SEMINAR ON LANDSCAPE PERFORMANCE: FOCUS ON TEMPLE UNIVERSITY MAIN CAMPUS LANDSCAPE
Mary Myers, Ph.D., FASLA, FCELA

Spring 2014

Liacouras Walk, Main Campus
http://www.urbanoasis.org/temple/images/5674029616_22401a6f88.jpg

This course is open and welcoming to graduate students and upper level undergraduates. The purpose of the course is to introduce you to the role of metrics to assess built landscapes and to inform the design of proposed landscapes. First we will examine the concept of landscape performance and tools used to measure benefits. Second we shall apply various tools and methods to inform design scenarios for the Temple University Main Campus Landscape Plan.

OUTCOMES
The goal of the course is to provide you with an understanding of the concept of and tools associated with landscape performance. By the end of the semester you will:

* *understand the concept of landscape performance*
* *be able to apply different tools and methods useful in assessing landscape performance*
* *understand the value of empirical evidence to support design decisions and to assess performance of built projects*

The course will help you to develop your ability to make informed judgments about design. Specifically you will:

* *be able to define in writing the basic principles of landscape performance*
* *be able to identify resources for researching peer reviewed tools and methods for measuring landscape performance*
* *have employed a tool or set of tools to assess a particular performance benefit associated with the Temple University Main Campus Landscape Plan (i.e. stormwater mitigation; waste mitigation; carbon sequestration, urban heat island mitigation; energy use mitigation; social and human health improvement, etc.)*
* *have written a brief (2-3 page) review of the tool/method you selected including pros and cons of the tool and peer reviewed literature associated with it.*
* *have had work reviewed by professionals experienced with performance metrics (Landscape Architecture Foundation)*
* *have participated in meetings and presentations to professionals to report the results of performance assessment.*
* *have developed (as a group) a written report (20 +/- pages) to be delivered to the University Architect describing: the role of metrics to help guide TU Landscape Plan decisions; different design scenarios based upon projected performance benefits; and implications for future measurement and research associated with the Landscape Plan.*

GRADES
Grades are based on the following criteria:

Discussion and Participation	5%
Brief Review of tool/metric used	20%
Contributions to Class Report to the University Architect	75%

POLICES AND PROCEDURES
For Temple University Policies and Procedures, such as dismissal, add/drop dates, incompletes, etc. see http://www.temple.edu under policies and procedures under quick links

READINGS AND REFERENCES

Aguaron Elena and E. Gregory McPherson. 2012. Comparison of Methods for Estimating Carbon Dioxide Storage by Sacramento's Urban Forest. *Carbon Sequestration in Urban Ecosystems.* Springer Netherlands: Dordrecht, 43-71.

American Society of Landscape Architects, Ladybird Johnson National Wildflower Center and the National Botanic Garden. Sustainable Sites Initiative. 2009. Guidelines and Performance Benchmarks. Accessed March 12, 2013. http://www.sustainablesites.org/report.

Bonifaci, Emily. 2009. "Selling the urban forest: calculating the environmental benefits of street trees". Master of Landscape Architecture Thesis. Harvard University.

Bowman's Hill Wildflower Preserve. Plant Stewardship Index. Accessed June 2011. http://www.bhwp.org/psi/What-is-the-Plant-Stewardship-Index)

Boyd, James and Spencer Banzhaf. 2006. What are Ecosystem Services? The need for standardized environmental accounting units. Discussion Paper. *Resources for the Future.* 1-25.

Busch, Malte, Alessandra La Notte, Valerie Laporte, Markus Erhard. 2012. Potentials of quantitative and qualitative approaches to assessing ecosystem services. *Ecological Indicators.* 21: 89-103.

CCI and BirdLife International.2011. *Measuring and monitoring ecosystem services at the site scale.* Cambridge, UK: Cambridge Conservation Initiative and BirdLife International.

City of Philadelphia Water Department, Office of Watersheds. *Stormwater Management Guidance Manual, Version 2.0.* www.phillywatersheds.org.

Cooper Marcus, Clare and Marni Barnes. 1999. *Gardens in Health Care Facilities: Uses, Therapeutic Benefits and Design Recommendations*. New York: John Wiley & Sons.

Fike, Jean. 1999. Terrestrial and Palustrine Plant Communities of Pennsylvania. Pennsylvania Natural Diversity Inventory.

Francis, Mark. 2001. "A Case Study Method for Landscape Architecture." Landscape Journal. 20 (1) 15-29.

Francis, Mark and Lucas Griffith. 2011. "The Meaning and Design of Farmers' Markets as Public Space: An Issue-Based Case Study. Landscape Journal, 30 (2) 261-279.

Grahn, Patrik and Ulrike Stigsdotter. 2010. The relation between perceived sensory dimensions of urban green space and stress restoration. *Landscape and Urban Planning.* 94 (2010) 264-275.

Hopkins, JJ, H.M.Allison, C.A.Walmsley, M. Gaywood and G. Thurgate. 2007. Conserving biodiversity in a changing climate: guidance on building capacity to adapt. Department for Environment, Food and Rural Affairs, UK.

Jones-Walters, Lawrence. 2008. "Biodiversity in Multifunctional Landscapes." Journal for Nature Conservation. 16: 117—119.

Landscape Architecture Foundation Benefits Toolkit. http://www.lafoundation.org/research/landscape-performance-series/toolkit/

Landscape Architecture Foundation Landscape Performance Series. http://lafoundation.org/research/landscape-performance-series.

Lehrmann, Steffan. 2011. "Resources Recovery and Materials Flow in the City: Zero Waste and Sustainable Consumption as Paradigm in Urban Development" Journal of Green Building. 6 (3): 88-105.

Mace, Georgina, Ken Norris and Alastair Fitter. 2011. Biodiversity and Ecosystem Services. *Trends in Ecology and Evolution* 27 (1): 19-26.

McPherson, E. Gregory. 2010. "Selecting Reference Cities for i-Tree Streets." Arboriculture & Urban Forestry 2010. 36(5): 230-240

McPherson, E. Gregory, James R. Simpson, Paula J. Peper, Scott E. Maco and Qingfu Xiao. 2005. Municipal Forest Benefits and Costs in Five US Cities. *Journal of Forestry.* December 2005. 411-416.

McPherson, E. Gregory, James R. Simpson, Qingfu Xiao, Chunxia Wu. 2011. Million trees Los Angeles canopy cover and benefit assessment. *Landscape and Urban Planning* 99 (2011) 40-50.

Millennium Ecosystem Assessment. Millennium Ecosystem Assessment Synthesis Reports. 2005. http://www.unep.org/maweb

Myers, Mary. 2013 "Hydrologic Case Studies" and "Suburban Retrofit" in *Science of Sustainable Design.* San Diego: Cognella.

Nassauer, Joan. 2012. "The appearance of ecological systems as a matter of policy." Landscape Ecology. 6(4): 239-250.

Nowak, David J. and Daniel E. Crane. 2002. Carbon storage and sequestration by urban trees in the USA. *Environmental Pollution.* 116 (2002) 381-389.

Pennsylvania Department of Conservation and Natural Resources. January 1, 1988. *Native Plant Species Legislative Authority: Title 17 Chapter 45, Conservation of Native Wild Plants.* Accessed June 1, 2013. http://www.naturalheritage.state.pa.us/RankStatusDef.aspx

Runge, Michael C. 2011. An introduction to adaptive management strategies for threatened and endangered species. *Journal of Fish and Wildlife Management* 2(2):220-233.

Steptoe, Andrew and Pamela Feldman. 2001. "Neighborhood Problems as Sources of Chronic Stress: Development of a Measure of Neighborhood Problems, and Associations with Socioeconomic Status and Health." Annals of Behavioral Medicine. (23)3:177-185.

Sustainable Sites Initiative. 2009. Guidelines and Performance Benchmarks. http://www.sustainablesites.org/report/

U.S. Dept. of Agriculture, Soil Conservation Service, Engineering Division. June 1986. *Urban Hydrology for Small Watersheds, Technical Release 55.*

United States Environmental Protection Agency. 2011. A Framework for Sustainability Indicators at EPA. Accessed March 19, 2013. http://www.epa.gov/sustainability/basicinfo.htm

SCHEDULE
Draft Weekly Schedule
schedule subject to change at instructor's discretion
readings may be added—check blackboard each lecture (1 – 3 credits)

All classes will occur on Wednesdays at 5 pm
Week One January 22nd
Introduction – "What is Landscape Performance and How is it Measured?"
Discuss performance categories and begin to think about which category you might be interested in measuring.
Investigation of precedent--- gather information on whether and how other universities or corporate campuses have applied the concept of landscape performance. How do they track performance over time to maintain or increase benefits? Which academic programs are engaged in the process? How do the findings inform the university and the discipline?

Week Two January 29
Present preliminary precedent findings to class.
Develop powerpoint presentation on precedent for TU University Architect and Consultant

Week Three February 5
Meeting with TU University Architect and/or consultant to present precedent findings and to learn the background and goals of the Temple University Main Campus Landscape Plan.

Week Four February 12
Select performance category and begin researching peer-reviewed sources supporting selected tools/methods to measure landscape performance. Consider how landscape performance is linked to ecosystem services.

Week Five February 19
Work on draft report of selected metric. The report will be brief. Its purpose is to present the findings from the literature that support use of specific tools.

Week Six February 26
2-3 page report on metric/tool due to instructor. Begin to develop scenario or group of scenarios exploring ways to maximize your particular benefit through design strategies (i.e. planting more/larger trees to maximize carbon sequestration; increasing number of permeable campus "edges" and entrances to maximize social benefit and relation with neighborhood; increasing understory herbaceous layer and shrubs to maximize biodiversity;

reducing paved areas to reduce urban heat island effect. Make sure that the scenarios are compatible with those proposed by the consultant and University Architect. Put numbers to all of the scenarios.

Week Seven
Spring Break March 1 – 9 Have FUN!!

Week Eight   March 12
Continue to develop and measure the scenarios
LAFoundation staff present background of landscape performance and review student work to date

Week Nine March 19
Continue to work on and measure the scenarios

Week Ten March 26
Present Landscape Performance Design Scenario results to University Architect, consultant and steering committee

Week Eleven April 2
Adjust/finalize scenarios to respond to feedback from University Architect and others. Consider the implications of your findings. How can the landscape be monitored over the long term? (This relates to what was learned in the precedent investigation.)

Week Twelve April 9
Organize template and layout for final report. Begin writing chapters.

Week Thirteen April 16
Work on report

Week Fourteen April 23
Draft of Final Report Due to Instructor

Week Fifteen April 30
Revise/finalize report

May 7
Present and submit report (20 +/- pages total—developed by the entire class) to University Architect, consultant and steering committee.