MS in Geospatial Technology for Geodesign

College of Architecture & the Built Environment



Presentation Overview

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PROGRAM DIRECTOR PROFILE

James L. Querry, Jr.

Program Director MS in Geospatial Technology for Geodesign Graduate Certificates in GIS and Geodesign

BS in Landscape Architecture, The Pennsylvania State University Master of Regional Planning, The University of Pennsylvania

Jim's professional career spans nearly 4 decades with professional experience in a broad range of related disciplines including landscape architecture, GIS and Geodesign, civil engineering, planning, and information technology.

Jim currently directs the MS in Geodesign Technology for Geodesign program at Jefferson in addition to teaching in the Landscape Architecture BLA and Geodesign programs.



james.querry@jefferson.edu





Jefferson Create what's NEXT

James L. Querry, Jr., MRP, RLA, ASLA

DIRECTOR, MS in Geospatial Technology for Geodesign

Jim has a BS in Landscape Architecture from Penn State and a Master of Regional Planning degree from the University of Pennsylvania where he studied directly under Ian L. McHarg and C. Dana Tomlin. He has delivered numerous keynote addresses ranging from state GIS conferences to global forums at the United Nations focused on the role of GIS and Geodesign in achieving the UN's 2030 agenda for sustainable development. Jim's research interest and professional passion is in 3D parametric design and modeling for sustainable urban planning and design as well as emerging technologies such as remote 3D sensing using LiDAR and UAVs (drones).

"The future of design excellence and sustainability across the design disciplines will require ever-increasing complex problem-solving skills to empower creativity. The cross-disciplinary masters students will be equipped to apply exciting and rapidly emerging geospatial technologies to lead in defining and solving contemporary design and planning challenges with highly informed sustainable design solutions. Geodesign is 'smart' design."

- James Querry, Associate Professor and Director of Geodesign, former Director of Enterprise GIS, City of Philadelphia

Jefferson offers students a unique opportunity to learn and grow in a supportive, cross-disciplinary learning environment. Experiential learning is at the root of everything we do and students are encouraged to explore new and innovative ways of solving problems in design of the built environment.

COLLEGE AND CAMPUS INFORMATION

Locational Advantage

- Green campus, close to Center City and many amazing communities
- Strong relationships with the community and industry partners
- Philadelphia as our living lab



Emphasis on Teaching

- Student-centered education
- Small class sizes
- Personal attention
- Academic Success Center
- Writing assistance
- Faculty academic advisors

COLLEGE AND CAMPUS INFORMATION





COLLEGE AND CAMPUS INFORMATION

Nexus Learning







ACTIVE, COLLABORATIVE

REAL-WORLD

INTERDISCIPLINARY PROJECTS



- Jefferson's Masters and Graduate Certificate Programs in Geospatial Technology leverage GIS and advanced geospatial technologies in identifying and finding innovative solutions to urban design and urban planning problems.
- Emphasizing GIS-based tools, 3D parametric design and modeling, sustainable design approaches, collaboration and innovation within an integrated process, these STEM-designated graduate programs are intended to empower students to find resilient solutions to 21st century urban challenges resulting from population growth, decreasing resources, natural disasters, and climate change.

Plan of Study

- Masters Degree 36 credit hours
- Graduate Certificates 12 credit hours each
- Full or part time
- Course are delivered on-campus, hybrid, and on-line
- Most students complete the Masters Program in 18 to 24 Months



MS in Geospatial Technology for Geodesign Curriculum Sequence - 36 Credits

Fall 1 - 9 CR 3D Modeling for Geodesign (3 CR) * Adv GIS for Landscape Analysis (3 CR) * Internet GIS Tech for Design and Devl (3CR) *

Spring 1 - 9 CR Adv GIS for Urban Planning and Devl (3 CR) * Information Modeling (3 CR) * Sustainable Design Methodologies * (3 CR) Fall 2 - 9 CR Geodesign Studio 1 (6 CR) Explorations in Geodesign (3CR) *

Spring 2 - 9 CR Geodesign Appl Research Studio (6 CR) Elective (3 CR)

* Offered synchronous online

Graduate Certificates in Geospatial Technology Curriculum Sequence - 12 Credits Each

Geospatial Technology for Geodesign Introduction to GIS (3 CR) * 3D Modeling for Geodesign (3 CR) Adv GIS for Landscape Analysis (3 CR) Information Modeling (3CR) Geographic Information Systems Introduction to GIS (3 CR) * Adv GIS for Urban Planning and Design (3 CR) Adv GIS for Landscape Analysis (3 CR) Internet GIS Tech for Design and Devl (3CR)

* Note - for students with prior GIS experience, the Intro GIS course may be waived at the discretion of the Program Director and another course substituted

- 3D Parametric Modeling
- Sustainable Urban Design
- Advanced Spatial Analytics
- Innovative 3D Technologies



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Reports	
Building Performance Baseline, Energy, Electrical Consumption (kWh/yr)	375562.72
Building Performance Baseline, Energy, Heating Consumption (kWh/yr)	140836.02
Building Performance Baseline, Waste, Domestic (kg/yr)	23472.67
Building Performance Baseline, Water, Consumption (I/yr)	2816720.4
Building Performance Baseline, Water, Produced Blackwater (I/yr)	845016.12
Building Performance Baseline, Water, Produced Greywater (I/yr)	1971704.28
Building Performance Baseline, Water, Recycled Greywater (l/yr)	1971704.28
Building Performance Target, Energy, Electrical Consumption (kWh/yr)	375562.72
Building Performance Target, Energy, Heating Consumption (kWh/yr)	140836.02
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Building Performance Target, Water, Consumption (I/yr)	2816720.4
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Building Performance Target, Water, Produced Greywater (I/yr)	1971704.28
Building Performance Target, Water, Recycled Greywater (l/yr)	
Building, Footprint Area (m2)	156.48
Building, Gross Floor Area (m2)	469.45
Construction, Building Cost	657234.76
Construction, Waste (kg)	7041.8
Parcel, Coverage (%)	100
Parcel, Floor Area Ratio (Density)	
Site Conditions, Stormwater Runoff (m3/hr)	7432.3

- 3D Parametric Modeling
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- 3D Parametric Modeling
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Lidar





UAV (drone) Technology for Geodesign





ON / CREATE WHAT'S NEXT

Jefferson /

Example of available aerial imagery - outdated and low resolution



Jefferson / Create What's Next

Example of aerial imagery of the same area captured from UAV (drone)



Section through the site developed using UAV (drone) elevation data



The Rail Park 3D Parametric Modeling



Design Visualization



2D





Germantown Commercial Corridor



The Philadelphia Navy Yard



Jefferson 🖉 create what's next

Brewerytown - Sharswood Land Use Analysis



Grand Battery Park Design Alternatives

Grand Battery Park West Callowhill, Philadelphia, PA

The purpose of this design is to integrate nature and innovative technology with Philadelphia's society to inspire regenerative arowth of its cultural, economical, and phycal environments,

Grand Battery Park takes our Essence statement and projects it in a multitude of ways throughout the whole design. Stemming from the idea of a battery, our design stores, utilizes, and shares energy. We used geospatial analytics and 3D modeling during the design process to generate our proposals from an existing conditions model. Utilizing geospatial design software gave us an edge in the design process by allowing us to generate 3D models on the fly and communicate ideas and concepts with each other as well as stakeholders. Having the ability to virtually see in a matter of seconds design ideas speed up the process in finalizing and zoning into our goals set for our design.



Existing Conditions: Design Iterations:







Sustainability Goals: Keep our site and its soil confaminate-free and I cich throughout its future and not allow any waste to go to landtill Produce at least 10% more one 1 And oil the while create a place that is hermitful safe socially equitable, educational, artistically thriving. nic, and representative of the site's histor store vegetation to a level re early-human times to increase biodiversity both flore and Foune





18th St. Looking East









CAREER OUTLOOK

- Geographic Information Systems
- 3D Geospatial Technology
- 3D Parametric Modeling
- Spatial Analytics
- Planning and Design of the Built Environment
- Cross-Platform Design Technology







Where some of our graduates have launched their careers...



FACULTY PROFILE



COURSES

- GEOD-600: 3D Modeling for Geodesign
- GEOD-602: Geodesign Studio 1
- GEOD-605: Geodesign Research Studio
- GEOD-616: Info Modeling

Jefferson CREATE WHAT'S NEXT

Tatianna Swenda

MS in Geospatial Tech for Geodesign, Adjunct Professor

BS ARCH STUDIES FROM PHILADELPHIA UNIVERSITY MS GEODESIGN FROM PHILADELPHIA UNIVERSITY

Tatianna's work demonstrates her training in geo-spatial analytics, her experience in comprehensive anchor strategy development and program implementation, and her passion for helping U3 Advisor's clients expand their impact.

As an associate at U3, Tatianna has taken the lead role on managing and conducting comprehensive anchor strategy scans analyzing economic and demographic conditions, real estate market trends and market and institutional demand. She's inspired by the values and commitment of the missiondriven clients she works with, which include community development corporations such as Memphis Medical District Collaborative and Newark Alliance. Her work helping these institutions advance their mission through transformative strategies and interventions that positively impact their communities is informed by her experience as instructor of geospatial analytics courses at Jefferson University.

STUDENT PROFILE

Roberto Torres

LONG BRANCH, NJ (hometown) CLASS OF 2021

Born and raised in Long Branch, NJ. I graduated from Rowan University with a B.S in Urban Planning in 2016. My first time visiting Thomas Jefferson University I was struck with a "home" feeling. It's compact campus and natural landscape made it the best fit for me. Compared to other programs out there the M.S in Geospatial Technology for Geodesign offered a compelling curriculum. From it's diverse range of design courses to it's collaborative studios I knew this programs would provide me with the proper tools to advance in my career.

"The future belongs to those who are ready to believe so create your future and design for the rest"

Furthering my education has been very beneficial and a goal of mine so I encourage you take the initiative, stay focused and make sure to achieve your goals.



ALUMNI PROFILE

Brian Ledder

DESIGN STRATEGIST, GENSLER PLYMOUTH MEETING, PA (hometown) BROOKLYN, NY (current) CLASS OF 2017

At Gensler I've had the opportunity to find a niche in the design world and develop a deep expertise in something I truly enjoy, rather than remaining a jack-of-all trades design generalist. The uniqueness of Jefferson University's Geodesign program gave me the skills to develop that niche and define my own career.

"There are a lot of designers out there who can tell you how to build it, but the good ones can tell you why."

I spent so long searching for what I was passionate about but every time I thought I found it, it changed to something else. Better to pick something you like, get good at it, and eventually your skills will open doors to passions you didn't know existed.



Student Background

- The M.S. in Geospatial Technology for Geodesign program is designed for students with a background or interest in planning, landscape architecture, civil engineering, architecture, GIS, or related fields.
- Students have an opportunity to customize their course of study to explore complementary areas of study such as Sustainable Design.
- You can visit the web page of <u>Jefferson's Office of International</u> <u>Student Programs</u> for details on International Student Services.

Graduate Assistantships - CABE

- Scholarships and assistantships available to all new and eligible applicants:
 - University Graduate Student Assistantships
 - CABE Teaching Assistantship & Research Assistantship
 - Dean's Scholarship
 - International Institutional Partnership Scholarship
- Check: Jefferson's Web Page > Academics > College of Architecture & the Built Environment > Student Resources > Graduate Scholarships & Assistantships

Admission Requirements

- Completed Application for Graduate Admissions
- Official Academic Transcripts
- Current Resume/CV
- 2 Letters of Recommendation*
- Personal Essay**
- GRE is NOT required

* Recommendation letters can be emailed directly from your recommenders (there is no form required)

** The essay should tell us a little about yourself, your interests in our program and goals as a potential student. Essays should be no more than two pages in length.

Applications

	Jefferson Advantage	Academics	Admissions	Tuition & Financial Aid	Life at Jefferson	search	Nexus
COL	LEGE	DEGREE EARNED PROGRAM TYPE		Apply			
East	Falls Campus	Master of Science	ce	On Campus	Арріу		
College of Architecture & the Built Environment		Online Hybrid	Requ	est Info			

- Apply Online through <u>the Geodesign web page</u> and <u>Jefferson's Office of</u> <u>Graduate Admissions</u>
- You can email GradAdm@Jefferson.edu for admissions related questions.
- You can email James.Querry@Jefferson.edu for academic questions.



Jefferson

Thomas Jefferson University



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