

LA 3001

# Ecological Restoration Studio

Brendan Harmon

baharmon@lsu.edu

Fall 2017. Design 217.

Monday, Wednesday, & Friday 1:30am–5:20pm.

## Course Description

In this studio you will plan and design the restoration of the Golden Meadows coastal wetland. You will conduct research and develop designs across spatial and temporal scales. First you will map and model landscape patterns and processes at regional to site scales using geographic information systems (GIS) and digital illustration. Then you will develop a masterplan for the region based on shifting ecological baselines and suitability analysis. Finally you will design the wetland park and reserve with a phased planting plan that will evolve over time. You will keep a sketchbook through the studio to record your research, inspirations, design process. This course will introduce you to the basics of cartography, geospatial analysis and modeling, digital fabrication, and rapid ideation. You will use both analog and digital media including freehand drawing, GIS, 3D modeling, and laser cutting. You will work in teams of 2 and submit a digital collection of your design work at the final review.

## Field trip

We will visit Washington DC and New York City. In Washington DC we will explore traces of the L'Enfant plan and tour the city's museums and monuments. In New York City we will visit design firms including MVVA and SCAPE and tour projects like the Brooklyn Bridge Park and the High Line. We will also learn about US Army Corps of Engineers' coastal resilience projects and tour their projects on the New Jersey shore. You will record your impressions of the cities, landscapes, and art with drawings and notes in your sketchbook.

**08.26.2017 – 09.02.2017**   **Field trip** | Washington DC and New York City

## Course Schedule

08.25.2017	Studio   Introduction	
09.06.2017	Studio   Precedent studies	
09.08.2017	Review   <b>Precedent studies</b>	
09.11.2017	Lab   Cartography	
09.13.2017	Studio   Cartography	
09.15.2017	Studio   Cartography	Workshop   Drawing
09.18.2017	Lab   Topography	
09.20.2017	Studio   Topography	
09.22.2017	Studio   Topography	Workshop   Drawing
09.23.2017	Fieldwork   Golden Meadows	
09.25.2017	Lab   Hydrology	
09.27.2017	Studio   Hydrology	
09.29.2017	Studio   Hydrology	
10.02.2017	Lab   Ecosystems	
10.04.2017	Studio   Ecosystems	
10.06.2017	Review   <b>Mapping</b>	
10.09.2017	Lab   Digital fabrication	
10.11.2017	Studio   Digital fabrication	
10.13.2017	Studio   Digital fabrication	
10.16.2017	Lab   Suitability analysis	
10.18.2017	Studio   Suitability analysis	
10.23.2017	Lab   Trail planning	
10.25.2017	Studio   Trail planning	
10.27.2017	Workshop   Augmented reality	
10.30.2017	Studio   Masterplanning	Workshop   Drawing
11.01.2017	Studio   Masterplanning	
11.03.2017	Review   <b>Masterplan</b>	
11.06.2017	Studio   Site design	Workshop   Model-making
11.08.2017	Studio   Site design	Workshop   Drawing
11.10.2017	Studio   Site design	
11.13.2017	Studio   Planting design	Workshop   Drawing
11.15.2017	Studio   Planting design	
11.17.2017	Studio   Planting design	
11.20.2017	Studio   Trail design	
11.27.2017	Studio   Phased planting	
11.29.2017	Studio   Phased planting	
12.01.2017	Review   <b>Site design</b>	

## Precedent studies

Your team will study and present one of the following projects:

Louisiana Coastal Masterplan | <http://coastal.la.gov/2017-coastal-master-plan/>

Netherlands National Coastal Strategy |

<http://rijksoverheid.minienm.nl/nvk/NationalCoastalStrategy.pdf>

The Sand Engine | <http://www.dezandmotor.nl/en/>

Delta Works | <http://www.deltawerken.com/>

MOSE | <https://www.mosevenezia.eu/>

New Meadowlands | <http://newmeadowlands.org/>

Fresh Kills | <http://freshkillspark.org/>

**Deliverables** 36" x 48" plot illustrating your precedent study

## Mapping

Your team will use GIS to map, analyze, and simulate the physical patterns and processes that shape the Bayou La Fourche watershed. At the review your team will present maps of infrastructure, topography, hydrology, and ecosystems representing each of these systems at a range of scales.

**Deliverables** 36" x 72" board topped with acrylic sheet for graphics | Topographic maps of region and site | Hydrologic map of region and site | Ecosystem map of region and site | Sketchbook with sketches, notes, and diagrams of the study site

## Masterplanning

As a class you will build a laser-cut model of the study region with each team contributing several tiles. Your team will then develop a GIS-based masterplan for the region using map overlay, suitability, and least cost path analysis. At the review your team will present an illustrative masterplan, concept diagrams, and a physical model of the landscape.

**Deliverables** Laser-cut model of region | 36" x 72" board topped with acrylic sheet for graphics | Illustrative masterplan | Conceptual diagrams | Conceptual section

**Materials** Museum board for laser-cutting

## Site design

Your team will develop a site design addressing program, trails, and planting for the restored wetland. At the final review your team will present hand-drawn graphics including a site plan, a series of phased planting plans, sections, and a perspective.

**Deliverables** 36" x 72" board topped with acrylic sheet for graphics | Site plan | Phased planting plans | Planting diagrams | Sections | Perspective | Conceptual model | Topographic model | Site model

**Materials** Polymeric sand | Modeling supplies

## Supplies

Alcohol-based markers | *Chartpak or Copic*  
 Felt-tip markers | *Tombow Dual Brush Pens or Pentel Sign Pen*  
 Trace | *White or Canary*  
 Polymer enriched sand | *Kinetic Sand, 11 lbs*  
 Museum board  
 Acrylic sheets | 36" x 72" x 1/8"  
 Reticulated foam  
 Extruded polystyrene foam  
 Dowels, blocks, and sheets | *Basswood or balsa wood*  
 Spray paint | *MTN waterbased*  
 Spray adhesive | *Super 77*  
 Respirator  
 Utility knives | *Olfa*  
 Cutting mat  
 Cutting edge | *AlumiCutter*

## Software

GRASS GIS | <https://grass.osgeo.org/>  
 QGIS | <https://www.qgis.org/>  
 ArcGIS | <http://www.esri.com/arcgis/about-arcgis/>  
 Rhinoceros | <https://www.rhino3d.com/>  
 RhinoTerrain | <http://www.rhinoterrain.com/>  
 Adobe Creative Cloud | <http://www.adobe.com/creativecloud.html>

## Grading

Sketchbook	15%
Project   Precedent	10%
Project   Mapping	25%
Project   Masterplan	25%
Project   Site design	25%

## Resources

Intro to GRASS GIS | <https://ncsu-geoforall-lab.github.io/grass-intro-workshop/>  
Hydrology in GRASS GIS | [https://grasswiki.osgeo.org/wiki/Hydrological\\_Sciences](https://grasswiki.osgeo.org/wiki/Hydrological_Sciences)

## Readings

Desimini, Jill, Charles Waldheim, and Mohsen Mostafavi. 2016. *Cartographic Grounds: Projecting the Landscape Imaginary*. Princeton Architectural Press.

Acciavatti, A. 2015. *Ganges Water Machine: Designing New India's Ancient River*. ORO Editions.

Kingsbury, Noel, and Piet Oudolf. 2013. *Planting: A New Perspective*. Portland: Timber Press.

McHarg, Ian L. 1992. *Design with Nature*. New York: Wiley.

## Policies

**Time Commitment Expectations** LSU's general policy states that for each credit hour, you (the student) should plan to spend at least two hours working on course related activities outside of class. Since this course is for three credit hours, you should expect to spend a minimum of six hours outside of class each week working on assignments for this course. For more information see: <http://catalog.lsu.edu/content.php?catoid=12&navoid=822>.

**LSU student code of conduct** The LSU student code of conduct explains student rights, excused absences, and what is expected of student behavior. Students are expected to understand this code: <http://students.lsu.edu/saa/students/code>.

**Disability Code** The University is committed to making reasonable efforts to assist individuals with disabilities in their efforts to avail themselves of services and programs offered by the University. To this end, Louisiana State University will provide reasonable accommodations for persons with documented qualifying disabilities. If you have a disability and feel you need accommodations in this course, you must present a letter to me from Disability Services in 115 Johnston Hall, indicating the existence of a disability and the suggested accommodations.

**Academic Integrity** According to section 10.1 of the LSU Code of Student Conduct, "A student may be charged with Academic Misconduct" for a variety of offenses, including the following: unauthorized copying, collusion, or collaboration; "falsifying" data or citations; "assisting someone in the commission or attempted commission of an offense"; and plagiarism, which is defined in section 10.1.H as a "lack of appropriate citation, or the unacknowledged inclusion of someone else's words, structure, ideas, or data; failure to identify a source, or the submission of essentially the same work for two assignments without permission of the instructor(s)."

**Plagiarism and Citation Method** Plagiarism is the "lack of appropriate citation, or the unacknowledged inclusion of someone else's words, structure, ideas, or data; failure to identify a source, or the submission of essentially the same work for two assignments without permission of the instructor(s)" (Sec. 10.1.H of the LSU Code of Student Conduct). As a student at LSU, it is your responsibility to refrain from plagiarizing the academic property of another and to utilize appropriate citation method for all coursework. In this class, it is recommended that you use Chicago Style author-date citations. Ignorance of the citation method is not an excuse for academic misconduct.