vehicle) and the ability to promote transit. Factors of the pedestrian environment found to be most influential include:

- presence of a continuous sidewalk system;
- presence of dedicated bicycle facilities;
- building setbacks;
- the design, supply, and location of parking;
- ability to cross streets;
- buffering from vehicular traffic;
- size of block faces;
- lighting;
- presence of other pedestrians;
- “eyes on the street”;
- presence of public spaces;
- levels of employment density;
- levels of residential density;
- levels of land use mix; and
- overall continuity of the street network

This course will provide the students with a framework to assess different urban environments (e.g. Vancouver’s West End vs. Burnaby and Richmond typologies) and to be able to discern the level of non-motorized accessibility that is present and the factors that affect the choice and likelihood of travel on foot or by bike. Students will gain a point of reference to evaluate both development and transportation investment proposals (in terms of the level of accessibility provided to transit and non-motorized modes of

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1 1000 Friends of Oregon, 1994; Cervero, 1996, Moudon, 1996.
travel). Based on the readings, lectures, and class projects, students will become more capable of identifying opportunities to increase non-motorized accessibility, and thereby improve the quality of life of urban populations within their work as planners, health care practitioners, geographers, and within other professional endeavors.

Class Work
Students will conduct three separate projects for this class and have an in class presentation on their final paper. Students will also be evaluated based on class participation noted below in #4. Students will be responsible for the discussion of questions and to assist the professor with the copying of readings on the class period indicated with their name on the schedule. This may change based on the final listing of students in the class.

Each project will be assigned with a more detailed description of the purpose and requirements of the project. Assignments I & II are to be no more than 12 pages and assignment III is to be no more than 15 pages in length. The three assignments are noted in 1-3 below and #4 refers to class participation:

1) **Assignment I -- 25 points** – A summary of the literature on the ways that the development and design of communities can support and promote a range of public health outcomes. It should review of some basic arguments and associated evidence that supports the need for increased physical activity and less sedentary lifestyles. The review should include some reference to ways in which the built environment influences travel patterns and overall activity levels. This is to be a 12 page paper followed by a list of sources in the form of bibliography. All sources to be referenced and cited. Assigned Jan 5 and due Jan 26.

2) **Assignment II -- 25 Points** – A review of the approaches taken by the BC government to promote physical activity and ways in which the Act Now BC and BC healthy Communities has been effective in promoting active communities in the lower mainland. The paper will involve an assessment of the investments that
have been made in creating active communities in BC and any results from these investments in terms of their success. A summary of this review work will be written up in a 12 page paper documenting sources and methods used to evaluate the projects implemented so far by the BC government to promote active healthy communities. Assigned Jan 26 and due March 23rd.

3) **Assignment III -- 40 points** -- Final term paper on a topic selected by the student focusing on the impacts of community design on the physical and mental health of a target population (elderly, youth, or poor). The paper should review land development, transportation investment, and other programmatic strategies (local food coops, community gardens) that can be employed that would specifically improve the physical and mental health of the chosen target population. Strategies should be evaluated in terms of being nearer or longer term approaches, and any history of implementation and related success. This will be a 15 page paper and will culminate in an in class presentation on the last day of classes for the term. Assigned March 23rd and due April 13th.

4) **Class Participation -- 10 points** – Class participation based on attendance and the submittal of questions from readings. Each student will be required to lead, or co-lead one in-class session where the readings are discussed.

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**Class Schedule:**

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<thead>
<tr>
<th>Lecture</th>
<th>Topic</th>
<th>Guest Lecturer</th>
<th>Projects / student In Charge</th>
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<tbody>
<tr>
<td>01/05</td>
<td>Overview of Class and “Weight of the World” Video readings Frumkin Ch 1-3; Frank Ch 1-2</td>
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<td>01/12</td>
<td>Historical Relationships Between City Planning and Public Health – the Origins of Sprawl readings Frank Ch 6-9; Jackson Crabgrass Frontier 1985.</td>
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<td>01/19</td>
<td>Understanding the Built Environment readings Frumkin Ch 4; Frank and Engelke - Multiple Impacts of the Built Environment on Public Health; Friedman et al JAMA 2001; Pope et al Environmental Health Perspectives 2002.</td>
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<td>01/26</td>
<td>Air Quality and Respiratory Impacts of Sprawl readings Frumkin Ch 5; Frank et al AJPM 2005; Frank Chapters 6-11;</td>
<td>Michael Brauer</td>
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<td>Date</td>
<td>Topic</td>
<td>Instructor</td>
<td>Readings</td>
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<td>02/02</td>
<td>Physical Activity Relationships With the Built Environment</td>
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<td>Saelens et al Annals of Behavioral Medicine 2003; Sallis et al Transportation Research 2004; Handy et al AJPM 2002</td>
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<td>02/09</td>
<td>Non-Motorized Travel / Obesity and Community Design</td>
<td>Cara Fisher, BCRPA</td>
<td>Frumkin Chapter 6; Frank Appendix pp 201; FHA, Traffic Calming, Auto-Restricted Zones... (handout), Danish Case Studies, Ewing, Blodgett (Roundabouts)</td>
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<td>02/16</td>
<td>No Class</td>
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<td>03/02</td>
<td>Built Environment Features and Body Weight; Relationships Across the Life Span between Environments and Community Design</td>
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<td>Frank et al AJPM 2004; Ewing et al AJPH 2003; Saelens et al AJPH 2003; Giles Corti et al AJPH 2003</td>
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<td>03/09</td>
<td>Traffic, Pedestrian, and Bicycle Safety</td>
<td>TBA</td>
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<td>03/16</td>
<td>Conflicts Between Physical Activity Benefits and Air Pollution Exposure of Walkable Environments and Solutions</td>
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<td>Moe, Reavis, and Dixon (handouts), Fort Collins, CO Case Study; FDOT Report on Ped LOS</td>
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<td>03/23</td>
<td>Sprawl and Mental Health</td>
<td>TBA</td>
<td>Marshall et al 2009; Frumkin Ch 8; Kunstler Home From Nowhere;</td>
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<td>03/30</td>
<td>Sprawl and Social Capital</td>
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<td>Frumkin Ch 9; Putnam Bowling Alone 2000.</td>
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<td>04/13</td>
<td>Student Presentations</td>
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**Meeting Times with Professor**

Available upon request at a scheduled and mutually convenient time.

**Reading Materials**

Readings will be provided via pdf files to the students drawn from a variety of sources including:


Special Needs:
Please inform the course instructor as soon as possible if you have special needs and require accommodation of any kind. Please visit http://www.students.ubc.ca/access/ for more information on campus resources.

Academic Integrity:
The University is an environment that fosters learning and the free exchange of ideas while maintaining responsibility and integrity. Violations of academic integrity include but are not limited to plagiarism, cheating, dishonesty, fabrication of information, submitting previously completed work and misusing or destroying school property. Any material or ideas obtained from digital or hard copy sources must be appropriately and fully referenced. Students are expected to uphold all the standards articulated in UBC's academic integrity site. If the instructor finds evidence of a violation of academic integrity the case will be investigated by the Faculty of Graduate Studies and, where appropriate, action will be taken. Disciplinary action may lead to a failing grade or suspension from the University.

Supplemental Materials:
UBC has numerous research, pedagogical and health resources available to students. These include The centre for Teaching and Academic Growth (TAG), the Irving K. Barber Learning Centre, the Writing Centre, Student Health Services and student Counselling Services. Please make use of these resources or contact the instructor if you have any questions. Students new to UBC are especially encouraged to become familiar with the broad spectrum of resources that UBC provides.