

# **Course Syllabus**

## **Urban Smart Growth Strategies EVPP 490/505**

**Summer Session A (June 1 – July 4, 2020), Online Course**

**Instructor: Dr. William Roper (wroper@gmu.edu)**

### **3 credits**

This course addresses the concepts, practices, and tools for smart growth sustainable urban planning and provides an understanding of how to apply these to urban communities. The sustainable urban development is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present but also for future generations to come. In other words, it is the development and restoration of urban areas that will meet the needs of the present without compromising the ability of future generations to meet their own needs. The course addresses a number of urban design concepts for smart growth and sustainable development, including balanced land use planning principles; importance of an overall transportation strategy; providing urban tree coverage; leveraging public transportation accessibility; providing a spectrum of housing availability; integration of office, retail, and housing units; reduction of urban area environmental footprint; use of recycled, reused, reusable, green, and sustainable products; integration of renewable solar energy and wind power into buildings and government systems; transit-oriented development; innovative low-impact storm water management practices; reduction in urban heat island effects; urban water resource management; and energy efficiency and conservation.

### **Course Goal**

To introduce the concepts, practices, and tools for sustainable smart growth for urban planning, develop and understanding of how to apply these concepts, practices, and tools to urban communities.

### **Course Objectives will**

- Gain an understand the importance of sustainable urban growth and revitalization in today's global situation
- Acquire an understanding of the principals of sustainable urban planning
- Learn about the various tools and practices that are available to assist in the planning and development process for achieving sustainable urban communities
- Develop a deeper understanding, through case studies, of what has worked and what has not worked for a selection of different cities in applying smart sustainable strategies for urban development and revitalization.

## **Course Topic Areas**

A sample of topics that will be addressed in this course are listed below:

- Balanced land use planning principals
- Importance of an overall transportation strategy
- Leveraging public transportation accessibility
- Broad spectrum housing availability
- Integration of office, retail and housing units
- Reduction of urban area environmental foot print
- Use of recycled, reused, reusable, green and sustainable products
- Integration of solar and wind power into buildings and government systems
- Transit oriented development
- Urban water resource management
- Importance of community green spaces
- Environmental Protection
- Storm Water Management
- Heat Island reduction

## **Computer and Technical Requirements**

Working knowledge of computer word processing, spread sheet, presentation and browser programs is assumed. The George Mason Blackboard System will be used throughout the semester to provide lecture videos, supplemental material, power point presentations, reports etc. It will also be used for homework and for class announcements and feedback. The Black Board conferencing system will be used for Office Hours Meetings. Students should use microphone/audio headsets when attending office hour meetings and particularly when making a presentation during office hour meetings.

## **Participation Expectations**

The course consists of online lectures and presentations by the instructor. There are reading assignments from the text and assigned technical papers and reports related to the class for each module. There is also one weekly office hours meeting where assigned graduate students will make presentations on selected technical papers for that week. The instructor will also be providing additional material during these meetings, answering questions and leading discussion on current events related to the course. Undergraduate students are strongly encouraged to attend the four office hour meetings during the semester. Graduate students are expected to attend the office hour meetings. The office hour meetings will be held on Tuesdays at 8:00pm during the first four weeks of the course and make up part of your class participation grade.

## **Assignments**

In addition to listening to the lecture presentations and completing the reading assignments there will be a discussion question in each module that should be addressed in the discussion board in blackboard. Each week there will be executive summaries required for two of the papers identified in the modules for that week. In addition, graduate students will be required to prepare a PowerPoint presentation to be delivered during office hours and a detailed summary report for one of the papers during the semester. There is a final exam the last week of the course.

## **Textbooks**

The Smart Growth Manual, Andres Duany, Jeff speck and Mike Lydon, McGraw-Hill publishers, copyright 2010, at ISBN 978 – 0 – 07 – 137675 – 4

Rebuilding The American City: Design and Strategy For The 21st Century Urban Core, David Gamble and Patty Heyda, Rutledge Publishing, copyright 2016, ISBN: 978 – 1 – 138 – 79814 – 4 (pbk)

Creating Equitable, Healthy, and Sustainable Communities: Strategies for Advancing Smart Growth, Environmental Justice, And Equitable Development, EPA 231 – K – 10 – 005, [www.EPA.gov/smartgrowth](http://www.EPA.gov/smartgrowth), or [www.EPA.gov/environmentaljustice](http://www.EPA.gov/environmentaljustice), copyright 2013, ISBN 9781507684948 (to be provided by the instructor)

## **Comments from the Instructor**

The material covered in the course will address a comprehensive review of the major elements of smart growth strategies that urban areas may consider in developing sustainable smart growth policies. Example application experiences in a variety of urban areas will be presented and discussed throughout the course.

## **Weekly Schedule and Module Summaries**

This course is being taught during the “A” session of summer school which is five weeks in duration. There will be three modules covered per week during the first four weeks of the course. The fifth week will be the course final exam. Summaries of the contents of each module by week are provided below:

### **Week 1 (Module 1-3)**

#### Module 1

The first three modules will have a focus on regional considerations on smart growth. This module will explore and assess regional principles important for smart growth. The module will construct the relationships between smart growth and regional principles. There will be an assessment of growth priorities, community involvement, affordable housing, food security and legalizing smart growth. Other areas such as shared wealth, coordinating policies and limits on water for sustainable communities will be critically considered. Selected case studies will also be critiqued.

#### Module 2

In this module students will evaluate regional planning and the mapping of neighborhoods and districts. This will include the assessment of planning and mapping major corridors and regional centers. An examination of the dynamics of incentivized smart growth will be conducted. Implications of developing a green print map for a

region and the adoption of a smart growth code as well as the paradigms of rebuilding will be evaluated.

### Module 3

This module will introduce concepts in regional transportation planning as important smart sustainable growth tools. This will include an analysis of regional transportation and land-use connections. The concepts of multimodal balance, providing transportation choice and building public transit will be assessed in the context of smart regional planning. A case study of leveraging proximity and transit opportunities in a downtown district will be evaluated. The potential effectiveness of railway systems, highway-less towns and bicycle networks will be explored and evaluated. Case studies of congestion pricing and shared vehicle programs will be examined.

## **Week 2 (Modules 4-6)**

### Module 4

The next three modules will explore neighborhood issues related to smart growth planning. During this week we will be evaluating the natural context of neighborhoods and the important role this plays in quality of life and vitality in neighborhoods. This will include assessment of ways to preserve and celebrate nature in communities. The contributions of preserving trees, maintaining the soil, and managing storm water will be investigated. Lastly, the critical areas of urban parks, wetland preservation and natural corridors will be analyzed. A case study of leveraging underutilized land and infrastructure to expand the urban park system will be presented and evaluated.

### Module 5

This week's module will examine Neighborhood components that support smart sustainable growth. We will be evaluating components such as housing diversity, retail distribution and workplace distribution as variables to achieve livable and sustainable neighborhoods. Other community elements that will be assessed for their importance to the community are neighborhood schools, support services and civic sites. A case study that leverages community content to enhance the existing urban fabric will be presented and evaluated. We will also evaluate the impacts of open space, housing density and mixed-use concepts.

### Module 6

This week's module will evaluate the components of neighborhood structure. We will explore the use of neighborhood size and organization as planning strategies for sustainable smart growth. Other aspects of neighborhood structure that will be assessed include pocket parks, open-space configurations and transit orientation in communities. A case study on leveraging urban rivers as a natural resource and environmental asset in the community will be presented and assessed. The design rating system for leadership in Energy and Environmental Design (LEED) will be introduced and evaluated.

### **Week 3 (Modules 7-9)**

#### Module 7

The next three modules will evaluate aspects of street planning and design for application in sustainable communities. Module 7 will investigate thoroughfares from a network perspective and from a design perspective. This will include the road network design and how thoroughfares will be connected within and outside the community. Other elements that will be considered and evaluated will be block size and sidewalk locations and substitutes. Alternative considerations will be critiqued to include curvilinear streets and designed vistas. The concept of complete streets will be introduced and evaluated. Design considerations will include one-way and multilane streets, avenues and boulevards, free flow streets and slow flow streets.

#### Module 8

Module 8 will assess public and private streetscape design and planning. For public streetscapes there are often local design regulations or guidelines that address specific requirements. This will include guidelines for sidewalks, street trees, curbs and swales, street lights and pavement materials. For private streetscapes other considerations will be evaluated such as use of street walls, short setbacks and building attachments. The shared use of sidewalks by pedestrians and shops can conflict. These challenges can be addressed through design and management options for retail operations.

#### Module 9

This week we will be examining parking strategies that accommodate and support sustainable smart growth. Downtown parking policy will be evaluated from an availability and cost perspective. The high cost to the community of free parking will be examined.

Other parts of the parking challenge include the use of neighborhood parking, parking lot quality and location, parking lot access, hiding parking lots, garage setbacks and rear access parking. Because parking is directly linked to automobile use and density it is an important component of sustainable urban planning.

## **Week 4 (Modules 10-12)**

### Module 10

The next three modules will be addressing issues related to buildings and smart sustainable growth. This module will identify and assess the different building types that are found in many communities. The concept of form-based codes will be introduced, and illustrations of planning applications will be presented and evaluated. The major building types reviewed include mid-rise and high-rise, commercial lofts, apartment house, live/work buildings, row-houses, cottages, large houses and courtyard and sideward houses.

### Module 11

This module will introduce and evaluate green construction methods and materials. One aspect of green construction is energy use reduction. Buildings will be evaluated that use natural light and ventilation as well as energy-efficient design and on-site energy generation that can greatly reduce energy use. Other building attributes will be assessed that use sustainable building materials and have learning systems that operate the building at maximum efficiency.

### Module 12

The LEED rating system for green buildings will be used to evaluate differences between buildings. Different green technologies using landscaping, recycled materials and waste management practices will be compared. This module will also look at architectural design to create a desirable and functional community appearance. This can be achieved through regional design guidelines to produce consistency of appearance in community buildings. Considerations in building design include residential privacy. Other types of buildings may have special requirements such as historic buildings, historic schools and civic buildings. A case study using an anchor institution as a method for leveraging stability in a community will be introduced and evaluated. Subsidized housing considerations to architecturally fit into the neighborhood are also evaluated in this module.

## Week 5

The last week of the course will be devoted to completion of the final exam. The exam will cover all the material covered in the course, particularly, the text information and lectures. Students will have seven days to complete the exam and return their results to blackboard.

## Course Grading Matrix

<b>Activity</b>	<b>EVPP 490 % Contribution to Total Grade</b>	<b>EVPP 505 %Contribution to Total Grade</b>
Class participation/discussion board	20%	10%
Technical paper review summaries	30%	20%
Detailed Technical paper summary, PowerPoint development and presentation during Office Hours		20%
Final Exam	50%	50%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

## Grading Scale

Although grading should be a minor issue in this class, it may motivate some students by seeing their ongoing grade levels during the semester. It also helps the professor to understand the students' achievement level and whether they need help on a particular subject. However, grading is needed to make fair decisions about the students' learning efforts. In this regard, your grades will be determined according to the following assignments and criteria:

- A+ 97-100% (4.0)
- A 93-96% (4.0)
- A- 90-92% (3.67)
- B+ 87-89% (3.33)
- B 83-86% (3.0)
- B- 80-82% (2.67)
- C+ 77-79% (2.33)



C 73-76% (2.0)  
C- 70-72% (1.67)  
D 60-69% (1.0)  
F 0-59% (0)

## **University Services**

If you have a documented learning disability or other condition that may affect your academic performance, you should: 1. Make sure this documentation is on file with the Office of Disability Services (SUB I, Rm. 222; 993-2474; [www.gmu.edu/student/drc](http://www.gmu.edu/student/drc)) to determine the accommodations you need; and 2. Talk with me to discuss your accommodation needs. By GMU policy, instructors cannot make any accommodations for students without certification from ODS on the existence of a disability and the specific accommodations needed. If you feel you need to improve your writing skills, seek assistance from the University Writing Center (<http://writingcenter.gmu.edu/>). You will be expected to write academically for this class despite any linguistic deficits you have, so take full advantage of this service to earn good grades. If you are in personal distress, you can also get help from Counseling and Psychological Services (<http://www.gmu.edu/departments/csdc/>). Class topics may engender anxiety or challenge world views and the counseling services are there to help. If you are not a native English speaker and may be interested in linguistic and cultural enrichment services, you can contact GMU's English Language Institute ([eli.gmu.edu](http://eli.gmu.edu)). If you'd like to improve your study skills or test-taking strategies, you can get help from <http://caps.gmu.edu/learningservices>.

## **Honor Code Policy**

George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. Please consult the Student Handbook for a full definition of these terms. All violations of the Honor Code will be reported to the Honor Committee. Violations include but are not limited to the following: Cheating includes any "willful giving or receiving of an unauthorized, unfair, dishonest, or unscrupulous advantage in academic work over other students," by any means whatsoever, or the attempt to do so. Examples: Copying off another student; using notes during a closed-book exam; obtaining an assignment ahead of time from a student who took the class a previous semester; turning in the same work in more than

one class (without prior authorization from all professors concerned). Plagiarism includes “presenting as one’s own the works, the work, or the opinions of someone else without proper acknowledgement” or “borrowing the sequence of ideas, the arrangement of material, or the pattern of thought of someone else without proper acknowledgement.” Examples: getting your paper off the Internet; cutting and pasting paragraphs from other authors into your paper; turning in a paper that was written by somebody else; buying a paper; taking a written piece from someone else but rewording it so that it looks different. Lying includes “the willful and knowledgeable telling of an untruth, as well as any form of deceit, attempted deceit, or fraud in an oral or written statement relating to academic work.” Examples: lying to faculty member by saying you were sick when you were not; falsely claiming a death in the family or a personal emergency; falsifying any official documentation. Stealing encompasses “taking or appropriating without the permission to do so, and with the intent to keep or to make use of wrongfully, property belonging to any member of the George Mason University community or any property located on the University campus.” Examples: stealing exams or paper assignments from the professor for the purposes of cheating; selling notes you take in class to an individual or a business.

### **Bad Weather and Other Emergencies**

Call GMU’s closing line at (703) 993-1000 to see if classes are cancelled due to weather. You can also register for Mason’s emergency alert system at <https://alert.gmu.edu>. If I should have to cancel a class due to a personal emergency, I will make every attempt to e-mail you ASAP at your GMU email address.

### **Privacy Policy**

Please respect the privacy of any students who may disclose personal information in the class. This means we do not gossip about others’ opinions or personal status outside of class, whether or not we agree with their opinions. Please also respect everyone’s right to freely choose whether to disclose or not disclose personal information.