Drexel University  
Department of Architecture  

**Energy and Architecture**  
Summer 2011  

**Course requirements:**

1. More than one unexcused class absence will result in a full letter drop in grade.

2. Many of the classes will meet on line using Go To Meeting. This requires internet access.

3. There will be one quiz based on assigned readings and class lectures.

4. There will be two research assignments. The first will be on insulation materials. The second will be one of the “current events” in energy. This will be a brief research presentation to the class using PowerPoint on a mutually selected topic. Suggested topics include:
   a. Photovoltaics.
   b. Wind generators.
   c. Hybrid lighting systems.
   d. Embodied energy.
   e. Geothermal heating/cooling.
   f. Evaporative “swamp” coolers.
   g. High thermal performance glazing.
   h. Photochromic and electrochromic glazing.
   i. Smart Walls.
   j. Solar water heating systems.
   k. Economizer systems.
   l. Green roofs.
   m. Off-peak power.
   n. Other choices as arranged with the instructor.

5. Each student will create a design analysis and project report over the quarter. This will include the design of a building, analysis using computer modeling, refinement and re-analysis, and submission of a summary report.

6. Grades will be determined based on the following:
   - Quiz: 30%
   - Research Assignment #1: 20%
   - Analysis Assignment #2: 20%
   - Design Analysis Project Report: 30%

7. If you have any problems which arise during the course which will affect your attendance or performance, I can be reached at (610) 667-9551 during business hours or by e-mail at: nallsre@drexel.edu.

**Reading list**

**Required materials:**

- Ecotect Software; available free through the Autodesk Education site.  
- or -  
- Energy 10 Software; published by Passive Solar Industries Council. Available at a student price of $85.00 from: Sustainable Buildings Industry Council  
  1112 16th. Street, NW  
  Suite 240  
  Washington, DC 20036  
  202-628-7400 ext. 211  
  202-393-5043 - fax  
  [http://www.sbicouncil.org/storeindex.cfm](http://www.sbicouncil.org/storeindex.cfm)  
  Drexel site licensed versions available for use.

*The Green Studio Handbook: Environmental Strategies for Schematic Design; Second Edition* Alison G. Kwok,
Recommended reading (solar):
  Givoni: Man, Climate and Architecture.
  Olgyay, Victor: Design with Climate
  William McDonough & Michael Braungart: Cradle to Cradle.

Recommended reading (natural lighting):
  Evans, Benjamin: Daylight in Architecture.
  Hopkinson, R.C. & Kay, J.D.: The Lighting of Buildings
  Libbey-Owens-Ford: How to Predict Interior Daylight Illumination.

Recommended reading (Cooling and shading):
  Olgyay, Victor: Solar Control and Shading Devices.

Web sites:
My faculty website for course material: www.pages.drexel.edu/~nallsre

To download Ecotect (Autodesk Education Community): http://students.autodesk.com/?nd=download_center

For ordering Energy 10 software: http://www.sbicouncil.org/storeindex.cfm or talk to Bob Nalls.

Lawrence Berkeley Labs Building Technology: http://eetd.lbl.gov/BT.html
Clean Air / Cool Planet: http://www.cleanair-coolplanet.org/
Campus Carbon Footprint Calculator: http://www.cleanair-coolplanet.org/toolkit/content/view/43/124/
Carbon Fund Personal Carbon Footprint Calculator: http://carbonfund.org/site/pages/calculator/
Energy Star Home Energy Yardstick:
  http://www.energystar.gov/index.cfm?fuseaction=home_energy_yardstick.showStep2
EPA Climate Change and Waste Tools: http://www.epa.gov/climatechange/wycd/waste/tools.html
EPA Fuel Economy Website: http://www.fueleconomy.gov/
Other Links (through LBL): http://eetd.lbl.gov/einfo-links.html