**CPLN 704: Greening Under the Elevated | GSI, Viaducts, and Environmental Restoration**

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Spring 2016  
  
CPLN 704: GSI, Viaducts, and Environmental Restoration will meet Monday and Friday afternoons from 2:00 to 5:00 PM in the PennDesign West studio space at 36th & Market.   
  
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**BACKGROUND & CONTEXT**

This studio will develop approaches to integrate green stormwater management practices into elevated transit, rail viaducts, and highways to support neighborhood level improvements to communities adversely impacted by such infrastructure.

The development of what is now the nation’s legacy infrastructure had considerable impact on the neighborhoods they were built in, through, and across. In Philadelphia, these neighborhoods are found adjacent to I-95, under the Market-Frankford El, passed over by Route 1, and along SEPTA’s regional rail service to the northwest. Whether it is the communities, contending with cloven neighborhoods and foreboding infrastructure, or agency and departmental heads faced with decaying structures and declining budgets, there is a growing understanding that investments under these elevated structures must both serve the agencies that maintain them, and the communities they inhabit. For instance, the forthcoming American Streetscape Improvement project leverages Philadelphia Water Department investments to support multimodal improvements that will drastically shorten crossing distances for pedestrians along a major corridor that has long been considered a scar down the center of several North Philadelphia neighborhoods. *Greening Under the El* will model different GSI investments that can serve as leverage for further infrastructure and public space improvements across a wide portfolio of elevated structures and neighborhoods.

Participants will learn introductory methods to stormwater infrastructure planning, identify GSI investment opportunities at select locations (from South Philadelphia to Olney), and scope out other needed investments there-in whose development can be catalyzed by GSI development that can address site specific community and environmental justice concerns. The final product will be a portfolio of potential interventions that can serve as models for future collaborative GSI projects, in Philadelphia and beyond

*Greening Under the El*  will provide participants a greater understanding of Philadelphia’s own stormwater planning efforts and compare and contrast those efforts to those of Prince Georege’s County, DC, and New York City. The studio will expose participants to relevant practitioners within the Philadelphia area and challenge them to develop both a more nuanced understanding of the sort of investments that support community and infrastructure improvements, and are implementable within an inter-agency partnership project context.

**LEARNING OBJECTIVES**

At the conclusion of this course, students will be able to:

* Understand basic green stormwater infrastructure principles and how they are utilized in large scale municipal and government planning
* Identify opportunities where transportation and green infrastructure can co-exist and provide benefit to the community at large
* Evaluate stormwater capture and disconnection potential using GIS and other analysis tools
* Understand planning and design constraints associated with GSI implementation
* Develop project proposals for GSI that utilize multi-agency and/or community level partnerships

**CLASS DELIVERABLES**

* **GSI Program Case Study Presentation- due 9/12 (15% of final grade)**

Students will develop a case study presentation for one of the following municipalities or counties developing a scaled green infrastructure program: Washington DC, New York City, Portland, and Prince George’s County. These case studies shall address the regulatory, financial, and partnership frameworks driving the respective programs. Case Studies will evaluate the ability of the GSI program and systems to meet regulatory requirements and provide benefit to the wider community.

* **MID-REVIEW: GSI SWOT Analysis (Individual)- 10/14 (25% of final grade)**

Each student will provide a tri-partite GSI analysis of a site (see below), and present their findings in class, over the course of four classes (one pin-up per sub analysis, and a presentation to synthesize the findings).

* + Pin-up 1: Stormwater Drainage Analysis - 9/26
  + Pin-up 2: GSI Implementation Analysis - 9/30
  + Pin-up 3: Triple Bottom Line (TBL) Analysis - 10/3
  + Mid-Review: GSI SWOT Analysis - 10/14

In the final presentation Students will develop a partnership project proposal for one of 9 sites across the city. Each proposal will document the stormwater management opportunities available at a given site, consider partnership opportunities, and propose a multi-stakeholder investment that will include GSI investments and can (but does not have to), streetscape, site, and specific programming investments.

* **FINAL REVIEW: GSI Site Analysis & Presentation - due 12/16 (35% of final grade)**

Students will work in teams to elaborate upon project for three sites developed for mid

studio review to provide specific potential examples of projects that address the needs and concerned outlined in the book. Students will expand upon said project proposals and provide budgets, cost benefit analysis, and financing scenarios.

* **Assignment 4: Studio Book Contribution - due 12/19 (25% of final grade)**

The Studio Book (Book) shall delineate a typology of needs and strategies for developing multi-stakeholder GSI investments along and under elevated transportation structures to meet those needs. These typologies will serve as a model for municipal partners seeking to address similar concerns in their respective concerns. The Book shall use the work of three teams presented during the Final Review as examples of said strategies.

**CLASS SCHEDULE**

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| Wk 1 | Fri, 9/2/16 | Class Overview   * Green Infrastructure Overview * Introduction to Green City, Clean Waters * Assignment 1 distributed |
| Wk 2 | Mon, 9/5/16  Fri, 9/9/16 | **NO CLASS** - Labor Day Holiday  The Impact of Legacy Infrastructure on Communities - lecture and group discussion |
| Wk 3 | Mon, 9/12/16  Fri, 9/16/16 | *Assignment 1: Case Study Presentation Due*  Green Street Strategies - lecture and group discussion  Assignment 2 Distributed - students select individual sites  GSI Drainage Analysis Demonstration  GSI Case Study Review |
| Wk 4 | Mon, 9/19/16  Fri, 9/23/16 | GSI Planning Guidelines - GIS Methods and Tools  Pin-up 1: Drainage Analysis pin-up  GSI Policies & Partnership Lecture |
| Wk 5 | Mon, 9/26/16  Fri, 9/30/16 | Infrastructure Project Financing Presentation & Case Study Review  Pin-up 2: GSI Implementation pin-up  Triple Bottom Line Analysis Lecture |
| Wk 6 | Mon, 10/3/16  Fri, 10/7/16 | Student group work  *Guest Speaker Series* - Implementing GSI in the Community  Pin-up 3: Triple Bottom Line Analysis pin-up |
| Wk 7 | Mon, 10/10/16  Fri, 10/14/16 | Drafts for mid-review and critiques  **Mid-Review Presentation** |
| Wk 8 | Mon, 10/17/16  Fri, 10/21/16 | Final Site & Group Selection  Mid-Review Feedback  Pin-Up 4: In Depth, Neighborhood, Partner, and Site Analysis |
| Wk 9 | Mon, 10/24/16  Fri, 10/28/16 | Student group work  Site Drainage Analysis Review (group) |
| Wk 10 | Mon, 10/31/16  Fri, 11/04/16 | Student Group Work  Site Implementation Analysis Review (group) |
| Wk 11 | Mon, 11/07/16  Fri, 11/11/16 | *Guest Speaker Series*: GSI & Large Scale Infrastructure Implementation II  Student Group Work |
| Wk 12 | Mon, 11/14/16  Fri, 11/18/16 | *Guest Speaker Series*: GSI & Large Scale Infrastructure Implementation III  TBL Analysis Review |
| Wk 13 | Mon, 11/21/16  Fri, 11/25/16 | Student group work and critiques  **NO CLASS** - Thanksgiving Holiday |
| Wk 14 | Mon, 11/28/16  Fri, 12/2/16 | *Guest Speaker Series*: Programming Considerations for GSI Sites  Group work and instructor critiques |
| Wk 15 | Mon, 12/5/16  Fri, 12/9/16 | Group work and instructor critiques  Group work and instructor critiques |
| Wk 16 | Mon, 12/12/16  Fri, 12/16/16 | Review presentation and final deliverable drafts  **Final Review** |
| Wk 17 | Fri, 12/19/16 | Complete *Greening Under the Elevated* Studio Publication |

**LOGISTICS**

*Readings and Materials*

Course Readings and materials will be available via *Canvass* or at the Fine Arts Library. Data sets, and Studio work shall be stored on *Box.*

*Attendance*

Regular attendance is expected from each student participating in this studio. If you aware that you will be absent, please notify an instructor as soon as possible. In the event of an excused absence, you are responsible for completing any missed work/assignments in a timely manner.

*Grading*

Assignments for the studio are described above in the class deliverable section of the syllabus (pg.2). Each student will be provided a matrix describing the criteria that each assignment will be graded upon. The case study assignment and pin-ups will be reviewed by the class instructors, while the mid-review and final will take into account the review of the members of the selected jury.

**ACADEMIC INTEGRITY**  
It is your responsibility to be familiar with the University’s Code of Academic Integrity.Instances of academic dishonesty will be referred to the Office of Student Conduct for adjudication. The Code of Academic Integrity is available online at: http://www.upenn.edu/academicintegrity/ai\_codeofacademicintegrity.html