

**Where:** NH 241, Portland State University  
**Lecture:** M/W 12:00-1:50 pm (1200-1350)  
**Instructor:** [Dr. Alan Yeakley](mailto:yeakley@pdx.edu) (725-8040; yeakley@pdx.edu; office: TBA)  
**Readings:** Platt et al. (1994) and journal articles (see reading list)

**Course outline:**

<u>Week</u>	<u>Dates</u>	<u>Lecture Topic</u>
1	Sept 29, Oct 1	Urban ecosystems
2	Oct 6, 8	<b><u>Essay 1 due</u></b> (Oct 6); Urban physical environment
3	Oct 13,15	Urban soils and biogeochemistry; <b><u>Term paper titles/descriptions due</u></b> (Oct 13)
4	Oct 20, 22	<b><u>Essay 2 due</u></b> (Oct 20); Urban flora
5	Oct 27, 29	<b><u>Term paper abstracts review</u></b> (Oct 27); Urban flora
6	Nov 3, 5	Urban fauna
7	Nov 10, 12	<b><u>Essay 3 due</u></b> (Nov 10); Synthesis
8	Nov 17, 19	Review (Nov 17); <b><u>Mid-term Exam</u></b> (Nov 19)
9	Nov 24, 26	Student presentations; <b><u>Written term paper due</u></b> (Nov 24)
10	Dec 1, 3	Student presentations

**Assignments:** Please see the reading list for specific reading assignments. At the beginning of weeks 2, 4 and 7, **a one page essay is due** at the beginning of the Monday class period addressing the readings assigned that coming week. The essay should be typed, double-spaced and no more than one page long. Essays should NOT be a summary of the reading(s), but rather an opinion/editorial piece on some aspect of the reading.

*Please note that participation levels within in-class discussions will be assessed.* There will be one major exam (the mid-term). The most important product of the class will be a term paper, with both abstract and oral components graded, in part, by peer-review.

**Grade distribution:** Term paper (50%); Mid-term exam (25%); Participation (Essays, Attendance, Vocal participation in class) (25%).

**Term paper components:** Abstract review (25%); Oral presentation – grad students (25%), undergraduate students (10%); Written presentation – grad students (50%), undergraduate students (65%). Written term paper guidelines will be distributed, and will differ between undergraduate and graduate students.

**Readings** (see list on reverse): With the exception of week 1, all readings assigned for that week will be expected to have been read *by the first class day* of the week. The book (Platt et al 1994) is available for purchase in the PSU Bookstore. A reading packet for the journal articles will be available at Clean Copy. As a less expensive alternative, the journal articles can also be obtained from the PSU library.

Reading listWeek 1

Platt, R.H., Rowntree, R.A. and Muick, P.C. (eds), *The Ecological City*. University of Massachusetts Press, Amherst, pp. 1-65.

Grimm, N.B., Grove, J.M., Pickett, S.T.A., and Redman, C.L. 2000. Integrated approaches to long-term studies of urban ecological systems. *BioScience* 50: 571-584.

Week 2

Platt, R.H., Rowntree, R.A. and Muick, P.C. (eds), *The Ecological City*. University of Massachusetts Press, Amherst, pp. 151-171.

Lee, J.G. and Heaney, J.P. 2003. Estimation of urban imperviousness and its impact on storm water systems. *Journal of Water Resources Planning and Management* 129: 419-426.

Oberndorfer, E., Lundholm, J., Bass, B., Coffman, R.R., Doshi, H., Dunnett, N., Gaffin, S., Köhler, M., Liu K.K.Y. and Rowe, B. 2007. Green roofs as urban ecosystems: ecological structures, functions, and services. *BioScience* 57: 823-833.

Walsh, C.J., Roy, A.H., Feminella, J.W., Cottingham, P.D., Groffman, P.M. and Morgan, R.P. 2005. The urban stream syndrome: current knowledge and the search for a cure. *Journal of the North American Benthological Society* 24: 706-723.

Week 3

Byrne, L.B. 2007. Habitat structure: a fundamental concept and framework for urban soil ecology. *Urban Ecosystems* 10: 255-274.

Kaye, J.P., Groffman, P.M., Grimm, N.B., Baker, L.A. and Pouyat, R.V. 2006. A distinct urban biogeochemistry? *TRENDS in Ecology and Evolution* 21: 192-199.

Pataki, D.E., Alig, R.J., Fung, A.S., Golubiewski, N.E., Kennedy, C.A., McPherson, E.G., Nowak, D.J., Pouyat, R.V. and Romero Lankao, P. 2006. Urban ecosystems and the North American carbon cycle. *Global Change Biology* 12: 2092-2102.

Week 4

Breuste, J.H. 2004. Decision making, planning and design for the conservation of indigenous vegetation within urban development. *Landscape and Urban Planning* 68: 439-452.

Godefroid, S. and Koedam, N. 2007. Urban plant species patterns are highly driven by density and function of built-up areas. *Landscape Ecology* 22: 1227-1239.

Grove, J.M., Troy, A.R., O'Neil-Dunne, J.P.M., Burch Jr., W.R., Cadenasso, M.L. and Pickett, S.T.A. 2006. Characterization of households and its implications for the vegetation of urban ecosystems. *Ecosystems* 9: 578-597.

Week 6

Chace, J.F. and Walsh, J.J. 2006. Urban effects on native avifauna: a review. *Landscape and Urban Planning* 74: 46-69.

Hennings, L.A. and Edge, W.D. 2003. Riparian bird community structure in Portland, Oregon: Habitat, urbanization and spatial scale patterns. *The Condor* 105: 288-302.

Mason, J., Moorman, C., Hess, G. and Sinclair, K. 2007. Designing suburban greenways to provide habitat for forest-breeding birds. *Landscape and Urban Planning* 80: 153-14.

Week 7

Grimm, N.B., Foster, D., Groffman, P., Grover, J.M., Hopkins, C.S., Nadelhoffer, K.J., Pataki, D.E. and Peters, D.P.C. 2008. The changing landscape: ecosystem responses to urbanization and pollution across climatic and societal gradients. *Frontiers in Ecology and the Environment* 6: 264-272.

Pickett, S.T.A., Cadenasso, M.L., Grove, J.M., Groffman, P.M., Band, L.E., Boone, C.G., Burch Jr., W.R., Grimmond, C.S.B., Hom, J., Jenkins, J.C., Law, N.L., Nilon, C.H., Pouyat, R.V., Warren, P.S. and Wilson, M.A. 2008. Beyond urban legends: an emerging framework of urban ecology, as illustrated by the Baltimore ecosystem study. *BioScience* 58: 139-150.