



LMC6650 SYLLABUS

Data Physicalization Project Studio

Spring 2022 (3 Credits)

Meetings: Tuesdays 11:00 - 1:45 PM in TSRB 209

Instructors

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Email

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Office Hours & Location

Mon/Fri 1:00-2:00

[sign up here](#)

**How can data be encoded
in physical spaces,
in order to inform public
sense-making?**

This project studio will focus on the design and development of prototypes for a data physicalization on the site of [Georgia Tech's EcoCommons](#).

A data physicalization is a "physical artifact whose geometry or material properties encode data"

(<http://dataphys.org>). If traditional visualizations map data to pixels or marks on paper, a physicalization maps data to a physical form in real space. Our designs will focus on physicalizations of data about the environmental health of the Chattahoochee River, a local waterway that starts in North Georgia

and flows into Florida's Apalachicola Bay. As part of the Chattahoochee watershed, the campus's stormwater drains directly into the river. In turn, the river provides water for domestic, industrial, and agricultural use, as well as electric power, building materials (bricks were once made from the river's red clay), recreation, wildlife habitats, and much more.

Using data physicalization as a form of inquiry, we will explore the relationship of the Georgia Tech campus to this important but fragile environmental entity. The goal of this course is to engage students from across Georgia Tech in imagining novel forms of data exploration, which reveal the potential of space and place to inform sense-making with data in public life.

No prerequisites required. Contact yanni.loukissas@lmc.gatech.edu with questions or for a permit to register.

MAIN OBJECTIVE

To guide students through the experience of developing a design project using digital media.

COVID-19 RELATED EXPECTATIONS

Once again, we must all acknowledge that things are not "back to normal" this semester.

Although I will strive to create a stimulating and rewarding learning environment, complications are bound to arise. Dealing with them will require flexibility and mutual trust. Do not hesitate to contact me directly if there is anything you would like to discuss before the beginning of the course or at some later point.

Please note that Atlanta is currently a high-risk area for several variants of Covid-19. This is according to our very own researchers at Georgia Tech: <https://covid19risk.biosci.gatech.edu/>

Wearing an N95 mask (not just a cloth mask) is strongly encouraged inside by Georgia Tech, as well as the [CDC](https://www.cdc.gov). I will be wearing a high quality mask at all our meetings, and I would sincerely appreciate it if you did so as well. I also encourage you to get tested weekly at one of the on-campus sites: <https://health.gatech.edu/coronavirus/testing>

Additionally, if you have not yet been vaccinated and boosted, I suggest you do so. This will protect you from serious illness, if not infection. It will also protect our campus community and (by extension) our families, some of whom may not be eligible for vaccination because of their age or underlying health conditions. A variety of vaccines are widely regarded as extremely safe, and they are readily available on campus: <https://health.gatech.edu/coronavirus/vaccine>

More generally, students are expected to be familiar with and abide by the Institute guidelines, information, and updates related to Covid-19. Find campus operational updates, Frequently Asked Questions, and details on campus

surveillance testing and vaccine appointments on the [Tech Moving Forward](#) site.

The [CARE Center](#) and the [Counseling Center](#), Stamps Health Services, and the Dean of Students Office will offer both in-person and virtual appointments. Student Center services and operations are available on the [Student Center](#) website. For more information on these and other student services, contact the Dean of Students or the [Division of Student Life](#).

LEARNING OUTCOMES

- Acquire and explore existing data using digital media.
- Create effective and critical data-driven designs using digital media.
- Contribute to the development of new genres and forms of digital media.
- Create digital artifacts with an awareness of history, audience, and context.
- Appreciate and evaluate future trends in the development of digital media.
- Be able to work effectively in teams to accomplish a common goal.

ASSIGNMENTS

The purpose of assignments is to give you regular, repeated practice exercising

the course goals. There are several types of assignments in this course.

Readings

Required readings will structure the theoretical portion of the course. All reading selections listed on the syllabus are tentative. Additional readings may be assigned as supporting material along with assignments.

Case Studies

You will be asked to search for, analyze, and share examples of different data exploration techniques.

Exercises

In order to help you practice with the techniques we discuss in class, there will be multiple hands-on exercises throughout the term. Instructions will be provided for each.

Final Project

There will be a culminating project, in which you will be asked to address the central question posed by this course: How can data be encoded in physical spaces, in order to inform public sense-making about environmental issues?

Grading

Exercises and case studies will be graded according to a contract model. This means that if you complete all parts of the assignment, you will get full points. Points will be deducted only if you are missing components of the assignment. Class participation is strongly encouraged, but not graded. The final project will be given a numerical grade, following a rubric distributed with the assignment. Your final grade for the class will be calculated as follows:

30% Exercises
20% Case Studies
50% Final Project

Deadlines

All assignments will include submission instructions and a due date. Late submissions will be penalized one letter grade (%10). Failure to complete a number of readings, exercises, or the final project may be grounds for a failing grade.

CLASS REQUIREMENTS AND POLICIES

Attendance

Students are expected to attend all sessions and actively participate in all classes.

Readings and Materials

Readings will be distributed electronically via MSTeams. Check the "files" tab. Additional materials for assignments will be distributed with the instructions on MSTeams. You will need your own laptop computer (Windows or Mac).

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit:
<http://www.catalog.gatech.edu/policies/honor-code/> or
<http://www.catalog.gatech.edu/rules/18/>.

Plagiarism of any form will not be tolerated and will result in a failing grade for the course. This is not only the uncredited copying of text from another's work but also copying ideas or code from other digital artifacts. However, adaptation of code samples (provided or found online) is not necessarily plagiarism, as long as it is appropriately credited. Having said that, students are encouraged to share and critique each other's work. You are allowed (and encouraged!) to work together with other students, but collaboration is only permitted when specified. On all other assignments, you are expected to complete and turn in your own work.

Students may not submit work on another's behalf. Unauthorized use of any previous semester course materials is prohibited. Violating these terms will be considered a direct violation of academic policy and will be dealt with according to the GT Academic Honor Code.

Accommodations for Students with Disabilities

If you are a student with learning needs that requires special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement
It is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and

cordial interactions will help build the environment we seek.

Debate, Diversity, and Respect

In this class, we will present and discuss a diversity of perspectives. Although you may not always agree with others' perspectives, you are expected to be respectful of others' values and beliefs. Repeated inappropriate or abusive comments and/or behavior will be addressed accordingly. If you feel that your perspectives are being ignored or slighted, or you in any way feel uncomfortable in the classroom, please contact me.

The Communication Center

The Communication Center is located in Clough Commons, Suite 447. It is an excellent resource for any student (undergraduate or graduate) who wants help with a communication-related paper. With the pandemic underway, the communication center is continually revising its practices. For information on making an appointment please visit <http://communicationcenter.gatech.edu/content/makeappointment>. If you need assistance with the appointment system, you can call 404-385-3612. All services are free and confidential.

ASSIGNMENTS

C1 = Case Study 1 Spatial Structures

C2 = Case Study 2 Temporal Structures

C3 = Case Study 3 Physical Structures

E1 = Recontextualizing (Spatial) Data

E2 = Recontextualizing (Temporal) Data

E3 = Recontextualizing (Physical) Data

E4 = Open Data Guide

4.1 Setting

4.2 Unfolding

4.3 Situating

F1 = Final Project, Part 1 Proposal

F2 = Final Project, Part 2 Prototype

F3 = Final Project, Part 3 Presentation

SCHEDULE

DATE	DAY / THEME	READINGS	ASSIGNMENTS
Week 1	Welcome		
January 11			C1 Assigned
Week 2	Exercises: Spatial Structures		
January 18			C1 Due E1 Assigned
Week 3	Exercises: Spatial Structures (cont.)		
January 25			E1 Due C2/E2 Assigned

Week 4	Exercises: Temporal Structures	
February 1		C2/E2 Due C3/E3 Assigned
Week 5	Exercises: Physical Structures	
February 8		C3/E3 Due E4 Assigned
Week 6	Exercises: Open Data Guides - Setting	
February 15		E4.1 Due
Week 7	Exercises: Open Data Guides - Unfolding	
February 22		E4.2 Due
Week 8	Exercises: Open Data Guides - Situating	
March 1		E4.3 Due F1 Assigned
Week 9	Final Project: EcoCommons Site Visit	
March 8		F1 Draft
Week 10	Final Project, Part 1: Proposal	
March 15		F1 Due F2 Assigned
Week 11	Spring Break	
March 22		
Week 12	Final Project, Part 2: Prototype	

March 29		F2 Draft
Week 13	Final Project, Part 2 Prototype (cont.)	
April 5		F2 Due F3 Assigned
Week 14	Final Project, Part 3: Presentation	
April 12		F3 Draft
Week 15	Final Project, Part 3: Presentation (cont.)	
April 19		F3 Due
Week 16	Course Reflection	
April 26		CIOS Assessment
TBD	Final Project Complete	Final Review