Ph.D. Transportation and Environmental Engineering Appendices

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

December 16, 2019

Yan Yong
Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431

Dear Professor Yong:

The South Florida Water Management District (SFWMD) supports Florida Atlantic University's (FAU) Department of Civil Engineering establishing a Ph.D. program in Transportation and Environmental Engineering.

Civil Engineering serves the technological needs of society, particularly with regard to the constructed environment and the Transportation and Environmental disciplines are an important part of the program with great relevance to South Florida. It is especially important that future transportation and environmental engineers be thoroughly prepared not only in mathematics and physics common to other engineering disciplines, but also in the important aspects of chemistry, microbiology, modeling, statistical analysis, simulation, planning, management, and climate change, which are highly desired by the industry. Without this preparation, our future engineers will find it difficult to adjust to the rapid advances in engineering as it pertains to infrastructure and the needs of society.

The SFWMD is a regional governmental agency that manages the water resources in the southern half of Florida, covering 16 counties from Orlando to the Florida Keys and serving a population of 8.7 million residents. It is the oldest and largest of the state's five water management districts. Created in 1949, the agency is responsible for managing and protecting water resources of South Florida by balancing and improving flood control, water supply, water quality and natural systems. The SFWMD employs more than 300 scientists and engineers, many with Ph.D. degrees. They perform exceptional work in the water resources area that is recognized nationally and internationally. The SFWMD will continue to retain and recruit a high-quality work force in the future.

In closing, a new Ph.D. program in Transportation and Environmental Engineering at Florida Atlantic University will make a valuable contribution by providing a sustainable workforce of highly trained civil engineers for the industry and we support FAU efforts to make this happen.

Sincerely,

Drew Bartlett
Executive Director

3301 Gun Club Road, West Palm Beach, Florida 33406 • (561) 686-8800 • FL WATS 1-800-432-2045
Mailing Address: P.O. Box 24680, West Palm Beach, FL 33416-4680 • www.sfwmd.gov

TY·LIN INTERNATIONAL
engineers | planners | scientists

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431

September 4, 2019

FAU's pursuit of a PHD program in Transportation and Environmental Engineering

Dr. Yong,

TY Lin International is one of the nation's premier Engineering Consultants with an emphasis on Transportation and in my case Aviation. As an alumnus, I understand the value of a top-notch engineering degree option in South Florida with accommodations for students that also must work. In my firm, we are always on the lookout for engineers with advanced degrees that add value. We also have the flexibility to allow PHD candidates to work either full or part time while pursuing their degree. I have hired several FAU engineering graduates and have been pleased with their ability to quickly adapt to consulting.

I still try to participate in Civil Engineering activities at FAU, serving as a member of the Alumni Advisory Board as well as the Capstone program. In 45 years of experience, worldwide, I rate the young engineers from FAU near the best coming out of school with real life experience. Most of my PHD hires come from out of state or on occasion UF. What they seem to lack is practical knowledge to complement their technical abilities. With FAU, I have worked beside students with actual projects and assistance from other consultants and watched as their competency increased. Although I recently changed employers, it was my intention to team with FAU on a Florida Keys Resilience Program for Sea Level Rise that would be ideal for a PHD candidate combining both Environmental and Transportation.

I would certainly be willing to reach out to FAU first, based on the quality and enthusiasm of their professors and leadership when looking for new talent. I am positive that having access to students from this area with the drive to expand their knowledge base at the PHD level would be at least a huge plus for the region. I also know that exceptional students are being fully supported by exceptional faculty. TY Lin has offices worldwide and is known for talent sharing between offices and regions. When looking for advanced engineering talent, location can be flexible.

I am confident that FAU is moving in the right direction to become a premier research university and that needs a PHD program. If there is anything I can do to assist, please let me know.

Respectfully

John F Neff, PE
Senior Aviation Project Manager

SMARTSTRUCTURES

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL, 33431

Dr. Yong:

Smart Structures is honored to continue its support to Florida Atlantic University, and is excited about the Department of Civil Engineering's plan for a **Ph.D. program in Transportation and Environmental Engineering**. It is important that future engineers be skilled in these vital disciplines: mathematics and physics common to other engineering disciplines; as well as in the crucial aspects of chemistry, microbiology, simulation, modeling, statistical analysis, planning, management and climate change. It is unfortunate that there is a national shortage of engineers that possess a rigorous technical foundation and a high-level liberal education. A program at Florida Atlantic University would be well suited to effectively serve the needs of our local communities.

South Florida's continuous population growth, unique infrastructure and environmental challenges increase the need for highly-trained, multi-disciplined, engineers with this discipline-focused Ph.D. This significant increase in engineering talent will allow South Florida to be best prepared to engage advancing technology in civil engineering infrastructure.

Smart Structures is the world leader in embedding intelligence into concrete structures. First of its kind and is internationally recognized for its innovative strategies that provide sustainable solutions to projects locally and globally. In addition to our strong local presence and expanding client base, we have several projects that employ cutting-edge technologies and processes developed and led by employees. As Smart Structures continues to expand, and the complex nature of the multi-disciplinary projects increases, the demand for highly-trained key individuals is crucial.

Smart Structures along with sister companies has offices located throughout Florida including the southeast Florida area that could directly benefit by the educational and cooperative opportunities associated with such a program. We have worked with the FAU Department of Civil Engineering in several advisory roles and have also successfully employed several students.

The FAU Ph.D. in Transportation and Environmental Engineering will provide educational and research opportunities to assist the needs of students, engineering professionals, and employers in South Florida. Additionally, this new program will further propel Florida Atlantic University toward becoming a nationally recognized research university.

I am a strong supporter of this graduate program and would be happy to collaborate with you and the faculty to help ensure this program's success. Further, we plan to employ some of the local Ph.D. graduates in the future.

Sincerely,
Smart Structures

Aneesh Goly, PhD, PE

President
Smart Structures

Hazen and Sawyer
2101 NW Corporate Boulevard, Suite 301
Boca Raton, FL, 33431 • 561.997.8070

March 4, 2019

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, Florida 33431

RE: **Support for Ph.D. Program in Transportation and Environmental Engineering**

Dear Dr. Yong:

Hazen and Sawyer (Hazen) is pleased to support the Florida Atlantic University Department of Civil Engineering's plan for a **Ph.D. program in Transportation and Environmental Engineering**. These engineering disciplines serve the technological needs of society, particularly with regard to the constructed environment. Nationwide, there appears to be a shortage of engineers that possess a rigorous technical foundation and a top-level liberal education. It is important that future engineers be prepared not only in mathematics and physics common to other engineering disciplines, but in the important aspects of chemistry, microbiology, modeling, statistical analysis, simulation, planning, management, and climate change, which are highly desired by our industry. Southeast Florida, with its rapid population growth and unique infrastructure and environmental challenges has a strong need for highly trained, multi-disciplined, engineers. The knowledge and skills obtained with a Ph.D. education will certainly benefit the local community. An infusion of highly educated engineering talent will allow our region to prosper and be better prepared to adjust to rapid advances in technology as it pertains to civil engineering infrastructure as well as the needs of society. While other distant institutions offer advanced degrees, this Ph.D. program will enable a local institution to effectively serve the needs of our communities.

Hazen is a global environmental engineering and management firm recognized for innovative approaches to achieving sustainable solutions to projects locally and around the world. In addition to the local presence serving a traditional client base many of our projects across the globe employ cutting edge technologies and processes developed by led employees. The continued growth of the company and increasingly complex nature of the multi-disciplinary projects demand highly trained individual key positions.

Hazen

We have worked closely with the FAU Department of Civil, Environmental & Geomatics Engineering (CEGE) since its inception in a number of advisory roles. We have watched the Department's meteoric growth and success at an unexpectedly rapid pace. We have hired student interns to assist in our various local offices with several of them continuing in a permanent role. We have also assisted in placement of students with local employers. And we anticipate hiring graduates of this Ph.D. program. There will continue to be a shortage of civil/environmental engineering graduates with advanced degrees, and we believe the success of the FAU CEGE undergraduate programs will translate to success at the Ph.D. level.

The FAU PhD. in Transportation and Environmental Engineering will bring educational and research opportunities to assist the needs of students, engineering professionals, and employers in our region. I strongly support this graduate program, and I am willing to collaborate with you and the faculty to make this program m a success. Furthermore, offering the PhD. in Transportation and Environmental Engineering at FAU will enhance the opportunities to engage in collaborative research. Hazen has several offices in South Florida including a local office in Boca Raton that could directly benefit by the educational and cooperative opportunities associated with such a program.

In closing, we are confident that a new Ph.D. in Transportation and Environmental Engineering for the Department of Civil, Environmental & Geomatics Engineering at Florida Atlantic University will provide an important step forward for FAU in its evolution into a premier, nationally recognized research university that supports the needs of the State of Florida and the local community by providing qualified, competent professional engineers for the future. This new program will make a valuable contribution by supplying the next generation of highly trained engineers for our industry, and we look forward to hiring graduates of this program to fill our needs.

Sincerely,

HAZEN AND SAWYER

Albert Muniz

Albert Muniz / Vice President

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
801 NW 33rd Street | Pompano Beach, Florida 33064 | P 954-942-7245 | F 954-788-7961 | www.sfrta.fl.gov

March 6, 2019

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL, 33431

Dear Dr. Yong:

The South Florida Regional Transportation Authority is pleased to support the Florida Atlantic University Department of Civil, Environmental and Geomatics Engineering's plan for a **Ph.D. program in Transportation and Environmental Engineering**. These engineering disciplines serve the technological needs of society, particularly with regard to the constructed environment, and are skills that our agency relies to accomplish our mission to enhance mobility for the residents and visitors in our region.

Our country is suffering from a shortage of engineers with rigorous technical foundation and a top level education. Southeast Florida, with its rapid population growth and unique infrastructure and environmental challenges, has a strong need for highly trained, multi-disciplined, engineers. The knowledge and skills obtained with a Ph.D. in Transportation and Environmental Engineering will help ensure the safety, security and future of our community. A much needed infusion of engineering talent will allow our region to be better prepared to adjust to rapid advances in technology as it pertains to civil engineering infrastructure and the needs of society. Programs at other Florida universities are simply too far away to effectively serve the needs of our communities.

The FAU PhD. in Transportation and Environmental Engineering will bring educational and research opportunities to assist the needs of students, engineering professionals, and employers in Florida. I strongly support this graduate program, and I am willing to collaborate with you and the faculty to make this program a success. Furthermore, offering the PhD. in Transportation and Environmental Engineering at FAU will enhance the opportunities to engage in collaborative activities.

We are confident that a new PhD. program in Transportation and Environmental Engineering at Florida Atlantic University will make a valuable contribution to the economic development of Florida and provide an important step forward for Florida Atlantic University in its evolution into a premier, nationally recognized research university supporting the needs of the State of Florida and the engineering community.

Very truly yours,

Steven L. Abrams
Executive Director

The City of West Palm Beach

"The Capital City of the Palm Beaches"

Jeri Muoio, Ph.D.
Mayor
P.O. Box 3366
West Palm Beach, FL 33402
Phone: 561-822-1400
Fax: 561/822-1424
e-mail: jmuoio@wpb.org

June 30, 2014

Yan Yong
Interim Chair and Professor
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road, 36/231
Boca Raton, FL 33431

Dear Dr. Yong,

This letter is to document our support for the Department of Civil Engineering at Florida Atlantic University and its plans for a Ph.D. program in Civil Engineering. Civil Engineering serves the technological needs of society, particularly with regard to the constructed environment. Nationwide, we are suffering from a shortage of engineers that possess a rigorous technical foundation and a top level liberal education. It is especially important that future civil engineers be thoroughly prepared not only in mathematics and physics common to other engineering disciplines, but also in the important aspects of chemistry, microbiology, modeling, statistical analysis, simulation, planning, management, and climate change, which are highly desired by our industry. Without this preparation, our future engineers will find it difficult to adjust to the rapid advances in engineering as it pertains to sustainable infrastructure and the society needs.

The City of West Palm Beach is currently experiencing an upswing in development. We are seeing new buildings going up all around our City. We have also experienced difficulty hiring public sector engineers and I suspect the private sector has had the same challenges. In addition, we know how important it is to economic development to have an educated workforce. A new Ph.D. program in Civil Engineering would certainly be beneficial to West Palm Beach

In closing, we are confident that a new Ph.D. program in Civil Engineering at Florida Atlantic University will make a valuable contribution by providing a sustainable workforce of highly trained civil engineers for our industry, and we strongly support the Department's efforts to making this happen as soon as possible.

Sincerely,

Jeri Muoio
Mayor

"An Equal Opportunity Employer"

PALM BEACH
Transportation
Planning Agency

March 4, 2019

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL, 33431

Dear Dr. Yong:

The Palm Beach Transportation Planning Agency (TPA) is pleased to support the Florida Atlantic University Department of Civil, Environmental and Geomatics Engineering's plan for a Ph.D. program in Transportation and Environmental Engineering. These engineering disciplines serve the technological needs of society, particularly with regard to the constructed environment, and the depth and breadth of knowledge that a Ph.D. program will seek to establish can only benefit the Southeast Florida region. Our rapid population growth, evolving travel patterns and behaviors, and unique infrastructure and environmental challenges pose a strong need for highly trained, multi-disciplined, engineers. The knowledge and skills obtained with a Ph.D. in Transportation and Environmental Engineering will help ensure the safety, security and future of our community.

I strongly support this graduate program and am willing to collaborate with you and the faculty to make this program a success. Furthermore, offering the Ph.D. in Transportation and Environmental Engineering at Florida Atlantic University will enhance opportunities to engage in collaborative research. The TPA's focus on transportation planning for all of Palm Beach County could benefit by the educational and cooperative opportunities associated with such a program.

We are confident that a new Ph.D. program in Transportation and Environmental Engineering at Florida Atlantic University will make a valuable contribution to the economic development of Florida and by providing an important step forward for Florida Atlantic University in its evolution into a premier, nationally recognized research university supporting the needs of the State of Florida and the engineering community by providing qualified and competent professional civil engineers for the future.

Sincerely,

Nick Uhren, P.E.
Executive Director

2300 North Jog Road 4th Floor, West Palm Beach, FL 33411 | 561.684.4170 | PalmBeachTPA.org

TranSystems

3230 W. Commercial Blvd.
Suite 450
Fort Lauderdale, FL 33309
Tel 954 653-4700
Fax 954 567-2511

www.transystems.com

October 18, 2019

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL, 33431

Dear Dr. Yong:

TranSystems Corporation and I are pleased to support the Florida Atlantic University Department of Civil Engineering's plans for a Ph.D. program in Transportation and Environmental Engineering. These engineering disciplines serve the technological needs of society with regard to the constructed environment. Nationwide, we are suffering from a shortage of engineers that possess a rigorous technical foundation upon graduation. It is important that future engineers be prepared not only in basic engineering disciplines, but in the important aspects of chemistry, microbiology, modeling, statistical analysis, simulation, planning, management, and climate change, which are highly desired by our industry. South Florida, with its rapid population growth and unique infrastructure and environmental challenges has a strong need for highly trained engineers. The knowledge and skills obtained from such a Ph.D. education will help ensure the safety, security, and long term viability of our community. A much needed infusion of engineering talent will allow our region to be better prepared to adjust to rapid advances in technology as it pertains to civil engineering infrastructure and the needs of society. Programs at other Florida universities are simply too far away to effectively serve the needs of our industry.

TranSystems' transportation consulting services span all modes and provide a full range of architectural, engineering and planning services: management and supply chain consulting services, transportation security consulting services, and transportation real estate consulting services.

The FAU Ph.D. in Transportation and Environmental Engineering will bring educational and research opportunities to assist the needs of students, engineering professionals, and employers in our region. I strongly support this graduate program, and I am willing to collaborate with you and the faculty to make this program a success. Furthermore, the Ph.D. in Transportation and Environmental Engineering will enhance the opportunities for our company to engage with FAU in collaborative research.

In closing, we are confident that a new Ph.D. program in Transportation and Environmental Engineering at FAU will make a valuable contribution to our industry by providing an important step forward for FAU in its evolution into a premier, nationally recognized research university supporting the needs of the State of Florida and the engineering community by providing qualified and competent professional civil engineers for the future. At TranSystems, we look forward to hiring graduates of this Ph.D. program.

Sincerely,

Alan Klevens, P.E.
Principal, Sr. Vice President

CAULFIELD & WHEELER, INC.
Consulting Engineers • Surveyors & Mappers

Celebrating 35 years

Engineering EB0003591
Surveying LB0003591
Landscape Architecture LC0000318

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental and Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL, 33431

Dear Dr. Yong,

Caulfield & Wheeler, Inc. is pleased to support the Florida Atlantic University Department of Civil Engineering's plan for a **Ph.D. program in Transportation and Environmental Engineering**. These engineering disciplines serve the technological needs of society, particularly with regard to the constructed environment. We are suffering from a shortage of engineers that possess a rigorous technical foundation and top level education. It is important that future engineers be prepared not only in mathematics and physics common to other engineering disciplines, but in the important aspects of chemistry, microbiology, modeling, statistical analysis, simulation, planning, management, and climate change, which are highly desired by our industry. Southeast Florida, with its rapid population growth and unique infrastructure and environmental challenges has a strong need for highly trained, multi-disciplined, engineers. The knowledge and skills obtained with a Ph.D. education will help ensure the safety, security and future of our community. A much needed infusion of engineering talent will allow our region to be better prepared to adjust to rapid advances in technology as it pertains to civil engineering infrastructure and the needs of society. Programs at other Florida universities are simply too far away to effectively serve the needs of our local communities.

Caulfield & Wheeler, Inc. is an engineering, surveying, construction and management firm recognized for innovative approaches to achieving sustainable solutions to significant amounts of projects. Many of our projects employ cutting edge technologies and processes developed by led employees. The continued growth of the company and increasingly complex nature of the multi-disciplinary projects demand highly trained individual key positions.

We have worked with the FAU Department of Civil Engineering since it's inception in a number of advisory roles. We have watched the department grow and succeed at an unexpectedly rapid pace. We have hired student interns to assist in our various local offices with several of them continuing in a permanent role. Every one of these students has been successful at Caulfield & Wheeler, Inc., a firm noted for its high employee standards. There will continue to be a shortage of civil engineering students with advanced degrees and we believe the success of the FAU undergraduate program will translate to success at the Ph.D. level.

The FAU PhD. in Transportation and Environmental Engineering will bring educational and research opportunities to assist the needs of students, engineering professionals, and employers in our region. I strongly support this graduate program, and I am willing to collaborate with you and the faculty to make this program m a success. Furthermore, offering the PhD. in Transportation and Environmental

Engineering at FAU will enhance the opportunities to engage in collaborative research. Caulfield & Wheeler, Inc. has two offices in the southeast Florida area that could directly benefit by the educational and cooperative opportunities associated with such a program.

In closing, we are confident that a new PhD. program in Transportation and Environmental Engineering at Florida Atlantic University will make a valuable contribution by providing an important step forward for Florida Atlantic University in its evolution into a premier, nationally recognized research university supporting the needs of the State of Florida and the engineering community by providing qualified and competent professional civil engineers for the future.

Sincerely,

Ryan D. Wheeler, P.E., LEED AP, B.S.C.E. '06

CES
CONSULTANTS

August 29, 2019

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431

RE: Support for Ph.D. Program in Transportation and Environmental Engineering

Dear Dr. Yong:

CES Consultants, Inc. (CES) is pleased to support the Florida Atlantic University (FAU) Department of Civil, Environmental & Geomatics Engineering's plan for a **Ph.D. Program in Transportation and Environmental Engineering**. There is certainly a need for this program in Southeast Florida, and I am sure nationally with urbanization becoming more prevalent, and the transportation and environment issues that it brings. Here locally, CES is involved heavily with the South Florida Management District with its work to restore the Everglades. We have just recently hired a graduate from FAU who will be completing his Ph.D. in December. Even though this hire just started with CES, we can already see the potential he is bringing us in the area of sustainability for future work opportunities. FAU has done an outstanding job of educating this young man as he has stepped right in and is performing work at a high level of competency.

CES is a 100% minority owned civil engineering firm with offices in Miami, Pembroke Pines, West Palm Beach and Tampa, Florida. We also have an office in New York City. Our work focuses mainly on environmental projects, but we have done some transportation CEI as well. We feel the **Ph.D. Program in Transportation and Environmental Engineering** will definitely provide us with highly trained graduates that we look forward to hiring.

Sincerely,

CES CONSULTANTS, INC.
Bud Goblisch
Bud Goblisch, P.E. / Vice President

CHEN·MOORE
&ASSOCIATES

500 West Cypress Creek Road, Suite 630
Fort Lauderdale, FL 33309
Telephone: +1 (954) 730-0707
Fax: +1 (954) 730-2030

September 6, 2019

Dr. Yan Yong, Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431

RE: Support for Ph.D. Program in Transportation and Environmental Engineering

Dear Dr. Yong:

Chen Moore and Associates (CMA) is pleased to support the Florida Atlantic University (FAU) Department of Civil, Environmental & Geomatics Engineering's plan for a **Ph.D. Program in Transportation and Environmental Engineering**. There is a national need for engineers with technical training beyond the Masters degree, particularly in the intersection of transportation and environmental engineering. Southeast Florida, with its rapid population growth and unique infrastructure and environmental challenges has a strong need for highly trained, multi-disciplined engineers. The knowledge and skills obtained with a Ph.D. education will certainly benefit the local community. An infusion of highly educated engineering talent will allow our region to prosper and be better prepared to adjust to rapid advances in technology as it pertains to sustainable infrastructure and the public needs. While other distant institutions offer advanced degrees, the Ph.D. program will enable a local institution to effectively serve the needs of our communities.

Chen Moore and Associates is a multi-discipline consulting firm with offices in Broward, Miami-Dade, Palm Beach, Orange, Duval and Alachua Counties. Founded in 1986, Chen Moore and Associates specializes in civil and environmental engineering; landscape architecture; planning; GIS analysis and mapping; transportation, streetscaping and traffic improvements; construction administration; wastewater collection, transmission, reuse; pump station design and rehabilitation; water supply, treatment, and distribution; stormwater system design and master plans; and modeling and permitting of drainage, water distribution, and sewer collection.

We have worked closely with the FAU Department of Civil, Environmental & Geomatics Engineering (CEGE) since its inception in a number of advisory roles. We have watched the Department's meteoric growth and success at an unexpectedly rapid pace. We have hired student interns to assist in our various local offices with several of them continuing in a permanent role. We have also assisted in placement of students with local employers. And we anticipate hiring graduates of this Ph.D. program. There will continue to be a shortage of civil/environmental engineering graduates with advanced degrees, and we believe the success of the FAU CEGE undergraduate programs will translate to success at the Ph.D. level.

The FAU Ph.D. in Transportation and Environmental Engineering will bring educational and research opportunities to assist the needs of students, engineering professionals and employers in our region. CMA strongly supports this graduate program and pledges to collaborate with FAU

CHEN·MOORE
&ASSOCIATES

500 West Cypress Creek Road, Suite 630
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Fax: +1 (954) 730-2030

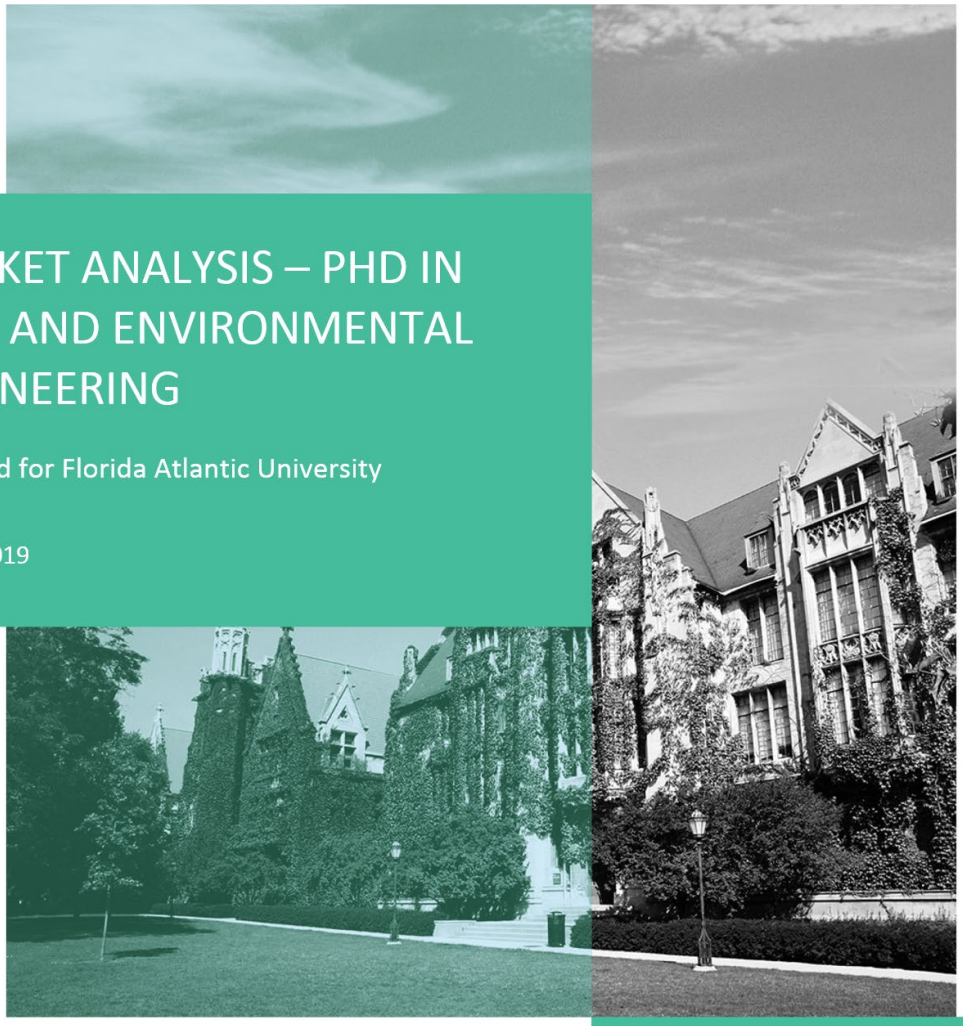
and its faculty and students to make this proposed program a success. CMA has several offices in South Florida, including local offices in Fort Lauderdale and West Palm Beach, that would directly benefit by the educational and cooperative opportunities associated with this Ph.D. program.

We are confident that a new Ph.D. in Transportation and Environmental Engineering for the Department of Civil, Environmental & Geomatics Engineering at Florida Atlantic University will provide an important step forward for FAU in its evolution into a premier, nationally recognized research university that supports the needs of the State of Florida and the local community by providing qualified, competent professional engineers for the future. This new program will make a valuable contribution by supplying the next generation of highly trained engineers for our industry, and we look forward to hiring graduates of this program to fill our needs.

Sincerely,

Chen Moore and Associates
Peter Moore, P.E., LEED AP, ENV SP, F.ASCE / President

APPENDIX D. MARKET ANALYSIS BY HANOVER RESEARCH



MARKET ANALYSIS – PHD IN CIVIL AND ENVIRONMENTAL ENGINEERING

Prepared for Florida Atlantic University

March 2019

In the following report, Hanover Research examines student and labor market demand for a PhD degree with a Major in Civil and Environmental Engineering. Hanover also analyzes the market saturation for graduates and provides an overview of competitor programs.

HANOVER RESEARCH

www.hanoverresearch.com

TABLE OF CONTENTS

Executive Summary

Introduction

Florida Atlantic University (FAU) proposes to create a PhD program in Civil and Environmental Engineering. In the following report, Hanover Research (Hanover) provides an overview of the market for civil and environmental engineering doctorate programs in Florida and Southeast Florida to inform program viability and design. This report consists of three sections:

- **Section I: Student Demand** examines student demand for a doctoral degree that combines civil and environmental engineering, considering current enrollment and degree completion trends in the Florida University System.
- **Section II: Labor Market Demand** examines employment projections for civil and environmental engineering related occupations at the state and local levels, and identifies top employers in Southeast Florida.
- **Section III: Competitor Scan** assesses the competitive landscape for the proposed program in Florida and common curriculum requirements.

Recommendations

- FAU should move forward with marketing its program as a combined PhD degree in civil and environmental engineering, as this would be unique in Florida.
- FAU should position its degree as one that will prepare graduate for careers as both academic researchers *and* practitioners to best meet the region's workforce needs.
- Given that existing online/hybrid programs are very limited at the doctoral level, FAU should explore why this may be the case through in-depth interviews with other institutions that offer PhD degrees in Civil and/or Environmental Engineering.
    - Hanover recommends targeting institutions that offer some coursework online for interviews (e.g., institutions that offer a master's degree in civil and environmental engineering online, but not their PhD; institutions that offer a PhD in civil engineering in a hybrid format).
    - Interviews can be used to uncover information on student enrollment and demand for online and hybrid programming, logistical considerations, potential challenges, and recommended structure for FAU's proposed program.
- FAU might also consider conducting a prospective student survey or interviews to gain further insight into student interest at the PhD level, particularly in terms of delivery format.

Key Findings

- **Job opportunities related to civil and environmental engineering in Southeast Florida are plentiful and expected to grow by 2025**. Above average job growth is projected for Postsecondary Engineering Teachers, Environmental Engineers, and Civil Engineers in Workforce Regions 20 through 22. Across these three occupations, total annual job openings are expected to average 378, with the largest number of

openings for civil engineers. However, vacancies for engineering professors will be limited.

- **Combined civil and environmental engineering programs have expanded rapidly, with more than five times as many students enrolled in 2015 as in 2006**. However, this is still a relatively small field, with approximately 1,200 PhD enrollments nationwide in 2015. Enrollment trends for civil and environmental engineering PhD programs in Florida suggest that student demand has been steady over the past five years, with most programs enrolling between 30 and 60 students in 2017. In sum, these trends suggest that FAU's goals of enrolling 7 to 10 students in the first year and five students per year thereafter would be feasible. However, a prospective student survey is recommended to ensure sufficient student interest.
- **FAU's proposed program would be the first of its kind in Florida and among the first nationwide.** In Florida, students must choose between a PhD in Civil Engineering (offered by six universities) or a PhD in Environmental Engineering (offered by three universities). Likewise, no Florida competitors offer online or hybrid options for coursework, like FAU has proposed. FAU's closest competitors would likely be Florida International University, University of Miami, and Florida State University-FAMU, which all offer PhD programs in Civil Engineering with concentrations in Environmental Engineering. A review of combined Civil and Environmental Engineering programs nationally only identified one institution that formally offers a hybrid PhD program.
- **FAU's proposed credit requirements are slightly lower than those of competitor programs, but its curriculum requirements are similar**. FAU's proposed total credits beyond the bachelor's degree (72 credits) is slightly lower than the competitor average (76.5 credits). Like FAU's proposal, nearly all competitor programs require a qualifying exam, dissertation proposal defense, and dissertation defense. However, unlike FAU, most competitor programs do *not* include a publication requirement.

Section I: Student Demand

To assess potential student demand for a doctorate degree in civil and environmental engineering, Hanover examines enrollment and degree completion trends at the national and state levels.

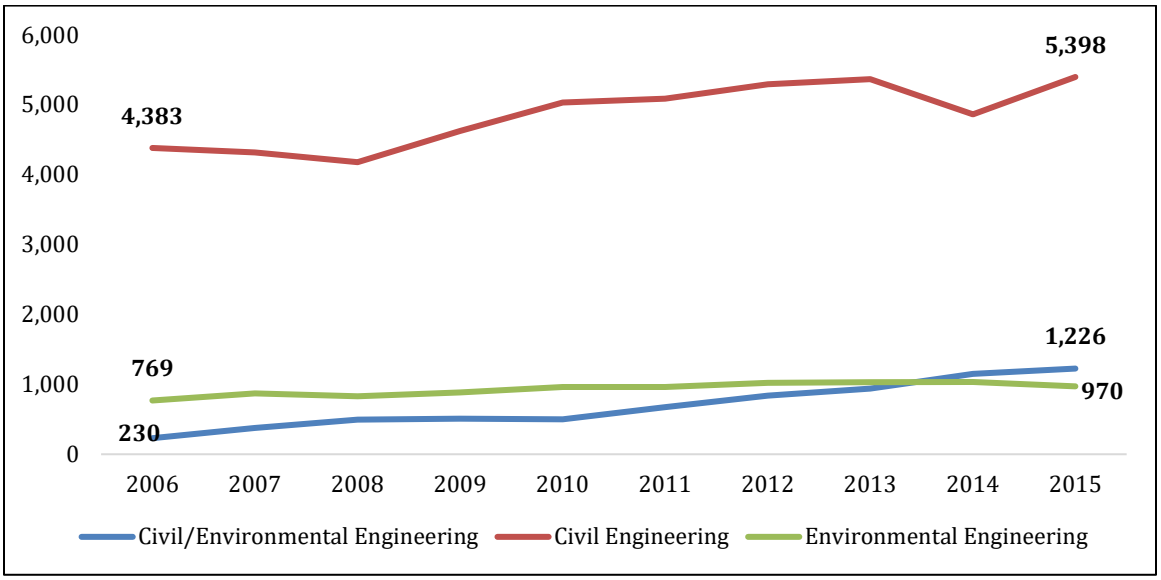
Enrollment Trends

The American Society for Engineering Education (ASEE) tracks annual enrollments in engineering disciplines for 358-member institutions.[1] The ASEE recognizes three relevant engineering disciplines related to the fields of civil and environmental engineering: combined civil and environmental engineering, civil engineering, and

[1] "Online Profiles." American Society for Engineering Education (ASEE). http://profiles.asee.org/

environmental engineering. Enrollment in civil engineering doctorate programs has historically been much higher than enrollment in civil and environmental engineering or environmental engineering programs. However, **combined civil and environmental engineering PhD programs have expanded rapidly, with more than five times as many students enrolled in 2015 as in 2006**.[2] In fact, in 2014, Civil/Environmental Engineering enrollments surpassed Environmental Engineering enrollments. These trends suggest that students are increasingly interested in enrolling in combined civil and environmental engineering doctoral programs.

Figure 1.1: National Doctorate Enrollment in Civil and Environmental Engineering Programs, 2006-2015



Source: ASEE[3]

Note: Enrollment reflects both full-time and part-time students.

Degree Completions

In the following section, Hanover analyzes degree completions trends as reported by the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Hanover analyzes degree completions trends in terms of three metrics: compound annual growth rate (CAGR), average annual change (AAC), and the standard deviation of the year-to-year change (STDEV).

- **CAGR** reflects the percentage growth that would occur each year if one assumed the same change occurred yearly between the first year and the final year. It gives an impression of a theoretical, steady growth rate by ignoring data presented during middle years.

[2] Yoder, B. "Engineering by the Numbers." American Society for Engineering Education (ASEE). pp. 43-44. https://www.asee.org/papers-and-publications/publications/college-profiles/15EngineeringbytheNumbersPart1.pdf

[3] Ibid.

- **AAC** shows average year-to-year differences. It allows for a more comprehensive view of the yearly average change in completions, with each year playing a role in determining the figure.
- **STDEV** indicates how significantly each year's change varies from the AAC. The larger the STDEV, the greater amount of variance present over a five-year period. Inconsistency in STDEV does not necessarily mean a negative outcome—growth patterns that rapidly accelerate over time will have a higher STDEV than generally consistent ones.

A full description of the methodologies used in this section and definitions of individual fields can be found in the Appendix at the end of this report.

National Trends

Nationally, student demand for doctoral programs in civil and environmental engineering and related fields increased between 2012 and 2016, with an annualized growth of 6.1 percent. This compares favorably to the annualized growth rate seen across all PhD programs in the United State during this same period (2.8 percent).

Civil Engineering, General awarded over 950 doctorate degrees in 2016, accounting for the majority of completions, and reported above average annual growth of 6.1 percent. *Environmental/ Environmental Health Engineering* awarded far fewer degrees by comparison and reported 2.6 percent annualized growth, in line with the national average. Across the other fields examined, *Biological/ Biosystems Engineering*, *Geological/ Geophysical Engineering*, and *Surveying Engineering* recorded the highest growth in conferrals overall. However, each of these fields is very small, graduating fewer than 30 PhD students in a single year.

Figure 1.2: National Doctor's Degree Completions in Civil and Environmental Engineering Related Fields, 2012-2016*

CIP Category	2012	2013	2014	2015	2016	CAGR	AAC	STDEV
Civil Engineering, General	756	840	939	990	959	6.1%	51	50
Structural Engineering	12	11	9	25	20	13.6%	2	8
Transportation and Highway Engineering	10	7	9	9	15	10.7%	1	3
Water Resources Engineering	13	11	12	14	12	-2.0%	0	2
Civil Engineering, Other	1	0	6	2	4	41.4%	1	4
Environmental/Environmental Health Engineering	127	158	166	171	141	2.6%	4	22
Materials Engineering	549	600	589	637	670	5.1%	30	25
Construction Engineering	-	1	0	1	1	-	-	-
Surveying Engineering	2	0	0	1	9	45.6%	2	4

CIP Category	2012	2013	2014	2015	2016	CAGR	AAC	STDEV
Geological/Geophysical Engineering	4	16	18	15	21	51.4%	4	5
Biological/Biosystems Engineering	2	9	15	26	21	80.0%	5	6
Total	**1,476**	**1,653**	**1,763**	**1,891**	**1,873**	**6.1%**	**99**	**72**

Source: IPEDS
*Includes degree completions reported under the award level "Doctor's degree – research/scholarship." Note that the following CIP fields reported zero completions at the doctorate level: 14.0802 Geotechnical and Geoenvironmental Engineering and 14.4401 Engineering Chemistry.

Distance Education Programs

IPEDS reports the past five years of "distance" program completions, which rely on "one or more technologies to deliver instruction to students who are separated from the instructor." However, programs classified as distance education are not necessarily fully online and may involve residential requirements. Additionally, because IPEDS does not disaggregate distance and onsite completions by institution, there is no way to determine the number of distance completions within a given academic field, only the number of institutions that report offering a distance program.

As shown in Figure 1.3, **there are very few universities in the United States that offer distance learning options for doctorate degrees in civil and environmental engineering**. One such institution is the University of South Carolina – Columbia. The College of Engineering and Computing "offers certain online courses for busy professionals seeking advanced degrees...Students in the program view their classes via streaming video" with "various courses offered three times a year following a tri-semester plan."[4] While their PhD in Civil Engineering is not specifically marketed as a hybrid program, students may take advantage of the online coursework.[5] However, all doctoral-level programs "require a research component that must be done in residence."[6]

Overall, these trends suggest that FAU would be creating a unique PhD program by offering the proposed degree fully or partially online. However, given that distance completions are so limited at the doctoral level, Hanover recommends speaking with the programs that do offer online or hybrid options directly to understand if there are any other impediments to offering core coursework fully online. Likewise, FAU could also speak with combined PhD programs that offer onsite options only to understand if they have considered offering their degrees online and what their opinion of alternative delivery methods would be.

[4] "Distance Education." University of South Carolina. https://sc.edu/study/colleges_schools/engineering_and_computing/study/programs_degrees/distance/index.php

[5] "Doctoral (Ph.D.) Degree." College of Engineering and Computing University of South Carolina. https://sc.edu/study/colleges_schools/engineering_and_computing/study/civil_and_environmental_engineering/degree_programs/phd-degree.php

[6] "Distance Education," Op. cit.

Figure 1.3: Degree Conferrals at Institutions offering Distance Learning Options in Civil and Environmental Engineering, 2012-2016

INSTITUTION	2012	2013	2014	2015	2016	CAGR	AAC	STDEV
Civil Engineering, General								
Columbia University in the City of New York	7	13	7	9	10	9.3%	1	4
University of Alabama Huntsville	-	-	-	2	2	-	-	-
University of South Carolina - Columbia	6	6	11	9	4	-9.6%	-1	4
Total	**13**	**19**	**18**	**20**	**16**	**5.3%**	**1**	**6**
Environmental/Environmental Health Engineering								
Columbia University in the City of New York	4	4	-	-	-	-	-	-
Total	**4**	**4**	**-**	**-**	**-**	**-**	**-**	**-**
Materials Engineering								
Texas A&M University – College Station	7	18	17	-	-	-	-	-
Total	**7**	**18**	**17**	**-**	**-**	**-**	**-**	**-**
Total, All Fields	**24**	**41**	**35**	**20**	**16**	**-9.6%**	**-2**	**12**

Source: IPEDS

State Trends

Doctorate conferral trends for civil and environmental engineering fields in Florida are less promising, with an annual decrease of 2.1 percent between 2012 and 2016. **Except for the University of Florida, most competitor programs are small – graduating between 2 and 13 students in 2016**. However, based on these trends, FAU's goal to graduate five students per year seems tenable with the proper recruitment strategy.

In Southeast Florida specifically, the only two universities producing PhD graduates in civil and environmental engineering fields are Florida International University (FIU) and the University of Miami (UMiami). The competitive landscape in Florida is discussed further in Section III.

Figure 1.4: Florida Doctor's Degree Completions in Civil and Environmental Engineering Related Fields, 2012-2016

INSTITUTION	2012	2013	2014	2015	2016	CAGR	AAC	STDEV
Civil Engineering, General								
Florida Agricultural and Mechanical University	-	1	0	1	-	-	-	-
Florida Institute of Technology	2	1	-	2	2	-	-	-
Florida International University	7	9	8	11	11	12.0%	1	2
Florida State University	2	2	0	4	2	0.0%	0	2
University of Central Florida	9	5	8	11	13	9.6%	1	3

INSTITUTION	2012	2013	2014	2015	2016	CAGR	AAC	STDEV
University of Florida	16	13	15	11	13	-5.1%	-1	3
University of Miami	2	6	4	3	4	18.9%	1	2
University of South Florida	15	9	7	8	6	-20.5%	-2	2
Total	**53**	**46**	**42**	**51**	**51**	**-1.0%**	**-1**	**6**
Environmental/Environmental Health Engineering								
University of Central Florida	1	3	1	5	4	41.4%	1	2
University of Florida	9	10	20	7	4	-18.4%	-1	8
University of South Florida	-	1	1	3	4	-	-	-
Total	**10**	**14**	**22**	**15**	**12**	**4.7%**	**1**	**6**
Materials Engineering								
Florida International University	4	7	4	3	3	-6.9%	0	2
University of Central Florida	4	10	4	3	3	-6.9%	0	4
University of Florida	28	23	24	20	22	-5.9%	-2	3
Total	**36**	**40**	**32**	**26**	**28**	**-6.1%**	**-2**	**5**
Total, All Fields	**99**	**100**	**96**	**92**	**91**	**-2.1%**	**-2**	**2**

Source: IPEDS

Section II: Labor Market Demand

In the following section, Hanover examines employment projections and job posting trends associated with the proposed PhD in Civil and Environmental Engineering.

Employment Projections

State labor market projections align with occupations as defined by the Bureau of Labor Statistics' (BLS) Standard Occupational Code (SOC) system. The SOC system is analogous to the CIP system, and the two are connected by the CIP-SOC crosswalk, which maps individual (six-digit) degree programs to (six-digit) occupations. [7] Hanover uses this crosswalk to develop a list of SOC-defined occupations to assess labor market demand for individuals with training in civil and environmental engineering. Table 2.1 presents the BLS crosswalk-identified occupations related to a degree in civil and environment engineering that typically require at least a bachelor's degree for entry into the field. Of note, the only occupations in this crosswalk that *require* a doctorate degree are *Engineering Teachers*, *Postsecondary* and *Environmental Science Teachers, Postsecondary.* However, graduate level education is still common across many of the professions listed below. For example, 26.1 percent of Civil Engineers hold master's degrees, and 4.0 percent hold doctorate or professional degrees.[8]

[7] "CIP 2010 to SOC 2010 Crosswalk." National Center for Education Statistics (NCES). http://nces.ed.gov/ipeds/cipcode/resources.aspx?y=55

[8] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation." Bureau of Labor Statistics. https://www.bls.gov/emp/ep_table_111.htm

Table 2.1: SOC Codes and Titles

SOC Code	Employment Description Title
11-1011	Chief Executives
11-1021	General and Operations Managers
11-3071	Transportation, storage, and distribution managers
11-9021	Construction Managers
11-9041	Architectural and Engineering Managers
11-9161	Emergency Management Directors
17-1011	Architects, except landscape and naval
17-1012	Landscape Architects
17-1021	Cartographers and Photogrammetrists
17-1022	Surveyors
17-2051	Civil Engineers
17-2081	Environmental Engineers
17-2111	Health and Safety Engineers
17-2112	Industrial Engineers
17-2121	Marine Engineers and Naval Architects
17-2131	Materials Engineers
17-2151	Mining and Geological Engineers
19-1031	Conservation Scientists
19-2041	Environmental Scientists and Specialists
19-2042	Geoscientists, Except Hydrologists and Geographers
19-2043	Hydrologists
19-3051	Urban and Regional Planners
25-1032	Engineering Teachers Postsecondary
25-1053	Environmental Science Teachers Postsecondary
41-9031	Sales Engineers
47-2073	Operating Engineers and other construction
47-4011	Construction and building inspectors

Source: BLS

State Trends

Overall, openings for civil and environmental engineering related occupations in Florida are projected to increase by 12.5 percent from 2017 to 2025. This is slightly above the average growth rate projected for all occupations in the state during this period (11.3 percent). The occupations projected to see the highest growth include: *Cartographers and Photogrammetrists* (33.9 percent), *Biomedical Engineers* (23.7 percent), and *Engineering Teachers, Postsecondary* (16.7 percent). However, *Civil Engineers* and *Environmental Engineers* are also projected to grow at above average rates of 15.2 percent and 14.6 percent, respectively. Across all occupations considered, *Civil Engineers* are expected to have the highest total volume of job openings by far.

Figure 2.2: Florida Projections for Occupations Related to Civil and Environmental Engineering, 2017-2025

SOC Code	Title	Employment		Projected Change		Total Job Openings
		2017	2025	Number	Percent	
11-9041	Architectural and Engineering Managers	6,830	7,665	835	12.2%	4,609
17-1021	Cartographers and Photogrammetrists	579	775	196	33.9%	599
17-1022	Surveyors	3,718	3,946	228	6.1%	2,511
17-2031	Biomedical Engineers	725	897	172	23.7%	571
17-2041	Chemical Engineers	451	496	45	10.0%	290
17-2051	Civil Engineers	18,882	21,759	2,877	15.2%	14,822
17-2081	Environmental Engineers	2,704	3,098	394	14.6%	2,089
17-2111	Health and Safety Engineers	962	1,083	121	12.6%	641
17-2112	Industrial Engineers	10,221	11,024	803	7.9%	6,204
17-2121	Marine Engineers and Naval Architects	299	334	35	11.7%	154
17-2131	Materials Engineers	588	645	57	9.7%	340
19-1031	Conservation Scientists	287	322	35	12.2%	272
19-2041	Environmental Scientists and Specialists, Including Health	5,721	6,352	631	11.0%	5,153
19-2042	Geoscientists	626	719	93	14.9%	597
19-2043	Hydrologists	253	292	39	15.4%	243
25-1032	Engineering Teachers, Postsecondary	1,727	2,015	288	16.7%	1,460
25-1053	Environmental Science Teachers, Postsecondary	112	125	13	11.6%	87
41-9031	Sales Engineers	2,037	2,261	224	11.0%	1,829
Total		**56,722**	**63,808**	**7,086**	**12.5%**	**42,471**

Source: FDEO[9]

Note: Occupational projections for SOC code 17-2151 Mining and Geological Engineers are not reported for Florida.

Local Trends

The Florida Department of Economic Opportunity (FDEO) provides local labor projections for the largest counties and single county workforce regions in the state. To approximate labor market demand in FAU's region, Hanover examines occupational projections for Workforce Regions 20 through 22, which encompass Palm Beach, Broward, Indian River, Martin, and Saint Lucie Counties.

In Southeast Florida, civil and environmental engineering related occupations are projected to grow at a rate of 13.9 percent through 2025 – slightly faster than the state growth rate. The FDEO projects the highest growth for *Biomedical Engineers*, with are expected to increase by 32.1 percent. Strong growth is also projected for *Engineering Teachers, Postsecondary* (19.0 percent), *Environmental Engineers* (16.3

[9] "Employment Projections." Florida Department of Economic Opportunity (FDEO). http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections

percent), and *Civil Engineers* (15.3 percent). Across these three occupations, total *annual* job openings are expected to average 378, which would suggest a sizeable job market for graduates of FAU's proposed program.

However, it is worth noting that job openings for engineering professors will be limited to only about 20 per year across all engineering disciplines. For this reason, FAU should position its degree as one that will prepare graduate for careers as both academic researchers *and* practitioners to best meet the region's workforce needs.

Figure 2.3: Southeast Florida Projections for Occupations Related to Civil and Environmental Engineering, 2017-2025

SOC Code	Title	Employment		Projected Change		Total Job Openings Due to Growth
		2017	2025	Number	Percent	
11-9041	Architectural and Engineering Managers	934	1,058	124	13.3%	643
17-1022	Surveyors	771	843	72	9.3%	551
17-2031	Biomedical Engineers	81	107	26	32.1%	73
17-2051	Civil Engineers	3,050	3,517	467	15.3%	2,398
17-2081	Environmental Engineers	584	679	95	16.3%	464
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	148	164	16	10.8%	95
17-2112	Industrial Engineers	1610	1802	192	11.9%	1,124
17-2121	Marine Engineers and Naval Architects	15	19	4	26.7%	10
17-2131	Materials Engineers	73	83	10	13.7%	45
19-1031	Conservation Scientists	44	49	5	11.4%	41
19-2041	Environmental Scientists and Specialists, Including Health	1,005	1,120	115	11.4%	912
19-2042	Geoscientists, Except Hydrologists and Geographers	76	92	16	21.1%	78
19-2043	Hydrologists	30	37	7	23.3%	32
25-1032	Engineering Teachers, Postsecondary	184	219	35	19.0%	162
41-9031	Sales Engineers	385	448	63	16.4%	373
Total, Workforce Regions 20-22		**8,990**	**10,237**	**1,247**	**13.9%**	**7,001**

Source: FDEO[10]

Note: Occupational projections for SOC code 17-1021 Cartographers and Photogrammetrists, 17-2041 Chemical Engineers, 17-2151 Mining and Geological Engineers, and 25-1053 Environmental Science Teachers, Postsecondary are not reported for Southeast Florida.

Salary Data

[10] Ibid.

Salary data from the BLS indicates professionals who work in fields related to civil and environmental engineering can expect salaries between $63,520 and $132,130. As shown in Figure 2.4, the highest salary is for *Architecture and Engineering Managers.* However, since all occupations besides *Postsecondary Engineering Teachers* require at least a bachelor's degree, a doctorate degree would likely increase a candidate's earning potential.

Figure 2.4: Annual Salaries for Civil and Environmental Engineering Related Occupations in Southeast Florida, May 2016*

Occupation	Annual Mean Wage
Architecture and Engineering Managers	$148,950
Surveyors	$55,890
Civil Engineers	$94,190
Environmental Engineers	$72,040
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	$64,740
Industrial Engineers	$81,730
Materials Engineers	$84,870
Environmental Scientists and Specialists, Including Health	$68,500
Geoscientists, Except Hydrologists and Geographers	$85,070
Engineering Teachers, Postsecondary	$117,110
Sales Engineers	$110,920

Source: BLS[11]

*Salary data not available for Biomedical Engineers, Chemical Engineers, Cartographers, Marine Engineers, Mining and Geological Engineers, Conservation Specialists, Hydrologists, or Environmental Science Teachers Postsecondary.
Note: Salaries for Southeast Florida are estimated using BLS data for the West Palm Beach-Boca Raton-Delray Beach, FL metropolitan division, which includes Palm Beach County. Note that the BLS does not report average salaries by workforce region.

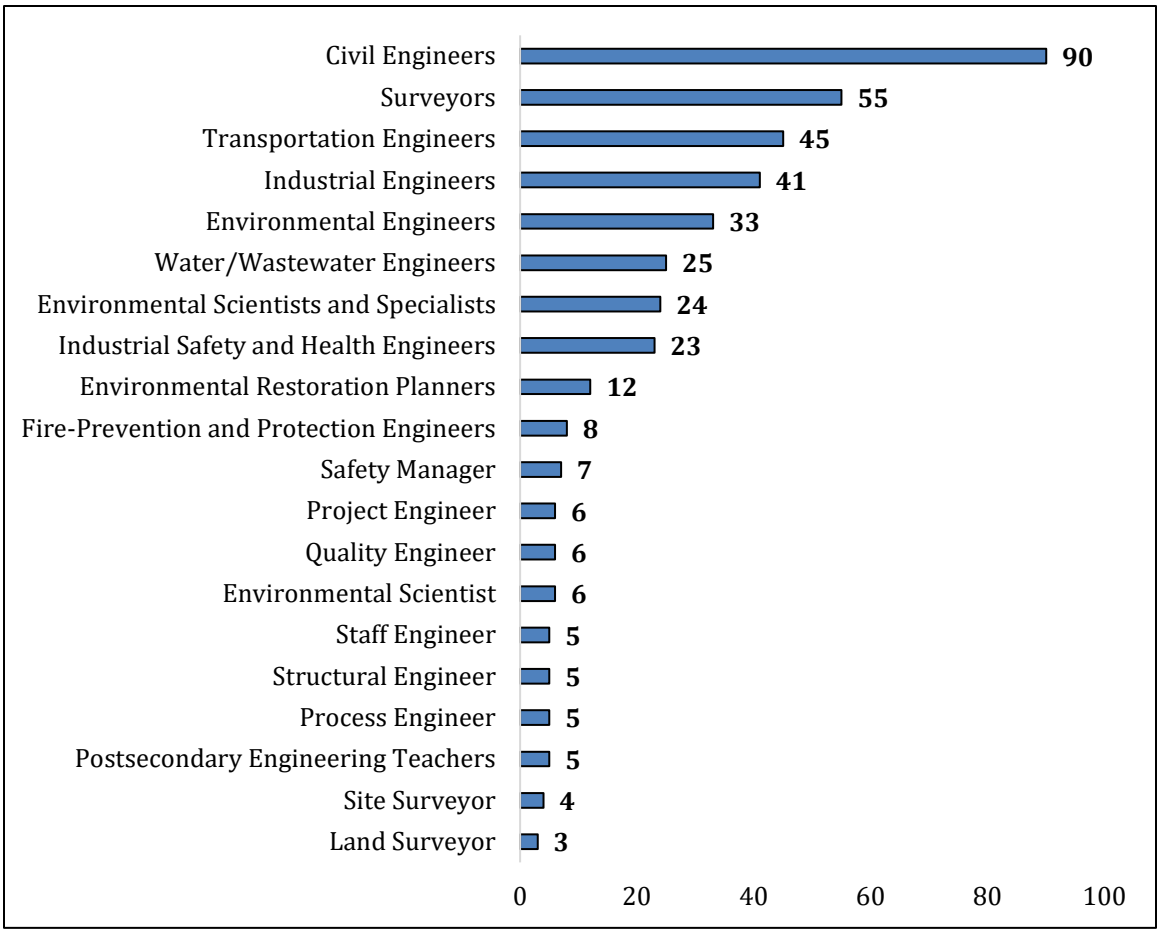
Job Posting Trends

Using job posting data from JobsEQ, a proprietary database providing real-time job postings aggregated from thousands of websites, Hanover analyzed job postings data for the Miami-Fort Lauderdale-Palm Beach MSA, which includes Miami-Dade, Broward, and Palm Beach counties. Figure 2.5 shows the job titles appearing in this area over a 30-day period. Consistent with occupational projections data, **the highest volume of job postings (90) are for Civil Engineers.** By comparison, there are currently 33 job postings for Environmental Engineers and 24 job postings for Environmental Scientists and Specialists. Surveyors can also expect ample employment opportunities in the Southeast Florida Region with 55 job openings in the past month.

Among these jobs postings, the top "soft skills" requested include: communication, cooperative/team player, self-motivated, supervision/management, project management, analytical thinking, problem solving, detail-oriented, initiative, and organization.

[11] "May 2016 OES Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates." Bureau of Labor Statistics. https://www.bls.gov/oes/current/oes_48424.htm

Figure 2.5: Top Civil and Environmental Engineering Occupations in Southeast Florida, by Number of Job Postings



Source: JobsEQ

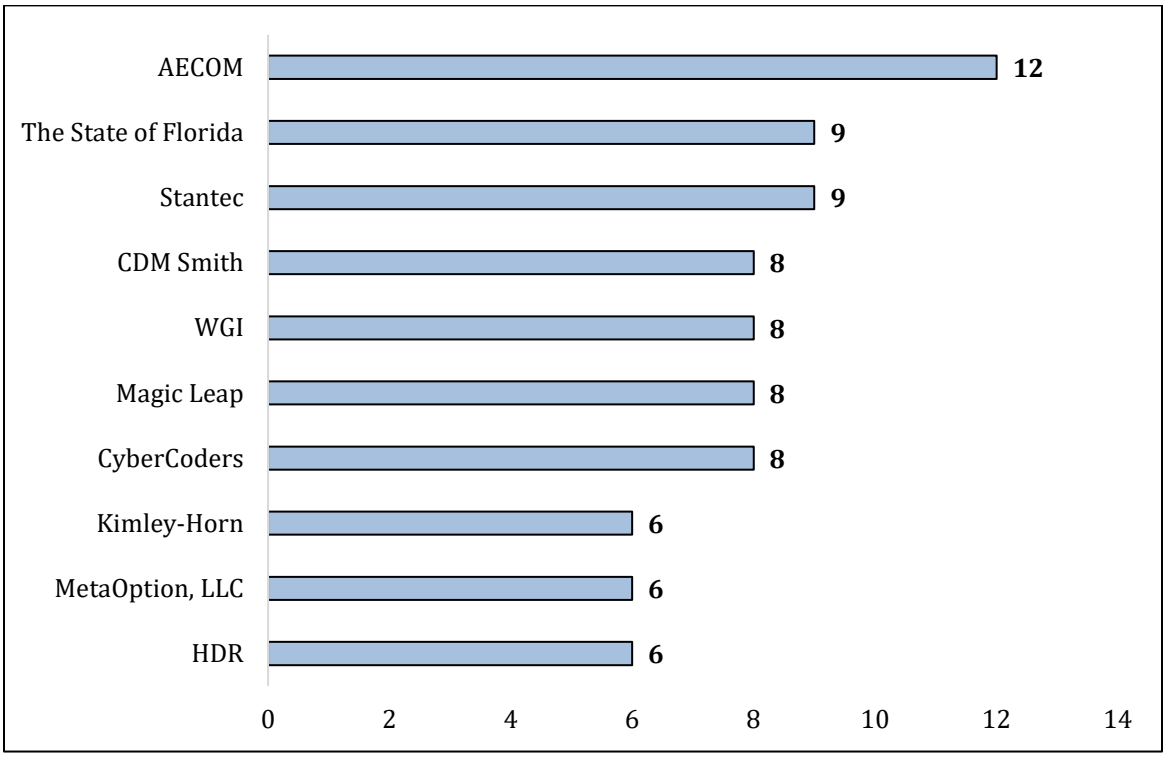
Note: JobsEQ South Florida data represents the Miami-Fort Lauderdale-Palm Beach MSA, including Miami-Dade, Broward, and Palm Beach counties. Data reflect job postings for the 30-day period ending 3/15/2018

Figure 2.6 shows the top employers advertising civil and environmental engineering related positions in the Miami-Fort Lauderdale-Palm Beach MSA. Top employers by total number of job postings include: AECOM, The State of Florida, and Stantec. AECOM describes itself as a "multinational engineering firm,"[12] while Stantec is "an international professional services company in the design and consulting industry."[13]

[12] "About." AECOM. https://www.aecom.com/about-aecom/

[13] "About." Stantec. https://www.stantec.com/en/about

Figure 2.6: Top Employers for Civil and Environmental Engineering Related Occupations in Southeast Florida, By Total Ads



Source: JobsEQ
Note: JobsEQ South Florida data represents the Miami-Fort Lauderdale-Palm Beach MSA. Data are for employers seeking job titles referenced in figure 2.4. Data reflect job postings for the 30-day period ending 3/15/2018.

Again, most civil and environmental engineering occupations require at least a bachelor's degree. However, some top employers within a 100-mile radius of FAU do require a MS or PhD. For instance, a search on Indeed.com identified employers such as Kimley-Horn and Associates, Inc requiring either an MS or PhD degree for an entry-level engineering position within their Water/Wastewater and Advanced Treatment team.[14]

Section III: Competitor Scan

In this section, Hanover assesses the competitive landscape for FAU's proposed program though surveying PhD programs in civil and environmental engineering within the University System of Florida as well as private institutions in the state. This section begins with a discussion of competitive saturation across both onsite and online/hybrid programs and concludes with an analysis of curricular requirements across competitors.

Competitive Saturation

Florida Competitors

[14] "PhD Civil Engineering Jobs, Employment in Boca Raton, FL | Indeed.Com." https://www.indeed.com/jobs?q=PhD%20civil%20Engineering&l=Boca%20Raton%2C%20FL&radius=100&vjk=2acad323a7c47c3e

The NCES reports no doctorate degree completions in civil or environmental engineering fields within Workforce regions 20, 21, and 22 between 2012 and 2016. Florida International University and the University of Miami are therefore FAU's closest competitors geographically. Figure 3.1 provides an overview of all doctorate programs related to civil and environmental engineering identified in the University System of Florida. In addition, FAU will likely compete with the University of Miami's PhD in Civil Engineering.

Notably, FAU'S proposed PhD in Civil and Environmental Engineering differs from competitors in that **no other Florida university offers a combined PhD in civil and environmental engineering**. Likewise, no Florida competitors offer online or hybrid options for coursework, like FAU has proposed. However, three competitors in the state (Florida International University, University of Miami, and Florida State University-FAMU) do offer PhD programs in Civil Engineering with concentrations in Environmental Engineering. These concentration areas are described as "research specialties," though they are typically not associated with required core coursework. Offering a combined degree program would therefore distinguish FAU from the rest of the current programs in the State University System of Florida.

Figure 3.1: Overview of Doctorate Programs Related to Civil and Environmental Engineering in the University System of Florida*

Institution	Program	Concentrations	Total Credits	Dissertation Hours	Delivery Format
Florida International University	PhD in Civil Engineering	Structural Construction and Geotechnical, Environmental and Water Resources, Transportation	90	24	On-Campus
University of Florida	PhD in Civil Engineering	Coastal & Oceanographic, Coastal Ecosystem Dynamics, Geosystems, Materials & Pavements, Public Works, Structural, Sustainable Construction, Transportation, Water Systems	90	12	On-Campus
	PhD in Environmental Engineering	Air Resources, Coastal Ecosystems, Environmental Nanotechnology, Systems Ecology	90	12	On-Campus
University of Central Florida	PhD in Civil Engineering	Geotechnical, Structural, Transportation Systems, Water Resources, Construction Management	72	18	On-Campus
	PhD in Environmental Engineering	Water Process, Waste Treatment, Air Quality	72	18	On-Campus
University of Miami	PhD in Civil Engineering	Civil, Architectural, or Environmental Engineering	60	18	On-Campus
Florida State University-FAMU**	PhD in Civil Engineering	Structures, Environmental, Transportation, Construction, Water Resources, and Geotechnical	69	24	On-Campus
University of South Florida	PhD in Civil Engineering	International Development, Geotechnical, Materials Science, Structures, Transportation, Water Resources	78	20	On-Campus
	PhD in Environmental Engineering	--	78	20	On-Campus

Source: Institutional Websites, NCES
Note: Credits required beyond baccalaureate degree. Dissertation hours included in total credits.
*University of Miami is a private institution not in the State University System of Florida.
**Joint program between Florida State University and Florida Agricultural and Mechanical University.

National Online Competitors

Nationally, the ASEE identifies 26 universities that offer combined civil and environmental engineering PhD programs, similar to what FAU has proposed.[15] These programs offer both civil engineering and environmental engineering topics as core coursework, rather than as concentrations, such as The University of South

[15] "Alphabetical Index of Participating Degree Programs." American Society for Engineering Education (ASEE). https://www.asee.org/papers-and-publications/publications/college-profiles/2015-graduate-engineering-degrees.pdf

Carolina's PhD in Civil Engineering referenced in Section I.[16] A complete listing of joint civil and environmental engineering programs can be found on the ASEE's Alphabetical List of Participating Graduate Degree Programs, which is referenced in the footnote below.

Hanover reviewed civil and environmental engineering department websites for 30 institutions, including those listed by the ASEE, in order to determine if any offer hybrid or online PhD programs not captured by IPEDS data. One such program was identified at **Clarkson University** (see profile below). Two of the institutions reviewed – Stanford University and the University of Illinois - do offer master's degrees in civil and environmental engineering online, but not doctoral degrees.[17] Given the scarcity of existing online and hybrid PhD programs in civil and environmental engineering, Hanover also searched for PhD programs within the separate fields of civil engineering or environmental engineering and identified six with hybrid options (Figure 3.2).

Even within the broader fields of civil engineering and environmental engineering, offering formal online or hybrid PhD programs appears to be rare. Some institutions may offer a master's degree and/or individual courses online, which may make it possible for students to complete some of their PhD degree coursework requirements off-campus. However, such PhD programs are rarely marketed specifically as a hybrid program. Among existing competitors, the typical target audience is full-time onsite students who are interested in conducting research.

Clarkson University (New York)

PhD in Civil & Environmental Engineering Off Campus Option

Clarkson offers an "off campus" PhD program option for students in 12 different fields of study, including Civil & Environmental Engineering. The off campus option is designed for working professionals when their "PhD research directly aligns with research needs of [their] employer." In collaboration with research advisors from Clarkson, students work with a co-advisor at their place of employment to develop a research project that meets the requirements of the PhD program. Employers must also meet Clarkson's conflict of interest policy requirements.

Students can transfer up to 30 credits towards the 90 credit coursework requirement and also complete up to 9 credits through online courses offered by Clarkson. Each individual department "specif[ies] the period of time the student spends on campus (at the department) and the number of visits (each semester)."[18] However, the Department of Civil & Environmental Engineering does not publish these requirements online.

[16] "Doctoral (Ph.D.) Degree," Op. cit.

[17] [1] "Civil and Environmental Engineering MS Degree." Stanford Online. https://online.stanford.edu/programs/civil-and-environmental-engineering-ms-degree [2] "CEE Online" University of Illinois Department of Civil and Environmental Engineering. http://cee.illinois.edu/academics/graduate-programs/cee-online

[18] [1] "Programs." Clarkson University. http://internal.clarkson.edu/offcampus/about.html

Figure 3.2: Hybrid Civil *or* Environmental Engineering PhD Programs

Institution	Program Name	Format	Program Size (includes Onsite and Hybrid)
Auburn University[19]	PhD in Civil Engineering	Hybrid *"with departmental approval"*	54 PhD students enrolled in Spring 2018[20]
Columbia University[21]	PhD in Earth and Environmental Engineering	Hybrid *"partially online"*	Not applicable
Illinois Institute of Technology[22]	PhD in Civil Engineering PhD in Environmental Engineering	Hybrid *"online courses available"* *"PhDs offered online on a case by case basis"*	3 Civil Engineering PhD completions in 2016[23]
Mississippi State University[24]	PhD in Civil Engineering	Hybrid	0 PhD completions in 2017[25]
University of Alabama Huntsville[26]	PhD in Civil Engineering	Hybrid *"offered primarily through an online format"*	7 PhD completions in 2017[27]
University of South Carolina, Columbia[28]	PhD in Civil Engineering	Hybrid	4 PhD completions in 2016[29]

Note: Institutions provide very limited information about the hybrid program format online. Additional primary research is recommended to uncover additional details on student demand and program structure.

Enrollments

To complement NCES completions trends discussed in Section I, the Florida State University System Board of Governors also publishes enrollment data, which provides a more up to date picture of student demand in the state.

[19] "Civil Engineering." College of Engineering Auburn University. http://eng.auburn.edu/files/online/gop-civil.pdf
[20] "Headcount Enrollment by College, Curriculum, and Level, Spring 2018." Auburn University. https://web.auburn.edu/ir/factbook/enrollment/enrtrends/enrbycurr/Spring2018.pdf
[21] "Earth and Environmental Engineering Doctorate Degree." Columbia University. https://cvn.columbia.edu/program/columbia-university-earth-and-environmental-engineering-doctorate-degree-doctor-engineering
[22] "Graduate Admissions." Armour College of Engineering Illinois Institute of Technology. https://admissions.iit.edu/graduate/programs/armour-college-engineering
[23] IPEDS
[24] "Programs." College of Engineering Mississippi State University. http://www.bagley.msstate.edu/distance/programs/
[25] "Degrees Awarded."
[26] "Online Programs & Courses." University of Alabama Huntsville. https://www.uah.edu/online-learning/online-programs
[27] "University Facts." University of Alabama Huntsville. https://www.uah.edu/academic-affairs/offices/oira/university-facts
[28] "Distance Education," Op. cit.
[29] IPEDS

Remarkably, enrollment in FSU-FAMA's PhD in Civil Engineering program has almost tripled over the past five years. However, FAU's closest competitor, FIU, has seen a significant enrollment decrease since 2013. These enrollment trends suggest student demand varies from year to year and program to program. The same can be said of the three environmental engineering PhD programs in the state. USF's program, for instance, has doubled enrollments over the past five years. While UCF and UF has seen some slight decreases. However, across the entire University System, **PhD enrollments have remained steady over the past five years for both civil and environmental engineering, suggesting student demand is consistent.**

In terms of enrollment volume, all universities except for the University of Miami, enrolled *at least* 33 students across their civil and environmental engineering PhD programs in 2017. Assuming students are completing these programs within five to six years, this confirms that FAU's goals of enrolling 7 to 10 students in the first year and five students per year thereafter would be feasible.

Figure 3.3: Enrollment in Advanced Graduate Programs in Civil and Environmental Engineering in the University System of Florida*

Institution	2013	2014	2015	2016	2017	CAGR
Civil Engineering						
Florida International University	71	74	65	58	50	-8.4%
Florida State University-FAMU	16	21	23	27	33	19.8%
University of Central Florida	58	70	67	69	84	9.7%
University of Florida	69	64	69	69	65	-1.5%
University of South Florida	57	48	46	50	54	-1.3%
University of Miami**	18	16	17	15	16	-2.9%
Total	**289**	**293**	**287**	**288**	**302**	**1.1%**
Environmental Engineering						
University of Central Florida	13	17	15	10	12	-7.7%
University of Florida	52	47	45	49	42	-19.2%
University of South Florida	12	16	15	20	25	108.3%
Total	**77**	**80**	**75**	**79**	**79**	**0.6%**

Source: SUS Board of Governors and University of Miami[30]

*Note that the Florida Board of Governors defines "advanced graduate" as equivalent to the doctoral level

** University of Miami is a private institution outside the SUS.

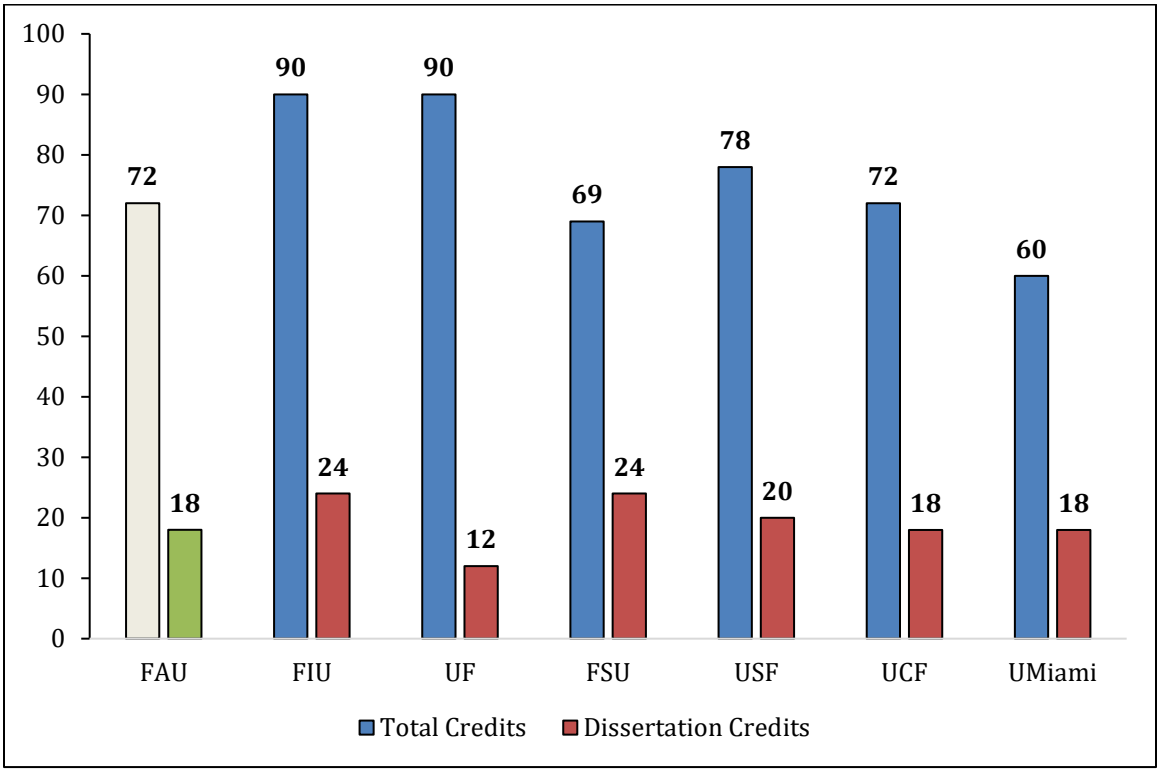
[30] [1] "Fall Student Enrollment in State University System Institutions." State University System of Florida Board of Governors, 2018. http://www.flbog.edu/resources/iud/enrollment_search.php

[2] "Fall 2017 Fact Book." Office of Planning, Institutional Research, and Assessment, University of Miami, 2017. p. 52. https://pira.miami.edu/_assets/pdf/FactBook.pdf

Core Curriculum

Compared to other civil and environmental engineering PhD programs in the state, FAU's proposed total credits beyond the bachelor's degree (72 credits) are slightly lower than the competitor average (76.5 credits). FAU's proposed dissertation credits (18 credits) are also just below the competitor average (19.3 credit hours). A detailed comparison is shown in Figure 3.4.

Figure 3.4: Comparison of Competitor Credit Requirements to FAU's Proposed Curriculum



Source: Institutional Websites
Note: Total credits hours are beyond the baccalaureate degree.

FAU's proposed core requirements are similar to requirements across competitors, as shown in Figure 3.5. However, most competitor programs do *not* require publication submission, whereas FAU's curriculum does. FSU and USF are the other two PhD programs that explicitly require a publication submission. FAU should also consider if its proposed program will have a time limit for students to complete a dissertation defense after the qualifying exam and admission to candidacy. The University of Florida sets a time limit of five years for this, while Florida International University extends it to seven years.

Figure 3.5: Comparison of Competitor Core Requirements

Institution	Qualifying Exam	Must Choose Specialization	Publication Requirement	Dissertation Proposal Defense	Dissertation Defense	Time Limits
Florida Atlantic University	✓	**X**	✓	✓	✓	**N/A**
Florida International University	✓	✓	X	✓	✓	7 years
University of Florida	✓	✓	X	X	✓	5 years
University of Central Florida	✓	✓	X	✓	✓	Unknown
University of Miami	✓	X	X	✓	✓	Unknown
Florida State University	✓	✓	✓	✓	✓	Unknown
University of South Florida	✓	✓	✓	✓	✓	Unknown

Source: Institutional Websites
Note: Dissertation Defense includes both the written requirement and the oral defense.

Appendix I: Methodology

Degree Completions Methodology

To assess trends in student demand, Hanover analyzes the five most recent years of conferral data available through the National Center for Education Statistics. If conferrals for a particular field at a particular level have been increasing over time, it can be inferred that student demand for that type of degree is on the rise.

The NCES uses a taxonomic system of numeric codes to classify higher education programs, known as the Classification of Instructional Programs (CIP). All institutions of higher education submit degree conferrals annually, sorted by award level and CIP code, to the NCES' Integrated Postsecondary Education Data System (IPEDS).[31] Figure A.1 displays the CIP codes used in this analysis that are related to civil and environmental engineering.

[31] Unless otherwise noted, all degree completions data analyzed in this report are drawn from "Integrated Postsecondary Education Data System Data Center." National Center for Education Statistics. http://nces.ed.gov/ipeds/datacenter/

Figure A.1: Civil and Environmental Engineering Related CIP Codes

CIP Code and Title	CIP Description
14.0801: Civil Engineering, General	A program that generally prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of structural, load-bearing, material moving, transportation, water resource, and material control systems; and environmental safety measures
14.0802: Geotechnical and Geoenvironmental Engineering	A program that prepares individuals to apply geotechnical engineering methods, which deal with the analysis, design and construction of earth and earth supported structures, to the application of environmental problems, such as waste containment, waste disposal, construction of landfills, soil permeation, soil analysis, and soil improvement. Includes instruction in soil mechanics, soil dynamics, soil behavior, waste management and containment systems, geosynthetics, geochemistry, earth structures, geoenvironmental engineering, geotechnical engineering, earthquake engineering, and foundation engineering
14.0803 Structural Engineering	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of materials and systems used in building load-bearing structures for various purposes and in different environments, including buildings, roads, rail lines, bridges, dams, conduits, offshore platforms and work stations, and other structural shells; and the analysis of structural problems such as, failure, fabrication, safety, and natural hazards.
14.0804 Transportation and Highway Engineering	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of total systems for the physical movement of people, materials and information, including general network design and planning, facilities planning, site evaluation, transportation management systems, needs projections and analysis, and analysis of costs.
14.0805 Water Resources Engineering	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for collecting, storing, moving, conserving and controlling surface- and groundwater, including water quality control, water cycle management, management of human and industrial water requirements, water delivery, and flood control.
14.0899 Civil Engineering, Other	Any instructional program in civil engineering not listed above.
14.1401 Environmental/Environmental Health Engineering	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for controlling contained living environments and for monitoring and controlling factors in the external natural environment, including pollution control, waste and hazardous material disposal, health and safety protection, conservation, life support, and requirements for protection of special materials and related work environments.
14.1801 Materials Engineering	A program that prepares individuals to apply mathematical and materials science principles to the design, development and operational evaluation of materials and related processes used in manufacturing in a wide variety of settings; the synthesis of new industrial materials, including marrying and bonding composites; analysis of materials requirements and specifications; and related problems of system design dependent on materials factors.

CIP Code and Title	CIP Description
14.3301 Construction Engineering	A program that prepares individuals to apply scientific, mathematical, and management principles to the planning, design, and building of facilities and structures. Includes instruction in civil engineering, structural principles, site analysis, computer-assisted design, geology, evaluation and testing, materials, contracting, project management, graphic communications, and applicable laws and regulations.
14.3801 Surveying Engineering	A program that prepares individuals to apply scientific and mathematical principles to the determination of the location, elevations, and alignment of natural and manmade topographic features. Includes instruction in property line location, surveying, surface measurement, aerial and terrestrial photogrammetry, remote sensing, satellite imagery, global positioning systems, computer applications, and photographic data processing.
14.3901 Geological/Geophysical Engineering	A program that prepares individuals to apply mathematical and geological principles to the analysis and evaluation of engineering problems, including the geological evaluation of construction sites, the analysis of geological forces acting on structures and systems, the analysis of potential natural resource recovery sites, and applied research on geological phenomena.
14.4401 Engineering Chemistry	A program that focuses on the general application of chemical principles to the analysis and evaluation of engineering problems, such as development of electronic materials, solid-state science and technology, polymers, ceramics, and biomaterials. Includes instruction in physical chemistry, organic chemistry, materials science, chemical processes and systems, chemical reaction engineering, biochemical engineering, engineering mathematics, classical and modern physics, and computer science.
14.4501 Biological/Biosystems Engineering	A program that prepares individuals to apply mathematical and scientific principles to the design, development and management of biological systems; and includes applications to biology, biochemistry, ecology, and microbiology. Includes instruction in organic chemistry; microbiology; biochemistry; chemical, biological, biochemical, and process engineering; thermodynamics; process control; kinetics and reactor design; electric circuits; biosystem modeling; and bioelectronics and instrumentation

Source: NCES[32]

When interpreting completions data, some considerations should be taken into account:

- Institutions classify their programs independently, meaning that two programs that share identical content could hypothetically be classified under different CIP codes. Also, for any given institution it cannot be assumed that IPEDS completions data for an individual CIP classification always correspond directly to an individual program. To counter this, Hanover uses a variety of potentially relevant CIP codes to assess student demand.
- Newer programs may be excluded from completions data, as these programs will not have graduated students yet. For this reason, we include enrollments data as well.

[32] "CIP 2010 Search." National Center for Education Statistics. http://nces.ed.gov/ipeds/cipcode/search.aspx?y=55

- 2016 data are in provisional release only and have yet to undergo final NCES verification procedures.

Labor Projections Methodology

Similar to the CIP classification system developed by the NCES, the Bureau of Labor Statistics maintains its own classification system for occupations using Standard Occupational Classification (SOC) codes. To identify relevant occupations associated with each academic program, Hanover consulted a crosswalk provided by the NCES that links CIP codes with SOC codes.[33] Figure A.2 provides descriptions for selected SOC codes related to degrees in civil and environmental engineering.

Figure A.2: Civil and Environmental Engineering Related SOC Codes

SOC Code and Title	SOC Description
11-9041 Architectural and Engineering Managers	Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields.
17-1021 Cartographers and Photogrammetrists	Collect, analyze, and interpret geographic information provided by geodetic surveys, aerial photographs, and satellite data. Research, study, and prepare maps and other spatial data in digital or graphic form for legal, social, political, educational, and design purposes. May work with Geographic Information Systems (GIS). May design and evaluate algorithms, data structures, and user interfaces for GIS and mapping systems.
17-1022 Surveyors	Make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes.
17-2041 Chemical Engineers	Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering.
17-2051 Civil Engineers	Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems. Includes architectural, structural, traffic, ocean, and geo-technical engineers.
17-2081 Environmental Engineers	Research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards using various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology.
17-2111 Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	Promote worksite or product safety by applying knowledge of industrial processes, mechanics, chemistry, psychology, and industrial health and safety laws. Includes industrial product safety engineers.

[33] "CIP 2010 Search." National Center for Education Statistics. http://nces.ed.gov/ipeds/cipcode/search.aspx?y=55

SOC Code and Title	SOC Description
17-2112 Industrial Engineers	Design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination.
17-2121 Marine Engineers and Naval Architects	Design, develop, and evaluate the operation of marine vessels, ship machinery, and related equipment, such as power supply and propulsion systems.
17-2131 Materials Engineering	Evaluate materials and develop machinery and processes to manufacture materials for use in products that must meet specialized design and performance specifications. Develop new uses for known materials. Includes those engineers working with composite materials or specializing in one type of material, such as graphite, metal and metal alloys, ceramics and glass, plastics and polymers, and naturally occurring materials. Includes metallurgists and metallurgical engineers, ceramic engineers, and welding engineers.
17-2151 Mining and Geological Engineers, Including Mining Safety Engineers	Conduct sub-surface surveys to identify the characteristics of potential land or mining development sites. May specify the ground support systems, processes and equipment for safe, economical, and environmentally sound extraction or underground construction activities. May inspect areas for unsafe geological conditions, equipment, and working conditions. May design, implement, and coordinate mine safety programs.
19-1031 Conservation Scientists	Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering.
19-2041 Environmental Scientists and Specialists, Including Health	Conduct research or perform investigation for the purpose of identifying, abating, or eliminating sources of pollutants or hazards that affect either the environment or the health of the population. Using knowledge of various scientific disciplines, may collect, synthesize, study, report, and recommend action based on data derived from measurements or observations of air, food, soil, water, and other sources.
19-2042 Geoscientists, Except Hydrologists and Geographers	Study the composition, structure, and other physical aspects of the Earth. May use geological, physics, and mathematics knowledge in exploration for oil, gas, minerals, or underground water; or in waste disposal, land reclamation, or other environmental problems. May study the Earth's internal composition, atmospheres, oceans, and its magnetic, electrical, and gravitational forces. Includes mineralogists, crystallographers, paleontologists, stratigraphers, geodesists, and seismologists.
19-2043 Hydrologists	Research the distribution, circulation, and physical properties of underground and surface waters; and study the form and intensity of precipitation, its rate of infiltration into the soil, movement through the earth, and its return to the ocean and atmosphere.

SOC Code and Title	SOC Description
25-1032 Engineering Teachers, Postsecondary	Teach courses pertaining to the application of physical laws and principles of engineering for the development of machines, materials, instruments, processes, and services. Includes teachers of subjects such as chemical, civil, electrical, industrial, mechanical, mineral, and petroleum engineering. Includes both teachers primarily engaged in teaching and those who do a combination of teaching and research.
25-1053 Environmental Science Teachers, Postsecondary	Teach courses in environmental science. Includes both teachers primarily engaged in teaching and those who do a combination of teaching and research.
41-9031 Sales Engineers	Sell business goods or services, the selling of which requires a technical background equivalent to a baccalaureate degree in engineering.

Source: BLS[34]

[34] "Standard Occupational Classification (SOC) System." Bureau of Labor Statistics. https://www.bls.gov/soc/

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APPENDIX E. FACULTY CVS

1. Name

Madasamy Arockiasamy, Ph.D., P.E., P. Eng., Fellow ASCE
Professor & Director, Center for Infrastructure and Constructed Facilities
Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. Civil Engineering, Structures Emphasis
University of Wisconsin, Madison, 1971

M.Sc. Civil Engineering, Structures Emphasis
University of Madras, India, 1963

B.E.(Hons.), Civil Engineering,
University of Madras, India, 1960.

3. Academic experience

2000 – present	Professor and Director, Center for Infrastructure and Constructed Facilities, Department of Civil Engineering, FAU
1986 – 2000	Professor and Director, Center for Infrastructure and Constructed Facilities, Department of Ocean/Civil Engineering, FAU
1984 – 1986	Associate Professor, Department of Ocean Engineering, FAU
1981- 1985	Associate Professor, Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, Newfoundland
1976 – 1981	Professor of Structural Engineering, Anna Technical University, Madras
1960 - 1976	Assistant Professor / Lecturer / Associate Lecturer, College of Engineering, Guindy, Madras,

4. Non-academic experience

1980-1981 Research/Project Engineer, Giffels Associates, Detroit, MI

5. Certifications or professional registrations

Registered Professional Engineer
Florida (Active) License # 34781
Louisiana (Inactive)
Alabama (Inactive)
Wisconsin (Inactive)
Newfoundland, Canada (Inactive)

6. Current membership in professional organizations

- American concrete Institute since 1984
- Tau Beta Pi, member since 1970
- American Society of Civil Engineers member since 1971
- American National Standards Institute since 2012

7. Honors and awards

- Distinguished Engineering Educator of the Year Award, The Engineer's Council, 2015
- State University System (SUS) Professorial Excellence Program (PEP) award, December 1998.
- "Best Accent" Teacher Award, College of Engineering, March 1995.

- Elected as Eminent Engineer of the Florida Epsilon Chapter of Tau Beta Pi, November 1994.
- Nominated for the Award for University Research Professor from the College of Engineering, 1996.
- Outstanding Achievement Award, College of Engineering, Florida Atlantic University, 1990.
- Nominated for Distinguished Teacher of the Year 1985-86, Department of Ocean Engineering

8. Service activities (within and outside of the institution)

- President of the College of Engineering and Computer Science (2018–Present)
- Chair, College Policy and Development Committee
- Tau Beta Pi Engineering Honor Society (1994-1997)
- Coordinator, Florida Structural Engineering Association (FSEA) Scholarships Committee, Department of Civil, Environmental and Geomatics Engineering (2005-present)
- FAU Faculty Advisor, ASCE Chapter, College of Engineering and Computer Science Faculty Liaison (2017 – Present)
- Editor-in-Chief, International Journal of Innovative Research in Infrastructure Engineering 2014-present
- Member, Editorial Board, Journal of Shipping and Ocean Engineering (2013-present)
- Member, Editorial Board, Journal of Energy and Power Engineering (2013-present)
- Subject Matter Expert, International Electrotechnical Commission IEC TC114 (2011 – Present)

8. Selected publications

- S. Ishwarya, S.K. Raju Alluri, K. Balakrishnan, M.V. Ramana Murthy, and **M. Arockiasamy**, "Simplified Design Procedure of Monopile Foundation for Offshore Wind Turbine in Gujarat, India", Journal of Shipping and Ocean Engineering, Vol.7, Number 4, July-Aug.2017 (Serial Number 32), pp.133-151.
- X.Yang, **M. Arockiasamy**, A. Mirmiran, and W. Potter, "High Creep Stress Test of Carbon Fiber Composite Cable with Generic Field-Made Anchorage", Technical Note, ASCE Journal of Composites for Construction, ASCE, ISSN 1090-0268, March 2017.
- S. Ishwarya, **M. Arockiasamy**, and R. Senthil, "Inelastic Nonlinear Pushover Analysis of Fixed Jacket-Type Offshore Platform with Different Bracing Systems Considering Soil-Structure Interaction", Journal of Shipping and Ocean Engineering, Vol.6, No. 4, July-Aug. 2016.
- X.Yang, P. Zohrevand, A. Mirmiran, **M. Arockiasamy**, and W. Potter, "Comparative Study of Un-bonded Carbon Fiber and Steel Strands in Post-tensioned Pier Caps", ASCE Journal of Composites for Construction, 10.1061/(ASCE)CC.1943-5614.0000596,04015042, June 2015.
- X.Yang, P. Zohrevand, A. Mirmiran, **M. Arockiasamy**, and W. Potter, "Post-tensionong of Segmental Bridges Using Carbon-fiber Composite Cables", PCI Journal, May-June 2015, Vol. 60, No.3, pp. 50-61.

1. Name

Frederick Bloetscher, Ph.D., P.E.
Assoc. Dean for Undergrad Studies and Community Outreach
Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. in Civil Engineering
University of Miami, 2001
Master of Public Administration
University of North Carolina at Chapel Hill, 1984
Bachelor of Science, Civil Engineering
University of Cincinnati, 1982

3. Academic experience

2005 - present: Florida Atlantic University – Associate Dean for Undergraduate Studies and Community Outreach, (July 2018 – date), Professor (August 2017 – date), Associate Professor (August 2011-August 2017), Assistant Professor (August 2005 to August 2011), Department of Civil Engineering (Adjunct Professor in August, 2004 to August, 2005)

2001 - 2005: University of Miami – Adjunct Faculty, Department of Civil, Architectural and Environmental Engineering.

4. Non-academic experience

2000 - present: President and owner, Public Utility Management and Planning Services Inc.
1999 - 2000: Dir. of Engineering, Operations and Planning, Florida Governmental Utility Authority
1994 - 1999: Deputy Public Utilities Director, City of Hollywood, FL
1989 - 1994: Assistant Utilities Administrator, Collier County, FL
1986 - 1989: Town Administrator/Director of Public Works, Richlands, NC
1985 - 1986: Town Manager, Erwin, NC; Chief Executive Officer
1983 - 1985: Utilities Civil Engineer, Public Utilities Department, City of Jacksonville, NC

5. Certifications or professional registrations

- Professional Engineer's License (North Carolina, Georgia, Florida, South Carolina, Utah, Colorado, Tennessee, Michigan and Ohio).
- North Carolina General Contractor's License (Public Utilities - #22775)
- LEED - AP
- Grade A Water Distribution System Certificate (North Carolina - #4138)
- Grade B Water Plant Operator's Certificate (North Carolina - #4138)
- Grade III Water Pollution Control Operator's Certificate (North Carolina - #8967)
- Grade 4 Collection System Operator's Certificate (North Carolina - # 13150)

6. Current membership in professional organizations

American Water Works Association, Florida Engineering Society, Water Environment Federation, American Society of Civil Engineers

7. Honors and awards

- Presidential Award for Community Outreach – Florida Atlantic University
- Change Agent of the Year Faculty Award, FAU, 2017
- Distinguished Educator of the Year Award, Engineers, Council, 2017
- Alan B. Robertson Award, FSAWWA 2015.
- Florida Engineering Society Broward –Technical Service Award - 2015
- FSAWWA Executive Committee Award - 2014
- Oasis Award – AWWA – 2014
- NCEES Student Profession Partnership Grand Award, 2012
- Talon Faculty Award for Leadership – Florida Atlantic University, 2012
- Volunteer of the Year Award, American Water Works Association (inaugural), 2011
- Robert Claudy Award, Florida Section, American Water Works Association, 2011
- TIAA-CREF Leadership Award, Florida Atlantic University, 2010
- Best Paper Award – FSAWWA Annual Conference 2006, 2008, 2010, 2015, 2016, 2018
- MAC Council Best Chair Award (Chair of Technical Program FSAWWA conference), 2006

8. **Service activities** (within and outside of the institution)

Graduate	Chair through July, 2018
Math Committee	Fall 18-date
Graduate Committee	through July 2018
Graduate Policy Committee	member
Writing Across the Curriculum Committee	Chair Fall 18, member
FSAWWA Technical Program Committee	Chair
Florida Section AWWA	Vice Chair
Groundwater (AWWA National)	Chair
Distribution Design and Construction (AWWA)	Chair
Technical and Education Council	Through June 2018

9. **Selected publications**

- **Bloetscher, F.** 2019. Using Predictive Bayesian Monte Carlo- Markov Chain Methods To Provide A Probablistic Solution For The Drake Equation, *Acta Astronautica*, Volume 155, p. 118-130.
- **Bloetscher, F.** 2018. Risk and Economic Development in the Provision of Public Infrastructure, *Journal of Environmental Protection*, Vol.09, No.09. 10.4236/jep.2018.99061.
- **Bloetscher, F.**, Wander, L., Smith, G. and Dogon, N. 2017. Public Infrastructure Asset Assessment with Limited Data. Open Journal of Civil Engineering, Vol.07 No.03, 10.4236/ojce.2017.73032.
- **Bloetscher, *F.*** and *Wood*, M. 2016. Assessing the Impacts of Sea Level Rise Using Existing Data, *Journal of Geoscience and Environment Protection*, Vol.04, No.09. 10.4236/gep.2016.49012.
- **Bloetscher, F.**; Colin Polsky, William Schnabel, Billy Connor. 2016. Assessing Climate Vulnerability in Disparate Places–Alaska and South Florida. *Climate Change,* 2(8), 526-550.
- **Bloetscher, F.**; Sham, Chi Ho, Ratick, S. and Danko III, J.J. 2015. Status of Aquifer Storage and Recovery In The United States – 2013**,** *British Journal of Science* 70 April 2015, Vol. 12 (2).
- **Bloetscher, F.**; Polsky, C.; Bolter, K.; Mitsova, D.; Pablicke Garces, K.; King, R.; Cosio Carballo, I.; and Hamilton, K. 2016. Assessing Potential Impacts of Sea Level Rise on Public Health and Vulnerable Populations in Southeast Florida and Providing a Framework to Improve Outcomes, *Sustainability*, 8, 315; doi:10.3390/su8040315.
- Englehardt, J.D.; Uu, T.; **Bloetscher, F.**; Deng, Y.; Pisani, P.; Eilert, S.; Elmir, S.; Guo, T.; Jacangelo, J.; LeChevallier, M.; Leverenz, H.; Mancha, E.; Plater-Zyberk, E.; Sheikh, B.; Steinle-Darling, and Tchobanoglous, G. 2015, Net-Zero Water Management: Achieving Energy-Positive Municipal Water Supply, *Environmetnal Science - Water Research & Technology*.

1. Name

Jinwoo Jang, Ph.D.
Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University
Faculty Fellow, Institute for Sensing & Embedded Network Systems Engineering, Florida Atlantic University

2. Education

Ph.D. in Civil Engineering and Engineering Mechanics
Columbia University, New York, NY (October 2016)

Master of Philosophy in Civil Engineering and Engineering
Columbia University, New York, NY (October 2013)

Master of Science in Civil Engineering and Engineering
Columbia University, New York, NY (February 2011)

Bachelor of Engineering in Civil and Environmental Engineering
Kookmin University, Seoul, South Korea (February 2009)

3. Academic experience

2017 – present	Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, FAU
2017 – present	Faculty Fellow, Institute for Sensing & Embedded Network Systems Engineering, FAU
2016 – 2017	Postdoctoral Research Scientist, Department of Civil Engineering and Engineering Mechanics, Columbia University
2013 – 2016	Staff Associate, Department of Civil Engineering and Engineering Mechanics, Columbia University

4. Non-academic experience

2014	Research Intern, Philips Research North America, Cambridge, Massachusetts

5. Certifications or professional registrations

This item does not apply to this program proposal

6. Current membership in professional organizations

- American Society of Civil Engineers (ASCE)
- Engineering Mechanics Institute (EMI)
- Korean-American Scientists and Engineering Association (KSEA)

7. Honors and awards

- Best demo award, Data Science Day, Columbia University, NY, April 2018
- First Place in Dynamics Student Paper Competition, ASCE Engineering Mechanics Institute Conference, Stanford University, CA, June 2015
- Poster Award, US-Korea Conference (UKC), Atlanta, GA, June 2015
- Full Tuition Waiver, Columbia University, NY, September 2011 - May 2012
- Academic Scholarship, Kookmin University, South Korea, March 2006 - December

2007

- Academic First Place, National Center Police Academy, South Korea, December 2002

8. Service activities (within and outside of the institution)

- Member, Structural Health Monitoring Committee, American Society of Civil Engineers
- Engineering Mechanics Institute (2017–Present)
- Member, Dynamics Committee, American Society of Civil Engineers Engineering Mechanics
- Institute (2017–Present)
- Member, Department of Civil, Environmental and Geomatics Engineering
- Undergraduate Committee (2017–Present)
- Member, College of Engineering and Computer Science Undergraduate Committee
- (2018–Present)

9. Selected publications

- Bartilson D. T., **Jang, J.**, and Smyth, A. W. (2019). "Finite element model updating using objective- consistent sensitivity-based parameter clustering and Bayesian regularization." Mechanical Systems and Signal Processing. 114: 328-345. doi: 10.1016/j.ymssp.2018.05.024
- **Jang, J.**, and Smyth, A. W. (2017)."Bayesian model updating of a full-scale finite element model with sensitivity-based clustering." Structural Control and Health Monitoring. 24(11): e2004. doi: 10.1002/stc.2004
- **Jang, J.**, and Smyth, A. W. (2017). "Model updating of a full-scale FE model with nonlinear con- straint equations and sensitivity-based cluster analysis for updating parameters." Mechanical Systems and Signal Processing. 83(15): 337-355. doi:10.1016/j.ymssp.2016.06.018
- **Jang, J.**, Yang, Y., Smyth, A. W., Cavalcanti, D., and Kumar, R. (2016). "Framework of data acquisition and integration for the detection of pavement distress via multiple vehicles." Journal of Computing in Civil Engineering. 31(2). doi: 10.1061/(ASCE)CP.1943-5487.0000618
- **Jang, J.**, Smyth, A. W., Yang, Y., and Cavalcanti, D. A. T. (2015). "Road surface condition monitor- ing via multiple sensor-equipped vehicles." IEEE INFOCOM. 43-44. Hong Kong. doi: 10.1109/INF- COMW.2015.7179334

1. Name

Evangelos I. Kaisar, Ph.D.
Professor & Director, Geomatics and Transportation Engineering Program,
Director, Freight Mobility Research Institute (FMRI)
Department of Civil, Environmental & Geomatics Engineering,
Florida Atlantic University

2. Education

Ph.D. in Civil Engineering, Transportation & Logistics Emphasis
University of Maryland of College Park, 2005

Master of Science in Civil Engineering, Transportation & Logistics Emphasis
University of Maryland of College Park, 2000

Bachelor of Science in Civil Engineering, Transportation & Logistics Emphasis
University of Maryland of College Park, 1998

3. Academic experience

2017 – present	Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2017 – present	Director, Freight Mobility Research Institute (FMRI)
2012 – 2017	Associate Professor with tenure, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2009 – present	Director, Multimodal Intelligent Systems Laboratory
2006-2012	Assistant Professor, Department of Civil Engineering, College of Engineering and Computer Science, FAU
2000-2005	Doctoral Research Fellow, University of Maryland of College Park

4. Non-academic experience

2005-2006 Maryland Transportation Authority, (MdTA)

5. Certifications or professional registrations

6. Current membership in professional organizations

- Transportation Research Board, member since 2000
- ITE, member since 1999
- American Society of Civil Engineers, member since 1999

7. Honors and awards

- Florida Atlantic University, Researcher of the Year Award, 2017
- Featured in the Who's Who in Science and Engineering 2011-2012 (11th Edition).
- Florida Atlantic University Excellence and Innovation in Undergraduate Teaching Award, 2013.
- Best paper award at the Spring Simulation Interoperability Workshop, San Diego, CA, March, 2009.

8. Service activities (within and outside of the institution)

- *College of Engineering and Computer Science Research Committee Chair* (2018–Present)
- Faculty Advisor. ITE Student Chapter (2000 – Present)

- FAU Honors and Awards Committee Chair (2012 – Present)

9. Selected publications

- Charisis A., **Kaisar E.,** Mitrovic N., and Papadimitriou S., "Containership Routing with Multiple Time Windows and Excessive Demand Consideration", Journal, maritime Economics and Logistics (MEL), exp. June 2019.
- Soltani-Sobh A., Heaslip K., Scarlatos P., and **Kaisar E.,** "Reliability Based Pre-Positioning of Recovery Centers for Resilient Transportation Infrastructure", International Journal of Disaster Risk Reduction, Volume 19, pp 324-333, Oct. 2016.
- **Kaisar E.,** Coolahan J., Koomullil R., and Averkiou P., "Infectious Disease and Hospital Surge Capacity Impacts on Urban Transportation", International Journal of Transportation, Vol 4, No. 2, pp-15-30, Aug. 2016.
- Stevanovic A., Olarte C., Galletebeitia A., Galletebeitia B., and **Kaisar E.**, "Testing Accuracy and Reliability of MAC Readers to Measure Arterial Travel Times", Journal of International intelligent Transportation System Research, Vol. 13, Issue 1, pp-5-10, 2015.
- Zhao Y**.** and **Kaisar E.,** "Modeling and Simulation on Yard Trailers in a Maritime Terminal", Journal of Logistics Engineering and Management, Vol. IC, pp 12-21, Dec. 2014.
- Parr S., **Kaisar E.,** and Stevanovic A., "Applications of Transit Signal Priority for No-Notice Urban Evacuation", ASCE, Natural Hazards Rev. 10.1061, June 2013.
- Golias M.M., Portal M.I., Konur D., **Kaisar E.,** and Kolomvos G., "Robust Berth Scheduling at Marine Container Terminals via Hierarchical Optimization." Journal of Computers and Operations Research, art. Number: 3378, 2013.
- Stevanovic, A.Z., Kergaye, C., and **Kaisar, E.** "Field Evaluation of Signal Timings Developed by a Stochastic Signal Optimization Tool." Journal of Road and Traffic Engineering – Journal of the Road Association of Serbia "Via Vita", No. 1 pp. 5-11, Dec. 2012.
- **Kaisar E.,** Hess L., and Portal-Palomo A.B., "An Emergency Evacuation Planning Model for Vulnerable Population Utilizing Public Transportation Systems" Journal of Public Transportation Vol. 15, No. 2, pp. 45-70, Dec. 2012.

1. Name

X. David Kan, Ph.D., EIT
Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. in Civil Engineering, Transportation Engineering Emphasis
University of California Berkeley, Berkeley, CA, August 2017

Master of Science in Civil Engineering, Transportation Engineering Emphasis
University of California Berkeley, Berkeley, CA, May 2014

Bachelor of Science in Civil engineering
University of Illinois Urbana Champaign, Urbana, IL, May 2013

3. Academic experience

2019 – present	Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, Florida Atlantic University
2017 – 2019	Lecturer and Postdoctoral Researcher, Department of Civil and Environmental Engineering, College of Engineering, University of California Berkeley
2016 – 2017	Graduate Student Instructor, Department of Civil and Environmental Engineering, College of Engineering, University of California Berkeley
2014 – 2017	Graduate Student Researcher, Department of Civil and Environmental Engineering, College of Engineering, University of California Berkeley
2012 – 2013	Undergraduate Research Assistant, Department of Civil and Environmental Engineering, College of Engineering, University of Illinois Urbana Champaign
2012	Undergraduate Research Assistant, Department of Civil, Architectural, and Environmental Engineering, College of Engineering, University of Texas Austin

4. Non-academic experience

2013	Intern, San Francisco Municipal Transportation Authority, San Francisco, CA

5. Certifications or professional registrations

Engineer in Training. State of Illinois Board of Professional Engineers.
License #: 061037659 (October 2013).

6. Current membership in professional organizations

- Transportation Research Board Traffic Signal Systems Committee, affiliate since 2018
- Transportation Research Board Intelligent Transportation Systems Committee, affiliate since 2017
- Transportation Research Board Vehicle Highway Automation Committee, affiliate since 2017

7. Honors and awards

- University of California Transportation Center (UCTC) Student Conference Poster: Overall Excellence, 2014

- University of California Transportation Center (UCTC) Graduate Fellowship, 2013
- University of Illinois CEE Undergraduate Scholarship: Clement Lee Outstanding Scholar Award, 2013
- University of Illinois CEE Undergraduate Scholarship: Bowman, Barrett & Associates Outstanding Scholar Award, 2012

16. Service activities (within and outside of the institution)

- Florida Atlantic University College of Engineering and Computer Science Undergraduate Committee (2019–Present)
- University of California Berkeley Civil and Environmental Engineering Doctoral Preliminary Exam Committee (2019)
- University of California Berkeley College of Engineering Master of Engineering Capstone Project Faculty Advisor (2018 – 2019)

17. Selected publications

- **Kan, X.**, Lin, X., Liu, H., Wang, M., Schakel, W., Lu, X., van Arem, B., Shladover, S. E., and Ferlis, R. A. 2019. Cross-comparison and Calibration of Two Microscopic Traffic Simulation Models for Complex Freeway Corridors with Dedicated Lanes. Journal of Advanced Transportation, (In Press).
- Yang, M., **Kan, X.**, and Lu, X. 2019. Reducing Fuel Consumption and Emissions at Freeway Merge by Metering its On-ramp. Transportation Research Part D: Transport and Environment, (under review).
- **Kan, X.**, Lu, X., and Skabardonis, A. 2018. Increasing Freeway Capacity by Efficiently Timing its Nearby Arterial Traffic Signals. Transportation Research Record: Journal of the Transportation Research Board, 2672(18): 27-34.
- Liu, H., **Kan, X.**, Shladover, S. E., Lu, X., and Ferlis, R. A. 2018. Impact of Cooperative Adaptive Cruise Control (CACC) on Multilane Freeway Merge Capacity. Journal of Intelligent Transportation Systems, 22(3): 263-275.
- Liu, H., **Kan, X.**, Shladover, S. E., Lu, X., and Ferlis, R. A. 2018. Modeling the Effectiveness of Cooperative Adaptive Cruise Control for Multi-Lane Freeway with Mixed Traffic Flow. Transportation Research Part C: Emerging Technologies, 95: 261-279.

1. Name

Masoud Jahandar Lashaki, Ph.D.
Assistant Professor, Department of Civil, Environmental & Geomatics Eng., Florida Atlantic University
Director, Air Emissions Characterization and Control Lab

2. Education

Ph.D. in Environmental Engineering, Air Pollution Control Emphasis
University of Alberta, Edmonton, Canada, December 2015

Master of Science in Chemical Engineering, Separations and Transport Phenomena Emphasis
Sharif University of Technology, Tehran, Iran, September 2010

Bachelor of Science in Chemical Engineering
University of Tehran, Tehran, Iran, September 2008

3. Academic experience

2019 – present Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2017 – 2019 Sessional Instructor, Department of Chemical & Biological Engineering, Faculty of Engineering, University of Ottawa
2016 – 2018 NSERC Postdoctoral Research Fellow, Department of Chemistry & Biomolecular Sciences, Faculty of Science, University of Ottawa
2015 – 2016 Research Associate, Department of Civil & Environmental Engineering, Faculty of Engineering, University of Alberta
2013 – 2014 Sessional Instructor, Department of Civil & Environmental Engineering, Faculty of Engineering, University of Alberta
2011 – 2015 Graduate Research Assistant, Department of Civil & Environmental Engineering, Faculty of Engineering, University of Alberta

4. Non-academic experience

2018 – 2019 Research Engineer, Inventys Inc., Burnaby, Canada (worked remotely from Ottawa)

5. Certifications or professional registrations

Engineer in Training, Association of Professional Engineers and Geoscientists of Alberta (APEGA), Canada
License #: 198774 (2015).

6. Current membership in professional organizations

- Air and Waste Management Association (AWMA; since 2012)
- American Institute of Chemical Engineers (AIChE; since 2015)
- Association of Environmental Engineering and Science Professors (AEESP; since 2016)
- Canadian Society of Chemical Engineers (CSChE; since 2017)

7. Honors and awards

- ASCE Outstanding Reviewer Award for Journal of Environmental Engineering, 2019
- First Place Poster Award, 10th Annual Postdoc Research Day, University of Ottawa, 2018
- NSERC Postdoctoral Fellowship, Government of Canada, 2016 – 2018
- First Place Doctoral Dissertation Award, AWMA, 2016

- Lehigh Inland Cement Scholarship in Environmental Studies, University of Alberta, 2015
- Dissertation Fellowship, University of Alberta, 2014 – 2015
- Graduate Student Principal Instructor Teaching Award, University of Alberta, 2014 & 2015
- Graduate Student Teaching Award, University of Alberta, 2014 & 2015
- Air Quality Research and Study Scholarship, AWMA, 2014
- Scholarship Award, Canadian Prairies and Northern Section (CPANS) of AWMA, 2014
- Andrew Stewart Memorial Graduate Prize, University of Alberta, 2014
- Dave Benferado Scholarship, AWMA, 2013
- Second Place Paper Award, AWMA Annual Conference, Chicago, 2013
- Third Place Poster Award, AWMA Annual Conference, Chicago, 2013
- Best Oral Presentation Award, 4th Graduate Research Symposium, University of Alberta, 2013
- Gordon R. Finch Scholarship in Environmental Engineering, University of Alberta, 2012 & 2013
- Second Place Poster Award, AWMA Annual Conference, San Antonio, 2012

8. Service activities (within and outside of the institution)

- Department of CEGE Graduate Committee Member, FAU (2019–Present)
- Co-chair of Carbon Capture and Utilization session at CSChE2017 (Edmonton; 2017)
- Chair of CPANS of AWMA Student Chapter, University of Alberta (2014 – 2015)
- Chair of Student Program at CPANS of AWMA Annual Conference (Edmonton, 2014 & 2015)
- Vice Chair of CPANS of AWMA Student Chapter, University of Alberta (2012 – 2014)

9. Selected publications

- **M. Jahandar Lashaki**, S. Khiavi, A. Sayari, Stability of Amine-Functionalized CO_2 Adsorbents: A Multifaceted Puzzle. Chemical Society Reviews, 2019, 48, 3320–3405 (2018/2019 Impact Factor (IF) = 40.443).
- **M. Jahandar Lashaki**, A. Sayari, CO_2 Capture Using Triamine-Grafted SBA-15: The Impact of Support Pore Structure. Chemical Engineering Journal, 2018, 334, 1260–1269 (IF = 8.355).
- **M. Jahandar Lashaki**, H. Ziaei-Azad, A. Sayari, Insights into the Hydrothermal Stability of Triamine-Functionalized SBA-15 Silica for CO_2 Adsorption. ChemSusChem, 2017, 10, 4037–4045 (IF = 7.804).
- **M. Jahandar Lashaki**, J.D. Atkinson, Z. Hashisho, J.H. Phillips, J.E. Anderson, M. Nichols, The Role of Beaded Activated Carbon's Surface Oxygen Groups on Irreversible Adsorption of Organic Vapors. Journal of Hazardous Materials 2016, 317, 284–294 (IF = 7.650).
- **M. Jahandar Lashaki**, J.D. Atkinson, Z. Hashisho, J.H. Phillips, J.E. Anderson, M. Nichols, The Role of Beaded Activated Carbon's Pore Size Distribution on Heel Formation during Cyclic Adsorption/Desorption of Organic Vapors. Journal of Hazardous Materials 2016, 315, 42–51 (IF = 7.650).
- **M. Jahandar Lashaki**, J.D. Atkinson, Z. Hashisho, J.H. Phillips, J.E. Anderson, M. Nichols, T. Misovski, Effect of Desorption Purge Gas Oxygen Impurity on Irreversible Adsorption of Organic Vapors. Carbon 2016, 99, 310–317 (IF = 7.466).
- **M. Jahandar Lashaki**, M. Fayaz, S. Niknaddaf, Z. Hashisho, Effect of the Adsorbate Kinetic Diameter on the Accuracy of the Dubinin-Radushkevich Equation for Modeling Adsorption of Organic Vapors on Activated Carbon. Journal of Hazardous Materials 2012, 241, 154–163 (IF = 7.650).
- **M. Jahandar Lashaki**, M. Fayaz, H. Wang, Z. Hashisho, J.H. Phillips, J.E. Anderson, M. Nichols, Effect of Adsorption and Regeneration Temperature on Irreversible Adsorption of Organic Vapors on Beaded Activated Carbon. Environmental Science & Technology 2012, 46, 4083–4090 (IF = 7.149).

1. Name

Daniel E. Meeroff, Ph.D., E.I.
Professor & Associate Chair, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University
Director, Laboratories for Engineered Environmental Solutions (Lab.EES)

2. Education

Ph.D. in Civil Engineering, Environmental Engineering Emphasis
University of Miami, Coral Gables, FL, December 2001

Master of Science in Civil Engineering, Environmental Engineering Emphasis
University of Miami, Coral Gables, FL, August 1997

Bachelor of Science in Environmental Science
Florida Institute of Technology, Melbourne, FL, May 1995

3. Academic experience

2013 – present Associate Chair & Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2008 – 2013 Associate Professor with tenure, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2003 – present Director, Laboratories for Engineered Environmental Solutions
2003-2008 Assistant Professor, Department of Civil Engineering, College of Engineering and Computer Science, FAU
2001 – 2003 Adjunct Professor/Instructor/Post-Doctoral Research Fellow, Department of Civil, Architectural, and Environmental Engineering, University of Miami
1997-2001 Doctoral Research Fellow, University of Miami, Coral Gables, FL

4. Non-academic experience

2000 Engineering Consultant, Montgomery Watson, Sunrise, FL
1999-2000 Consultant, Florida Governmental Utility Authority, Tallahassee, FL

5. Certifications or professional registrations

Engineer Intern. State of Florida Board of Professional Engineers.
License #: 1100003721 (September 1998).

6. Current membership in professional organizations

- Florida Water Environment Association, member since 1995
- Tau Beta Pi, member since 1998
- Water Environment Federation, member since 1995

7. Honors and awards

- Distinguished Engineering Educator of the Year Award, The Engineer's Council, 2019
- Florida Atlantic University Excellence and Innovation in Undergraduate Teaching Award, 2017
- Florida Atlantic University Distinguished Research Mentor of the Year, 2015
- John J. Guarrera Engineering Educator of the Year Award, The Engineer's Council, 2014
- Florida Atlantic University Distinguished Teacher of the Year, 2014
- Quality Matters Seal of Recognition for eLearning, EGN2095-Engineering Chemistry, 2013

- NCEES Engineering Award $25,000 Winner, Dania Beach Nanofiltration Plant Expansion, 2012
- Florida Atlantic University Excellence and Innovation in Undergraduate Teaching Award, 2011
- Florida Tech Sports Hall of Fame Inductee, 2008
- FAU Researcher of the Year Award Nominee (Assistant Professor Level), 2006
- Florida Atlantic University College of Engineering Dean's Award, 2004
- Florida Water Environment Association, Service Award, 2004, 2005, 2006, 2007
- WEF Student Paper Competition, Masters Category, 1998

18. Service activities (within and outside of the institution)

- College of Engineering and Computer Science Undergraduate Committee Chair (2013–Present)
- Faculty Advisor. Tau Beta Pi Engineering Honor Society (2005 – Present)
- Faculty Advisor. Florida Water Environment Association Student Chapter (2003 – Present)
- FAU Community Engagement Task Force, College of Engineering and Computer Science Faculty Liaison (2017 – Present)
- FAU Undergraduate Programs Committee (2013 – Present)
- FAU Quality Enhancement Plan Steering Committee and College of Engineering and Computer Science Faculty Liaison (2011 – Present)
- FAU eLearning Steering Committee Member (2011 – Present)
- Co-chair, National Pollution Prevention Roundtable Sustainable Hospitality Research Workgroup (2011 – present).

19. Selected publications

- Bloetscher, F., **D.E. Meeroff**, Roblyer, J., & Prymas, A. (2018). Algal Control in Warm Weather Pond Using EMOH Device. Journal of Environmental Protection, 9(08), 882-894.
- Bloetscher, F., & **D.E. Meeroff** (2015). Practical concepts for capstone design engineering. J Ross Publishing.
- Carsey, T., Stamates, J., Zhang, J. Z., Bloetscher, F., **D.E. Meeroff**, & Featherstone, C. (2015). Point Source Nutrient Fluxes from an Urban Coast: The Boynton (Florida) Inlet. Environment and Natural Resources Research, 5(2), 121-134.
- **D.E. Meeroff**, F. Bloetscher, S.C. Long, and T. Bocca (2014). "The Use of Multiple Tracers to Evaluate the Impact of Sewered and Non-Sewered Development on Coastal Water Quality in a Rural Area of Florida." Water Environment Research, Volume 86, Number 5, 445-456.
- **D.E. Meeroff**, F. Bloetscher, D. V. Reddy, F. Gasnier, S. Jain, A. McBarnette and H. Hamaguchi (2012). "Application of photochemical technologies for treatment of landfill leachate," Journal of Hazardous Materials, Volume 209–210, pp. 299–307.

1. Name

Sudhagar Nagarajan, Ph.D.
Assistant Professor, College of Engineering and Computer Science, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. in Civil, Environmental Engineering and Geodetic Science
The Ohio State University, Columbus, OH, March 2010

M.S. in Civil, Environmental Engineering and Geodetic Science
The Ohio State University, Columbus, OH, December 2008

M.S. in Photogrammetry and Geoinformatics
Stuttgart University of Applied Sciences, March 2006

B.Eng. in Geoinformatics Engineering
College of Engineering, Guindy, Anna University, May 2000

3. Academic experience

Aug 2013 - present: Assistant Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University
Aug 2012 - Aug 2013: Assistant Professor, Department of Applied Sciences, Nicholls State University, Thibodaux, LA
Apr 2010 – Aug 2012: Postdoctoral Associate/Research Scientist, Remote Sensing Laboratory, University at Buffalo, Buffalo, NY
Apr 2009 - Mar 2010: Programmer/Analyst (Project), Remote Sensing Laboratory, University at Buffalo, Buffalo, NY

4. Non-academic experience

Feb 2002 - Aug 2004: Digital Photogrammetry Engineer (Project Lead), Geofiny Tech. Pvt. Ltd., Chennai, India
May 2001 - Feb 2002: Spatial Data Executive, DSM Soft Pvt. Ltd, Trichi, India
Jul 2000 - Feb 2001: Photogrammetry Operator, Blom UAE, Abu Dhabi, UAE

5. Certifications or professional registrations

6. Current membership in professional organizations

- American Society of Photogrammetry and Remote Sensing

7. Honors and awards

- American Society of Photogrammetry and Remote Sensing **Roger Hoffer Membership Award 2018** (Honorable Mention), presented at ASPRS Annual conference 2018, Denver, CO
- American Society of Photogrammetry and Remote Sensing **ESRI award for Best Scientific Pape**r, 3rd prize for the paper co-authored, presented at ASPRS Annual conference 2018, Denver, CO
- Florida Atlantic University's OWL Research Magazine published a story on the lab's research on using Drone Imagery for better disaster response, Spring 2018
- Nominated by students for **Exceptional Faculty Award** nominated in 2016-2017
- **Exceptional Faculty Award**, Northern Campus Achievement Award 2015-2016, Florida Atlantic University
- **ASPRS Member of the Year 2015**, FL Region of American Society of Photogrammetry and Remote Sensing (ASPRS), awarded at ASPRS FL Region Annual Meeting 2015, Naples, FL
- **INPHO AWARD 2006** for academic excellence in Stuttgart University of Applied Sciences,

Germany

8. Service activities (within and outside of the institution)

- Member, Standing Committee on Geospatial Data Acquisition Technologies, AFB80, Transportation Research Board Member (Senior Support Personnel), International Society of Photogrammetry and Remote Sensing, WG I/7: Mobile Mapping Technology
- Early Adopter, NASA's ICESat-2 program, Incorporation of simulated ICESat-2 (MABEL) data to increase the time series and accuracy of Greenland/Antarctica Ice Sheet DDEM
- Advisor, Florida Atlantic University's American Society of Photogrammetry and Remote Sensing (ASPRS) Student Chapter
- Advisor, Florida Atlantic University's Florida Surveying and Mapping Society (FSMS) Student Chapter
- Member, Department Resource committee and College Research committee member (2017-present)
- Member, Department and College UG committee member (2013-2017)

9. Selected publications

- **Nagarajan, S.**, S. Khamaru & P. De Witt (2019): UAS based 3D shoreline change detection of Jupiter Inlet Lighthouse ONA after Hurricane Irma, International Journal of Remote Sensing, DOI: 10.1080/01431161.2019.1569792
- **Nagarajan, S.**, and S. Moafipoor, Boresight Calibration of Low Point Density LIDAR sensors, Photogrammetric Engineering and Remote Sensing Journal, Vol. 84. No. 10, October 2018, pp. 619-627
- **Nagarajan, S.**, T. Schenk, Feature-based registration of historical aerial images by Area Minimization, ISPRS Journal of Photogrammetry and Remote Sensing, Volume 116, June 2016, Pages 15-23

1. Name

Barry T. Rosson, Ph.D., P.E., F.ASCE
Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Doctor of Philosophy – Civil (Structural) Engineering
Auburn University, Auburn, Alabama, 1991

Master of Science – Civil (Structural) Engineering
Texas A&M University, College Station, Texas, May 1985

Bachelor of Science (Magna Cum Laude) – Civil Engineering
Texas A&M University, College Station, Texas, May 1983

3. Academic experience

July 2007 – Present	Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University, Boca Raton, Florida:
April 2011 – January 2014	Vice President for Research, FAU
October 2010 – April 2011	Interim Vice President for Research, FAU
July 2007 – January 2014	Dean, Graduate College, FAU
July 2004 – June 2007	Associate Dean, Office of Research and Graduate Studies, University of Nebraska, Lincoln, Nebraska
August 2003 – June 2007	Professor, Department of Civil Engineering, UNL
August 2003 – June 2004	Associate Chair, Department of Civil Engineering, UNL
January 2003 – June 2004	Director of Graduate Studies, College of Engineering, UNL
August 1997 – July 2003	Associate Professor, Department of Civil Engineering, UNL
July 1991 – July 1997	Assistant Professor, Department of Civil Engineering, UNL

4. Non-academic experience

January 1985 – August 1987: Structural Engineer, Ellisor and Tanner, Inc., Dallas, Texas

5. Certifications or professional registrations

- Registered Professional Engineer, State of Nebraska, E-7866

6. Current membership in professional organizations

- Fellow of the American Society of Civil Engineers
- Fellow of the Architectural Engineering Institute
- Member of the Structural Stability Research Council
- Member of the American Society for Engineering Education

7. Honors and awards

- Chapter Honor Member, Chi Epsilon, University of Nebraska, November 2004
- Holling Family Master Teacher Award, College of Engineering, April 2003, 2002, 1995
- Distinguished Teaching Award, University of Nebraska Honors Convocation, April 2003
- Recognition for Contributions to Students, University of Nebraska, 2003, 2002, 2001, 1995
- Faculty Service Award, College of Engineering, University of Nebraska, April 2004, 2000
- Outstanding Advisor Recognition, College of Engineering, University of Nebraska, Feb. 2004

- Best Paper Award, TRB Committee on Roadside Safety Features, January 1993
- Phi Kappa Phi, Tau Beta Pi, Chi Epsilon, Phi Eta Sigma

8. Service activities (within and outside of the institution)

- National Leadership and Service:
- Chair of the Committee on Professional Practice (ASCE Presidential and Board Appointment)
- Chair of the Council of Institute Presidents (ASCE)
- President of the Architectural Engineering Institute (ASCE/AEI)
- Associate Editor of the Journal of Structural Engineering (ASCE/SEI)
- Institutional Service:
- Chair of the Departmental Personnel Committee (FAU)
- Member of the College Personnel Committee (FAU)
- Coordinator of the Unified Ph.D. Engineering Program (UNL)
- Chair of the University Academic Planning Committee (UNL)

9. Selected publications

- Keierleber, C.W., **Rosson, B.T.**, "Higher-Order Implicit Dynamic Time Integration Method," ASCE Journal of Structural Engineering, Vol. 131, No. 8, pp. 1267-1276, 2005.
- **Rosson, B.T.**, Suelter, J.L., "Closed-Form Equations for Hardening of Sand-Lime Mortar Joints," ASCE Journal of Engineering Mechanics, Vol. 27, No. 6, pp. 574-581, 2001.
- Boothby, T.E., **Rosson, B.T.**, "Elasto-Plastic Hardening and Shakedown of Masonry Arch Joints," Meccanica, Vol. 34, pp. 71-84, 1999.
- **Rosson, B.T.**, Soyland, K., Boothby, T.E., "Inelastic Behavior of Sand-Lime Mortar Joint Masonry Arches," Engineering Structures, Vol. 20, Nos. 1-2, pp. 14-24, 1998.
- **Rosson, B.T.**, Rohde, J.R., Klovsky, R., "Behavior and Design of Static-Cast Prestressed Concrete Distribution Poles," PCI JOURNAL, Vol. 41. No. 5, pp. 94-106, Sep.-Oct., 1996.
- **Rosson, B.T.**, Faller, R.K., Ritter, M.A., "Performance Level 2 and Test Level 4 Bridge Railings for Timber Decks," Transportation Research Record 1500, Journal of the Transportation Research Board, National Research Council, Washington, D.C., pp. 102-111, 1995.
- **Rosson, B.T.**, Tedesco, J.W., "Dynamic Response of Dolos Armor Units to Pendulum Impact Loads," Computers and Structures, Vol. 47, No. 4/5, pp. 641-652, 1993.
- **Rosson, B.T.**, "Modeling the Influence of Residual Stress on the Ultimate Load Conditions of Steel Frames," North American Steel Construction Conference, SSRC, Baltimore, April 2018.
- **Rosson, B.T.**, "Modeling the Stiffness Reduction Conditions of Steel Beam-Columns," EuroSteel 2017, Copenhagen, Denmark, September 2017.
- **Rosson, B.T.**, Keierleber, C.W., "Higher-Order MDOF Time Integration Methods," Second M.I.T. Conference on Computational Fluid and Solid Mechanics, Cambridge, June 2003.
- **Rosson, B.T.**, Boothby, T.E., "Hardening and Shakedown of Masonry Arch Joints," Second International Arch Bridge Conference, Venice, Italy, October 1998.
- Boothby, T.E., **Rosson, B.T.**, "Plastic Shakedown of Masonry Arch Structures," Twelfth U.S. National Congress of Applied Mechanics, Seattle, June 1994.
- Textbook: **Rosson, B.T.**, "Introduction to Nonlinear Behavior of Structures," ISBN 978-1-5249-5590-8, Kendall Hunt Publishing Company, 2018.

10. Professional development activities

- Instructor, Continuing Education Course for Professional Engineers, "Nonlinear Structural Analysis Methods Used in Modern Steel Design", NASCC Conference, St. Louis, April 2019.

1. Name

Panagiotis D. Scarlatos, Dr.-Eng.
Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Dr.-Eng. - Doctorate Degree in Civil Engineering
Aristotle University of Thessaloniki, Greece, 1981

Dipl.-Eng. - Diploma in Civil Engineering (5-year)
Aristotle University of Thessaloniki, Greece, 1972

3. Academic experience

2013 – present	Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2009 – 2013	Chair & Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
2006 – 2010	Executive Director, University Consortium for Intermodal Transportation Safety and Security (UCITSS)
2006 – 2016	Director, Center for Intermodal Transportation Safety and Security, FAU
2005 – 2009	Chair & Professor, Department of Civil Engineering, College of Engineering and Computer Science, FAU
2004 - 2005	Interim Chair & Professor, Department of Civil Engineering, College of Engineering and Computer Science, FAU
2001 – 2004	Professor of Civil & Ocean Engineering, Department of Civil Engineering, College of Engineering and Computer Science, FAU
1996 – 2001	Professor & Coordinator of Civil Engineering Graduate Program, Department of Ocean Engineering, College of Engineering and Computer Science, FAU
1989 – 1996	Associate Professor & Coordinator of Water Resources Graduate Program, Department of Ocean Engineering, College of Engineering and Computer Science, FAU
1981 – 1985	Post-Doctoral Research Associate, Coastal Ecology Laboratory & Louisiana Water Resources Research Institute, Louisiana State University
1975 – 1981	Lecturer/Assistant Engineer, Hydraulics & Hydraulic Structures Laboratory, Aristotle University of Thessaloniki, Greece

4. Non-academic experience

1985 – 1989 Staff Water Resources Engineer/Water Resource Engineer, Division of Water Resources, Department of Resource Planning, South Florida Water Management District, WPB, FL
1990 – 2012 Consultant/Expert Witness in local, national and international cases.

5. Certifications or professional registrations

- Professional Civil Engineer, License. # 1298, Greece – EU (1972)
- Certification, Military Engineer, Greek Army (1972)

6. Current membership in professional organizations

7. Honors and awards

- Nominated for the Albert Nelson Who is Who Marquis Lifetime Achievement Award (2019)
- Dean's Faculty Award, College of Engineering, FAU (2003)
- Teaching Incentive Program (TIP) Award, College of Engineering, FAU (1995)

- FEEDS Exceptional Professor Award, FAU (1994)
- Fulbright Scholar Research Grantee (1992)
- Outstanding Achievement and Performance Award, Florida Atlantic University (1990)
- NATO Research Fellow (1978-79)
- Merit Scholarship, Institute of National Scholarships, Greece (1967-68-69)

8. Service activities (within and outside of the institution)

- FAU Personnel Committee (2013 – today)
- FAU Faculty Credentialing Team (2012 – today)
- External Reviewer of Faculty Promotions, Greek Public Universities System (APELLA), Appointed by the Greek Ministry of Education, Greece, (2012 – today)
- PBC Pollution Prevention Coalition, FAU representative (2008 – today)

9. Selected publications

- Koutitas, C.G. and **Scarlatos, P.D.** Computational Modelling in Hydraulics and Coastal Engineering, Taylor & Francis Group, CRC Press, 2016.
- Soltani-Sobh, A., Heaslip, K., **Scarlatos, P.** and Kaisar, E., 2016. "Reliability based pre-positioning of recovery centers for resilient transportation infrastructure", Int'l Journal of Disaster Risk Reduction, Elsevier, 19:324-333.
- Kaisar, E., Parr, S. and **Scarlatos,** P.D., 2010. "*An Urban Chemical Disaster Traffic Simulation Model: A Case Study for No-Notice Emergency Evacuation Development*", Latest Trends on Urban Planning and Transportation, Manoj Jha (ed): 33-47.
- **Scarlatos, P.D.,** Kaisar, E. and Teegavarapu, R., 2009. "*Modeling and Simulation of Catastrophic Events Affecting Critical Infrastructure Systems*", 11th Int'l Conf. on Mathematical Methods and Computational Techniques in Electrical Engineering, Vouliagmeni, Greece: 324-346.
- **Scarlatos, P.D.,** Chapter 9. "*Estuarine Hydrodynamics*", and Chapter 10. "*Ecohydrodynamics*", in: Environmental Hydraulics, 1996, V.P. Singh and W. Hager (eds.), Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 289-348.
- **Scarlatos, P.D.,** 2007. "*Flow Measurements in Submerged Tidal Spillways*", 13th Int'l Conference on Computational Methods and Experimental Measurements, Prague, Czech Republic.

1. **Name: Khaled Sobhan**

2. **Education:**

- **Northwestern University, Illinois: Ph.D. in Civil Engineering, 1997**
  Area: Geotechnical Engineering, Sustainable Infrastructure Materials
- **The Johns Hopkins University, Maryland: M.S. in Civil Engineering, 1991**
  Area: Soil Mechanics, Constitutive Behavior, Geotechnical Engineering
- **Bangladesh University of Engineering & Technology: B.S. in Civil Engineering, 1988**
  Concentration: Structural Engineering

3. **Academic experience**

2018 - present	Interim Dean of Graduate College, Florida Atlantic University
2013 - present	Professor of Civil Engineering, Florida Atlantic University
2007 - 2012	Associate Professor (tenured), Civil Engineering, Florida Atlantic University
2003 - 2007	Assistant Professor, Civil Engineering, Florida Atlantic University
1999 - 2002	Assistant Professor, Civil Engineering., New Mexico State University
1995 - 1999	Visiting Assistant Professor, Civil Engineering, Bucknell University

4. **Non-academic experience:**
   Consultant for **The World Bank** project titled "Benchmarking of the Central Soils and Materials Research Station (CSMRS)," New Delhi, India; Agricultural and Rural Development Division, **The World Bank**, International Bank for Reconstruction/Development, Washington, D.C. (2012 – 2013)

5. **Certifications or professional registrations**: EI

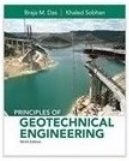
6. **Current membership in professional organizations**: ASCE, DFI, Geo-Institute

7. **Honors and awards**
   2016/2017 Award for Excellence and Innovation in Undergraduate Teaching, Florida Atlantic University, April, 20016.
   2009 Excellence in Graduate Mentoring Award**,** Graduate College, Florida Atlantic University.
   2006/2007 *Award for Excellence and Innovation in Undergraduate Teaching*, Florida Atlantic University, April, 2007.
   Recipient of **2018 McGuffey Longevity Award**, Textbook & Academic Authors Association (TAA), during the 31st Annual TAA Conference, June 15, 2018, Santa Fe, New Mexico.

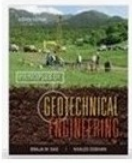
8. **Service activities** (within and outside of the institution)
   - Interim Dean of Graduate College(April 2018 – present), Florida Atlantic University
   - University Tenure/Promotion Committee (2016-present); nine-member committee
   - Sustained Performance Evaluation (SPE) Committee, Provost's office (2013-2016). Development of the SPE governance document (post-tenure). (http://www.fau.edu/ufsgov/Files/2016_2017/SPE-Memo-October-3-2016.pdf)
   - Provost Task Force for Celebrating Faculty Success (2011-2012)
   - University Prog. Review Committee, Office of Vice President for Strategic Planning (2012)
   - University Faculty Senate (2009-2012)
   - University Graduate Council (2005-2010). Development of the Graduate Governance Document (http://www.fau.edu/graduate/docs/Graduate_College_Governance_Document.pdf)
   - Chair, College Personnel Committee (tenure/promotion), Engr. & Comp. Sci. (2016-2018)
   - Faculty President, College of Engineering & Computer Science (2010-2013)
   - Chair, College Graduate Studies Committee, Engr. & Comp. Sci. (2005-2010)

- Past Chair, 25-member TRB National technical committee AFS90: *Chemical and Mechanical Stabilization*, *Transportation Research Board*, 2005-2011).
- Member, TRB technical committee AFS70: *Geosynthetics*, *Transportation Research Board*, National Research Council, Washington, D.C., (2012-present).

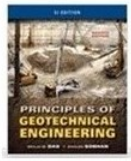
9. Selected publications



Principles of Geotechnical Engineering, 9th Edition
Braja M. Das and Khaled Sobhan
Cengage Learning, 2018; **ISBN-13:** 978-1305970939



Principles of Geotechnical Engineering, 8th Edition
Braja M. Das and Khaled Sobhan
Cengage Learning, 2014; **ISBN-13:** 978-1133108665



Principles of Geotechnical Engineering, SI Version, 8th Edition
Braja M. Das and Khaled Sobhan
Cengage Learning, 2014; **ISBN-13:** 978-1133108672

1. **Slope Stability**, Book Chapter in ***Geotechnical Engineering Handbook***, Braja M. Das, Editor in Chief, ISBN: 978-1-932159-83-7, J. Ross Publishing, August 2010, 75 p.
2. Sethy, B. P., Patra, C. R., Das, B. M., and Sobhan, K. (2018). "Bearing Capacity of Circular Foundation on Sand Layer of Limited Thickness Underlain by Rigid Rough Base Subjected to Eccentrically Inclined Load," ASTM Geotechnical Testing Journal, May 2019 -- GTJ Volume 42, Issue 3, GTJ20170420
3. Sobhan, K. (2017). "Challenges due to Problematic Soils: A Case Study at the Crossroads of Geotechnology and Sustainable Pavement Solutions." *Innovative Infrastructure Solutions*, 2:40, December 2017, Springer International Publishing, DOI 10.1007/s41062-017-0070-y.
4. Sobhan, K., Gonzalez, L., and Reddy, D. V. (2016). "Durability of a Pavement Foundation made from Recycled Aggregate Concrete Subjected to Cyclic Wet-dry Exposure and Fatigue Loading," *Materials and Structures*, RILEM, Volume 49, Issue 6, pp. 2271-2284, June 2016.
5. Reddy, D. V., Sobhan, K., Liu, L., and Young, J. D. (2015). "Size Effect on Fire Resistance of Structural Concrete," *Engineering Structures*, Volume 99, pp. 468-478.
6. Reddy, D. V., Sobhan, K., and Young, J. D. (2015). "Fire Resistance of Structural Concrete Retrofitted with Carbon Fiber Reinforced Polymer Composite," *Transportation Research Record*, Journal of the Transportation Research Board, Washington, D.C., Volume 2522, pp. 151-160.
7. Reddy, D. V., Edouard, J-B., and Sobhan, K. (2013). "Durability of Fly-ash-based Geopolymer Structural Concrete in the Marine Environment," *ASCE Journal of Materials in Civil Engineering*, Volume 25, Issue 6, pp. 781–787.
8. Sobhan, K., Ramirez, J. C., and Reddy, D. V. (2012). "Cement Stabilization of Highly Organic Subgrade Soils for Controlling Secondary Compression Settlement," *Transportation Research Record*, *Journal of the Transportation Research Board*, Volume 2310, pp. 103-112.
9. Ali, H., and Sobhan, K. (2012). "On the Road to Sustainability: Properties of Recycled Superpave Mixes," *Transportation Research Record: Journal of the Transportation Research Board, The National Academies,* Volume 2292, pp. 88-93.
10. Sobhan, K., George, K. P., Pohly, D. and Ali, H. (2010). "Stiffness Characterization of Reinforced Asphalt Pavement Structures Built Over Soft Organic Soils," *Transportation Research Record: Journal of the Transportation Research Board, The National Academies,* Volume 2186, pp. 67-77.

10. **Professional development activities:** Numerous workshops, training programs, conferences.

1. Name

Aleksandar Stevanovic, PhD, PE
Assoc. Prof. of Civil, Environmental & Geomatics Engineering, Florida Atlantic University
Director, Lab for Adaptive Traffic Operations & Management

2. Education

Ph.D., Civil and Environmental Engineering
University of Utah, Salt Lake City, December 2005

M.Sc., Civil and Environmental Engineering
University of Utah, Salt Lake City, August 2003

B.Sc., Faculty of Transport and Traffic Engineering
University of Belgrade, Serbia, May 1998

3. Academic experience

06/2015-present:	Program Leader – Infrastructure Systems, Institute for Sensing and Embedded Network Systems Engineering, Florida Atlantic University, Boca Raton, FL.
04/2015-present:	Associate Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University, Boca Raton, FL.
07/2009-present:	Director, Laboratory for Adaptive Traffic Operations and Management (LATOM), Florida Atlantic University, Boca Raton, FL.
07/2009-04/2015:	Assistant Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University, Boca Raton, FL.
01/2006-06/2009:	Research Assistant Professor, Department of Civil and Environmental Engineering, University of Utah, Salt Lake City, UT.

4. Non-academic experience

Flight Operations Engineer, Yugoslav Airlines, Belgrade, Serbia. 06/1998-02/2000.

5. Certifications or professional registrations

P.E. License with the State of Utah (License #: 7124750-2202).

6. Current membership in professional organizations

- Institute of Transportation Engineers (ITE)
- American Society of Civil Engineers (ASCE)

7. Honors and awards

- Outstanding Engineering Achievement Merit Award, awarded by the Engineers' Council Honors & Awards Committee, 2019.
- Fulbright Specialist – selected for the Fulbright Specialist Roster for a tenure of three years between June 8, 2018 and June 8, 2021.
- Honorary Visiting Faculty, Indian Institute of Technology Madras, Department of Civil Engineering, Nov-Dec, 2018.
- Nominated for FAU Researcher of the Year 2013, 2014, and 2015 Award, in category of Assistant Professors, by College of Engineering and Computer Science (only one nomination per category in each college).

8. Service activities (within and outside of the institution)

- FAU representative with the Transportation Research Board, The National Academy of Science.
- Committee of Traffic Signal Systems - AHB25, Transportation Research Board.
- Editorial Board of "Road and Traffic" - Serbian journal for road transportation.
- Editorial Board of "Journal PROMET-Traffic & Transportation" – Croatian journal for road transport.
- AHB25 Committee's liaison with ASCE Committee on Advanced Technology in Transportation.
- Eminent Engineer, Tau Beta Pi Florida Epsilon (inducted in fall 2012).

9. Selected publications

- Chowdhury, S-E-S., **Stevanovic, A.**, and Mitrovic, N. (2018) "Evaluation of Multiple Hardware and Software in the Loop Signal Controllers in Simulation Environment." Transportation Research Record – Journal of The Transportation Research Board, Article first published online: July 1, 2018. https://doi.org/10.1177/0361198118784168
- Parmar, R.S., Trivedi, B. and **Stevanovic, A.** (2018) A Model with Traffic Routers, Dynamically Managing Signal Phases to Address Traffic Congestion in Real Time. Journal of Transportation Technologies, 8, 75-90.
- Dakic, I. and **Stevanovic, A.Z.** "On development of arterial fundamental diagrams based on surrogate density measures from adaptive traffic control systems utilizing stop-line detection." Transportation Research Part C, Vol. 94 (2018) 133-150.
- Biswas, D., Su, H., Wang, C., Blankenship, J., and **Stevanovic, A.** (2017). "An Automatic Car Counting System using OverFeat Framework." Sensors 2017, 17, 1535.
- Soltani-Sobh, A., **Stevanovic, A.Z.**, Ostojic, M., Ma, J., and Hale, D. "Development of Congestion Causal Pie Charts for Arterial Roadways." International Journal for Traffic and Transportation Engineering, 2017, 7(1): 117 - 133.
- Ostojic, M., **Stevanovic, A.Z.**, Jolovic, D., and Mahmassani, H.S. "Assessment of Signal Timing Plan Robustness in an Arterial Corridor through Seasonal Variation of Traffic Flows." Transportation Research Record: Journal of the Transportation Research Board, No. 2619, 2017, pp. 85–94.

10. Professional development activities

- Identification and Application of Implementable Research Outcomes from FAU TSM&O Projects, Florida Department of Transportation ($99,923); February 2019 – July 2020. (PI)
- Benefits of Adaptive Traffic Control Deployments - A Review of Evaluation Studies – National Cooperative Highway Research Program ($99,912); May 2018 – June 2019. (PI)
- Multiresolution Analysis of the Impacts of Complete Streets on Efficiency, Safety and Environment of Urban Corridors, Florida DOT ($299,631); May 2018 – April 2020. (PI)
- Impact of Accurate Assessment of Freeway Traffic Conditions on the Operations of I-95 Express Lanes in Broward County, Florida Department of Transportation ($99,859); November 2017 – October 2018. (PI)
- Development of a Traffic Map Evaluation Tool for TMC Applications, Florida Department of Transportation ($243,706); March 2017 – January 2019. (PI)
- Analysis of Traffic Demand Patterns and Signal Retiming Strategies for ITS-data-rich Arterials, Florida Department of Transportation ($99,725); Dec 2016 – May 2018. (PI)

1. Name

Hongbo Su, Ph.D.
Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. in Civil and Environmental Engineering, Hydrology Emphasis
Princeton University, Princeton, NJ, 2008

Ph.D. in Cartography and GIS, Remote Sensing Emphasis
Chinese Academy of Sciences, Beijing, China, 2002

Bachelor of Science in Engineering, Major in Photogrammetry and Remote Sensing
Wuhan Technical University of Surveying and Mapping, Wuhan, China, 1997

3. Academic experience

2014-present	Assistant Professor, Department of Civil, Environmental and Geomatics Engineering, College of Engineering and Computer Science, FAU
2010 – 2014	Assistant Professor, Department of Environmental Engineering, College of Engineering, Texas A&M University-Kingsville
2006-2010	Postdoctoral Research Scientist, Center for Research on Environment and Water (CREW), Institute of Global Environment & Society (IGES), Calverton, Maryland

4. Non-academic experience

5. Certifications or professional registrations

6. Current membership in professional organizations

- American Geophysical Union, member since 2004
- IEEE, senior member since 2007

7. Honors and awards

- 2017 Outstanding Faculty Award for Northern Campus of FAU
- Certificate of Appreciation from the NASA Earth Science Technology Office in 2014 to recognize the valuable contribution and outstanding support to the Advanced Information Systems Technology Program

8. Service activities (within and outside of the institution)

Services to FAU

- Departmental Undergraduate Committee of CEGE (2016-2018)
- College Undergraduate Committee (2016-2018)
- College Textbook Affordability Committee (2016-2018)
- College Engineering Math Committee (2016-2018)
- FAU Libraries Collection Advisory Committee (2018-present)

Services to Discipline and Profession

- Editorial Board for Journal of Geoinformation Science, 2016-present
- Guest Editor for *Advances of Meteorology* in 2016
- Guest Editor for *Physics and Chemistry of the Earth* in 2016, 2017 and 2018
- IEEE Technical Committee for Environmental Sensing, Networking and Decision-Making

(ESND)
- IEEE Earth Science Informatics Technical Committee
- Technical Program Committee (TPC) on *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)* in 2016
- Session Convener for AUG 2016 Fall Meeting
- Session Convener for AUG 2015 Fall Meeting
- Panel Reviewer for NASA *Advanced Information Systems Technology* (AIST) *program* 2008, 2011, 2013
- Organizing Committee on *the 4th International Workshop on Catchment-scale Hydrological Modeling and Data Assimilation* in 2010
- Organizing Committee on *the 12th Chinese-American Kavli Frontiers of Science* in 2009
- Panel Reviewer for *National Natural Science Foundation of China* from 2007 - 2012
- Technical Program Committee (TPC) on *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)* in 2006
- Reviewer for *IEEE Transactions on Geoscience and Remote Sensing*, *Journal of Geophysical Research* (JGR), *Journal of Hydrology*, *Photogrammetric Engineering and Remote Sensing*, *Journal of Arid Environments*, *Science of China*

9. Selected publications

- Liu, Kai, Hongbo Su, Jing Tian, Xueke Li, Weimin Wang, Lijun Yang, and Hong Liang. "Assessing a scheme of spatial-temporal thermal remote-sensing sharpening for estimating regional evapotranspiration." *International Journal of Remote Sensing* 39, no. 10 (2018): 3111-3137.
- Liu, Kai, Hongbo Su, Xueke Li, Shaohui Chen, Renhua Zhang, Weimin Wang, Lijun Yang, Hong Liang, and Yongmin Yang. "A Thermal Disaggregation Model Based on Trapezoid Interpolation." *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* (2018).
- Hongbo Su, Sudhagar Nagarajan, Jinwei Dong, (2017) Physical and Economic Processes of Ecosystem Services Flows, *Physics and Chemistry of the Earth, Parts A/B/C,* Vol. 101, 1-2
- Biswas, D., Su, H., Wang, C., Blankenship, J., & Stevanovic, A. (2017). An automatic car counting system using OverFeat Framework. *Sensors*, *17*(7), 1535.
- Khadim, F. K., Su, H., & Xu, L. (2017). A Spatially weighted optimization model (SWOM) for Salinity mapping in Florida Bay using Landsat images and in-situ observations. *Physics and Chemistry of the Earth, Parts A/B/C*, Vol. 101, 86-101
- Liu, K., Su, H., & Li, X. (2017). Comparative Assessment of Two Vegetation Fractional Cover Estimating Methods and Their Impacts on Modeling Urban Latent Heat Flux Using Landsat Imagery. *Remote Sensing*, *9*(5), 455.

10. Professional development activities

Writing and Designing NIH Workshop by Grant Training Center held in University of Miami in 2017

1. Name

Ramesh S. V. Teegavarapu, Ph.D., P.E.
Professor & Graduate Program Director, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University
Director, Hydrosystems Research Laboratory (HRL: hrl.fau.edu)

2. Education

Ph.D. in Civil Engineering, Water Resources Engineering Emphasis
University of Miami, Coral Gables, FL, 2000

Master of Science in Civil Engineering, Water Resources Engineering Emphasis
Indian Institute of Science, Bangalore, India, 1995

Bachelor of Engineering in Civil Engineering
Osmania University, India, May 1992

3. Academic experience

May 2018-present	Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University
May 2018- present	Graduate Program Chair, May 2018- Present, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University
June-August, 2016	Visiting Research Professor, Politecnico Di Torino, University of Brescia, Italy.
Nov-Jan, 2016	Visiting Research Professor, Research Center for Urban Safety and Security Kobe University Kobe, Japan
2012-2018	Associate Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University
2006-2012	Assistant Professor, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University
2004-2006	Assistant Director, Kentucky Water Resources Research Institute (KWRRI), University of Kentucky, Lexington, USA, 40506
2004-2006	Adjunct Faculty, Department of Civil Engineering, University of Kentucky, Lexington, USA, 40506-0281
2001-2004	Assistant Professor (Visiting), Department of Civil Engineering, University of Kentucky, Lexington, USA, 40506-0281

4. Non-academic experience

5. Certifications or professional registrations

Professional Engineer. *State of Kentucky Board of Professional Engineers.*
License #: 23112 (6/11/2003)

6. Current membership in professional organizations

- Environmental and Water Resources Institute (EWRI)
- International Association for Hydro-Environment Engineering and Research (IAHR)
- International Society for Environmental Informatics (ISEI)

7. Honors and awards

- Fulbright Scholar Award, 2016-2017. Awarded by United States Department of State Bureau of Educational and Cultural Affairs.
- Research Scholar of the Year, Florida Atlantic University, University Level award, 2017.

- Excellence and Innovation in Undergraduate Teaching Award, University Level award, FAU, 2018, Florida Atlantic University.
- College of Engineering and Computer Science (COECS) Senior Faculty Teaching Award, FAU, 2019. One award for tenured faculty for the entire college.
- Member, OPACHE (Open Panel of Commission for Hydrology Experts), WMO – (Hydrology and Data Operations and Management, Water Resources Assessment, Hydrological Forecasting and Prediction), 2016.
- Outstanding Service Award as a Member of the Organizing and Steering Committee of Weather Radar and Hydrology (WRaH), 2014, EWRI, ASCE.
- Faculty Research Mentoring Award, FAU, 2014.

1. Service activities (within and outside of the institution)

- Member, Graduate Program Committee, College of Engineering g and Computer Science, FAU
- Associate Editor, Journal of Hydrologic Engineering, ASCE, Guest Editor, JHE, ASCE, Editorial board member, Journal of Hydro-informatics.
- Reviewer for over 75 international technical journals and 34 international conferences.
- Chaired, convened and moderated over 58 technical sessions at national and international conferences and served on advisory committees of conferences and as general and technical co-chair of two international conferences.
- Leadership Team Member, International Association for Hydro-Environment Research (IAHR) Water Resources Management Committee, 2010-till date.
- Member, Hydro-Climate Technical Committee, EWRI, American Society of Civil Engineers, 2014-till date.
- Member, Climate Change Working (CWG) Group, IAHR 2014 – till date.
- Member, Panta Rhei Working Group on Modeling Hydrological Processes and Changes, IAHS. 2014-2016.

9. Selected publications

45 refereed journal papers, 6 under review; 64 refereed conference papers; 31 refereed extended abstracts; 20 book chapters, 5 book articles; 1 book (sole author); 4 edited books; 47 Research Posters; Over 1400 citations, H-index:18 and i10: 30

- Ramesh S. V. Teegavarapu, Exploring Geometric Patterns in Streamflow Time Series: Utility for Forecasting? 2018, Hydrology Review (: DOI: 10.21666/nh2018.127), 2018
- Ramesh S. V. Teegavarapu, Aneesh Goly. 2018. Optimal Selection of Predictor Variables in Statistical Downscaling Models of Precipitation, Water Resources Management, 32(6), 1969-1992.
- Ramesh S. V. Teegavarapu and Singaiah Chintalapudi, Incorporating Influences of Shallow Groundwater Conditions in Curve Number-based Runoff Estimation Methods, Water Resoruces Management, 2018. https://doi.org/10.1007/s11269-018-2053-y
- **Ramesh S. V. Teegavarapu**, Ala Aly, Chandra S. Pathak, Jon Ahlquist, Henry Fuelberg, J Hood, Infilling Missing Precipitation Records using Variants of Spatial Interpolation and Data-Driven Methods: Use of Optimal Weighting Parameters and Nearest Neighbor-based Corrections, 2017. International Journal of Climatology. DOI: 10.1002/joc.5209. 38(2), 776-793.
- **Ramesh S. V. Teegavarapu** and Anurag Nayak. Evaluation of Long-term Trends in Extreme Precipitation: Implications of Infilled Historical Data and Temporal-Window based Analysis, Journal of Hydrology, 2017. 550, 614-634.

1. Name

James H. VanZwieten Jr., Ph.D.
Assistant Research Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. Ocean Engineering
Florida Atlantic University, Boca Raton, FL, 2003-2007

M.S. Ocean Engineering
Florida Atlantic University, Boca Raton, FL, 2001-2003

B.S. Ocean Engineering
Florida Atlantic University, Boca Raton, FL, 1996-2001

3. Academic experience

Jan 2019- Present	Assistant Research Professor, Department of Civil, Environmental & Geomatics Engineering, College of Engineering and Computer Science, FAU
July 2010- Dec. 2018	Assistant Research Professor, Southeast National Marine Renewable Energy Center, FAU
Dec. 2007-July 2010	Visiting Faculty / Ocean Engineer, Center for Ocean Energy Technology, College of Engineering and Computer Science, FAU
May 2007- Dec. 2007	Visiting Faculty / Ocean Engineer, Department of Ocean Engineering, College of Engineering and Computer Science, FAU

4. Non-academic experience

5. Certifications or professional registrations

6. Current membership in professional organizations

7. Honors and awards

- Received the Journal of Ships and Offshore Structure's award for the best paper of 2008
- Awarded 2nd place in the Student Poster Competition at the 2002 MTS/IEEE Oceans Conference

8. Service activities

I. Community Service (selected):
- Judge for the 2012 and 2013 FAU Graduate Student Poster Completions
- Judge for the 2014 and 2015 DTD Undergraduate Student Presentation and Poster Competitions

II. Committees (selected):
- Florida Keys Community College, Engineering Technician, Advisory Committee
- FAU Distinction through Discovery, Co-Curricular Committee
- Marine Energy Conversion, US Department of Energy, Advanced Water Power Program, Resource Assessment Subcommittee
- Chair In-Stream Hydrokinetic sub-committee in ASCE COPRI Marine Renewable Energy committee

III. Student Teaching and Mentoring (selected)

- Principle Investigator for NSF Research Experiences for Undergraduates (REU) Site in Ocean Current based Electricity Production, 2017-2019.
- Summer Undergraduate Research Fellowship (SURF) student advisor, (2015, 2016, 2017, 2018, 2019)
- Learning Environment and Academic Research Network (LEARN) undergraduate student advisor, 2017
- Undergraduate research advisor for seventeen past and five current students

IV. Journal Referee

- IEEE Transactions on Sustainable Energy; IEEE Transactions on Mechatronics; IEEE Oceanic Engineering; Renewable Energy; Journal of Atmospheric and Oceanic Technology; International Journal of Marine Energy; Ocean Engineering; Energy; Marine Technology Society Journal; Journal of Hydraulic Research; Ships and Offshore Structures; FAU Undergrad Research Journal

V. Conference Referee

- Energy and Water Conference; American Society of Mechanical Engineering, OMAE conference; Global Marine Renewable Energy Conference, Marine Energy Technical Symposium; International Marine Renewable Energy Conference, Marine Energy Technical Symposium; European Wave and Tidal Energy Conference

VI. Grant Reviewer

- NSF (3 panels & 2 ad hoc); US Department of Commerce/NOAA Sea Grant SBIR (Phase I & Phase II); DOE SBIR solicitation (2 x Phase I); FAU Curriculum Grants Program (twice); OURI Research Grant Competition (15 total reviews)

9. Publications (selected)

- P. Pyakurel, **J.H. VanZwieten**, M. Dhanak, N. Xiros (2017) "Numerical modeling of turbulence and its effect on ocean current turbines" *International Journal of Marine Energy*, 17:84-97.
- P. Pyakurel, **J.H. VanZwieten**, C. Sultan, M.R. Dhanak, N.I Xiros (2017) "Numerical Simulation and Dynamical Response of a Moored Hydrokinetic Turbine Operating in the Wake of an Upstream Turbine for Control Design" *Renewable Energy*, 114 (Part B), 1134-1145.
- P. Pyakurel, **J.H. VanZwieten**, W. Tian, P. Ananthakrishnan (2017) "Analytic characterization of the wake behind in-stream hydrokinetic turbines" *Marine Technology Society Journal*, 51 (6), 58-71.
- **J.H. VanZwieten**, L.T. Rauchenstein, L. Lee (2017) "An Assessment of Florida's Ocean Thermal Energy Conversion (OTEC) Resource" *Renewable and Sustainable Energy Reviews*, 75, 683-691.
- **J.H. VanZwieten**, P. Pyakurel, T. Ngo, C. Sultan, N.I. Xiros (2016) "An assessment of using variable blade pitch for moored ocean current turbine flight control" *International Journal of Marine Energy*, 13, 16-26.
- **J. VanZwieten**, W. McAnally, J. Ahmad, T. Davis, J. Martin, M. Bevelhimer, A. Cribbs, R. Lippert, T. Hudon, M. Trudeau (2014) "In-Stream Hydrokinetic Power – A Review and Appraisal" *ASCE Journal of Energy Engineering*, 141 (3), 04014024(1-16).
- **J.H. VanZwieten**, N. Vanrietvelde, and B. Hacker. (2013) "Numerical simulation of an experimental ocean current turbine" *IEEE Journal of Oceanic Engineering*, 38 (1), 131-143.
- **J.H. VanZwieten**, F.R. Driscoll, and T.S. VanZwieten (2010) "Development of an adaptive disturbance rejection system for the rapidly deployable stable platform - Part1: Mathematical modeling and open loop response" *Ocean Engineering*, 37 (8-9), 833-846.
- **J.H. VanZwieten**, F.R. Driscoll, and G.M. Alsenas (2008) "Response characteristics and maneuverability of a small twin screw displacement hull vessel in seas" *Journal of Ships and Offshore Structures*, 3 (1), 13-40. (SaOS best paper of 2008)
- **J. VanZwieten**, F.R. Driscoll, A. Leonessa, and G. Deane (2006) "Design of a prototype ocean current turbine - Part II: flight control system" *Ocean Engineering*, 33(11-12), 1522-1551.
- **J. VanZwieten**, F.R. Driscoll, A. Leonessa, and G. Deane (2006) "Design of a prototype ocean current turbine - Part I: mathematical modeling and dynamics simulation," *Ocean Engineering*, 33 (11-12), 1485-1521.

1. Name

Peng Yi, Ph.D.
Assistant Professor, Department of Civil, Environmental & Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D., Environmental Process Engineering
Johns Hopkins University, MD, 2013

M.Eng., Municipal Engineering
Harbin Institute of Technology, China, 2008

B.Eng., Water Supply and Drainage Eng.
Harbin Institute of Technology, China 2006

3. Academic experience
2014 − present Assistant Professor, Florida Atlantic University
2013 − 2014 Postdoctoral Research Scientist, Connecticut Agricultural Experiment Station

4. Non-academic experience: Not applicable
5. Certifications or professional registrations: Not applicable

6. Current membership in professional organizations
- Member of American Chemical Society (ACS)
- Member of Association of Environmental Engineering and Science Professors (AEESP)
- Member of Sustainable Nanotechnology Organization (SNO)

7. Honors and awards
- The C. Ellen Gonter Environmental Chemistry Award 2013 for outstanding research paper, the highest award given to students by the Division of Environmental Chemistry of the American Chemical Society
- Certificate of Merit Award 2010 for outstanding first-time oral presentations presented by the Division of Environmental Chemistry of the American Chemical Society

8. Service activities (within and outside of the institution)
Service to the Institution at FAU:
Departmental Service:
- Eight graduate thesis committees
- CEGE Policy and Development Committee (2015-2017)
- CEGE Graduate Committee (2018)

College Service:
- COECS Graduate Committee (2018)
- COECS Biomedical Engineering Department Committee (2018)

Service to the Discipline/Profession:
Panelists for Funding Agencies:
- Environmental Engineering Program, Division of Chemical, Bioengineering, Environmental, and Transport System, National Science Foundation
- *Reviewers for Scholarly Journals*:
- Total of 22 manuscripts have been reviewed for the following journals
- *Symposiums Organized*:
- Nanomaterials in the Environment and Biological Systems: Physicochemical and Biological Processes Affecting Their Transformation and Transport, American Chemical Society 252nd

National Meeting, August 21-25, 2016, Philadelphia, Pennsylvania.

9. Selected publications

- Xiao, Q., Yu, S., Li, L.*, Zhang, Y., and **Yi, P.***, Degradation of bromate by Fe(II)-Ti(IV) layered double hydroxides nanoparticles under ultraviolet light, *Water Research*, 2019, 150, 310-320.
- Zhang, Y., Lu, J., **Yi, P.**, Zhang, Y., and Wang, Q., Trichloronitromethane formation from amino acids by preozonation-chlorination: The effects of ozone dosage, reaction time, pH, and nitrite, *Separation and Purification Technology*, 2019, 209, 145-151.
- Morris, C., Cupples, S., Kent, T. W., Elbassal, E. A., Wojcikiewicz E. P., **Yi, P.***, and Du, D.*, N-terminal charged residues of amyloid-β peptide modulate amyloidogenesis and interaction with lipid membrane, *Chemistry – A European Journal*, 2018, 24, 9494–9498.
- Huang, R., **Yi, P.**, and Tang, Y., Probing the interactions of organic molecules, nanomaterials, and microbes with solid surfaces using quartz crystal microbalances: methodology, advantages, and limitations, *Environmental Science: Processes & Impacts*, 2017, 19 (6), 793–811.
- Xiao, Q., Wang, T., Yu, S., **Yi, P.**, and Li, L., Influence of UV lamp, sulfur (IV) concentration, and pH on bromate degradation in UV/sulfite systems: Mechanisms and applications, *Water Research*, 2017, 111, 288–296.
- **Yi, P.**, Pignatello, J. J., Uchimiya, M., and White, J. C., Heteroaggregation of Cerium Oxide Nanoparticles and Nanoparticles of Pyrolyzed Biomass, *Environmental Science and Technology*, 2015, 49, 13294–13303.
- **Yi, P.** and Chen, K. L., Release Kinetics of Multiwalled Carbon Nanotubes Deposited on Silica Surfaces: Quartz Crystal Microbalance with Dissipation (QCM-D) Measurements and Modeling, *Environmental Science and Technology*, 2014, 48, 4406–4413.
- **Yi, P.** and Chen, K. L., Influence of Solution Chemistry on the Release of Multiwalled Carbon Nanotubes from Silica Surfaces, *Environmental Science and Technology*, 2013, 47, 12211–12218.
- Tang, L., Gu, W., **Yi, P.**, Bitter, J. L., Hong, J. Y., Fairbrother, D. H., and Chen, K. L., Bacterial Anti-Adhesive Properties of Polysulfone Membranes Modified with Polyelectrolyte Multilayers, *Journal of Membrane Science*, 2013, 446, 201–211.
- **Yi, P.** and Chen, K. L., Interaction of Multiwalled Carbon Nanotubes with Supported Lipid Bilayers and Vesicles as Model Biological Membranes, *Environmental Science and Technology*, 2013, 47, 5711–5719.
- **Yi, P.** and Chen, K. L., Influence of Surface Oxidation on the Aggregation and Deposition Kinetics of Multiwalled Carbon Nanotubes in Monovalent and Divalent Electrolytes, *Langmuir,* 2011, 27, 3588–3599.

1. Name

Yan Yong, Ph.D.
Professor & Chair, Department of Civil, Environmental and Geomatics Engineering, Florida Atlantic University

2. Education

Ph.D. in Aeronautical and Astronautical Engineering
University of Illinois at Urbana-Champaign, 1987
MS in Ph.D. in Aeronautical and Astronautical Engineering
University of Illinois at Urbana-Champaign, 1983
BS in Applied Mechanics
Wuhan University of Technology, 1982

3. Academic experience

01/2016 - present	Chair
09/2013 - 12/15	Interim Chair
09/2010 – 08/13	Associate Chair
08/2001 – present	Professor
	Department of Civil, Environmental and Geomatics Engineering
	Florida Atlantic University
08/2000 – 07/2001	Professor
08/1992 – 07/2000	Associate Professor
08/1988 - 07/1992	Assistant Professor
08/1987 - 05/1988	Visiting Assistant Professor
	Department of Ocean Engineering
	Florida Atlantic University
01/1987 - 07/1988	Postdoctoral Fellow
09/1984 - 12/1986	Research Associate
	Center for Applied Stochastics Research
	Florida Atlantic University
02/1982 - 08/1984	Research Assistant
	Department of Aeronautical and Astronautical Engineering
	University of Illinois at Urbana-Champaign

4. Non-academic experience

05/1990 - 08/1990	Visiting Scientist
	Wright-Patterson Air Force Base, Dayton, Ohio

5. Certifications or professional registrations

6. Current membership in professional organizations

American Society of Civil Engineering

7. Honors and awards

- Presidential Young Investigator (PYI) Award, NSF
- Outstanding Achievement and Performance Award, Florida Atlantic University, 1990.

8. Service activities (within and outside of the institution)

Director, FAU NSF STEP Program (2005-2009)

2. Selected publications

- W. Chen, Z. Hu, **Y. Yong**, and H. Su, "3-D Dynamics Virtualization Simulation System of Pool Fire Triggered by Major Hazard Installation," Journal of Software, Vol. 13, No. 9, pp.481-496, 2018
- W. Chen, **Y. Yong**, Z., Hu, H. Su, "3D Reconstruction of Simulated Vapor Cloud Explosion Triggered by Major Hazard Installation," International Journal of Modeling and Optimization, Vol. 8, No. 5, pp.266-271, 2018.
- W. Chow and **Y. Yong**, A Treatise in Fluid Dynamics, BUAA Publisher, ISBN 978-7-81124-291-1., 2012
- G. Gao, and **Y. Yong**, "A review of research on partial average based study of turbulent flows," Chinese Mechanics Abstract, Vol. 22, (2), pp. 1-20, 2008.
- G. Gao, and **Y. Yong**, "Incompressible turbulent flow: partial average based theory and applications," Journal of Hydraulic Research, Vol.43, No.4, pp.399-407, 2005
- G. Gao, Ge, and **Y. Yong**, "Partial average based equations of incompressible turbulent flow," International Journal of Nonlinear Mechanics, Vol. 39, No.9, pp.1407-1419, 2004.
- G. Gao, and **Y. Yong**" "The United Modeling Theory for Mean Flow and Coherent Flow of Incompressible Turbulence, "Journal of Aerospace Power, Vol. 15, No.1, pp.1-11, 2000.
- **Y. Yong**, "Response of Pipeline Structure Subjected to Earthquake Ground Motion," Engineering Structures, Vol.19, No.8, pp.679-684, 1997.
- **Yong, Y.**, Zhang, R.C and Yu, J., "Motion of Foundation on a Layered Medium, Part I: Impedance Characteristic and Part II: Response Analysis," Soil Dynamics and Earthquake Engineering. Vol.16, pp.295-316, 1997.
- Gao, G. and **Yong, Y.**, 1996, "Transition Simulation Using GLM-EM Based Closed Equations of Turbulence," Journal of Aerospace Power, Vol.11, No.4, pp.401-406
- **Yong, Y.**, 1995, "Vibration of One-Dimensional Structure with Arbitrary Constraints," Journal of Engineering Mechanics, Vol.121, No.6, pp.730-736.
- Zhang, R.C. and Yong, Y., 1994, "Influence Function for a Layered Medium with a Buried Distributed Source," Journal of Applied Mechanics, Vol.61, No.4, pp.990-992.
- **Yong, Y.** and Lin, Y.K., 1992, "Dynamic Response Analysis of Truss-Type Structural Networks - a Wave Propagation Approach," Journal of Sound and Vibration, Vol.156, No.1, pp.27-45.
- Zhang, R.C., **Yong, Y.** and Lin, Y.K., 1991, "Earthquake Ground Motion Modeling: Deterministic Point Source - Part I Stochastic Line Source - Part II," **Journal of Engineering Mechanics**, Vol.117(9), pp.2114-2148.
- **Yong, Y.** and Lin, Y. K., 1990, "Dynamics of Complex Truss-Type Space Structures," **AIAA Journal**, Vol.28(7), pp.1250-1258.
- **Yong, Y.** and Lin, Y. K., 1989, "Propagation of Decaying Waves in Periodic and Piece-Wise Periodic Structures of Finite Length," Journal of Sound and Vibration, Vol.129, No.4, pp.99-118.

1. Name

Brian W. Benscoter, Ph.D., E.I.
Associate Professor, Department of Biological Sciences, Florida Atlantic University

2. Education

Ph.D. in Plant Biology
Southern Illinois University, Carbondale, IL (December 2007)

Master of Science in Biology
Villanova University, Villanova, PA (December 2002)

Bachelor of Science in Biology, Minors in Philosophy and Sociology
Villanova University, Villanova, PA (May 2000)

3. Academic experience

2016-present	Associate Professor of Plant Ecology, Florida Atlantic University
2014-2015	National Academies Education Fellow in the Life Sciences
2013-2014	Researcher of the Year (Asst. Professor), Florida Atlantic University
2010-2016	Assistant Professor of Plant Ecology, Florida Atlantic University
2003-2006	Science To Achieve Results (STAR) Fellow, US Environmental Protection Agency

4. Non-academic experience

Not applicable

5. Certifications or professional registrations

Certified Fire Ecologist	Association for Fire Ecology	2018-present
Certified Airboat Operator (AOCC)	US Department of Interior	2014-present

6. Current membership in professional organizations

- Society of Wetland Scientists, member since 2001
- Ecological Society of America, member since 2001
- American Geophysical Union, member since 2001
- Association for Fire Ecology, member since 2015
- International Association of Wildland Fire, member since 2017

7. Honors and awards

- Nominee, Mentor of the Year-High School Level, Broward County Public Schools, 2018
- Researcher of the Year (Assistant Professor), Florida Atlantic University, 2013-2014
- Outstanding Graduate Student Researcher, Southern Illinois University, 2006.

8. Service activities (within and outside of the institution)

- FAU Division of Research, Diving and Boating Safety Committee Chair (2019-present)
- FAU Environmental Science Program, Curriculum Committee Chair (2017-present)

- FAU Environmental Science Program, Strategic Planning Committee Chair (2014-present)
- FAU Integrative Biology Doctoral Program, Environmental Science Program Committee (2017-present)
- Society of Wetland Scientists
    - Vice-Chair, South Atlantic Chapter (2017-present)
    - Chair, Biogeochemistry Section (2012-2014)
    - Chair, Peatland Section (2014-2016)
    - Conference Planning Committee (2016-2017)
- Ecological Society of America
    - Meetings Committee (2015-2017)
    - Local Meeting Chair (2016)
- Panelist, US Dept. of Energy, Oak Ridge National Laboratory Triennial Review (2012, 2015, 2019)
- Panelist, NASA Arctic-Boreal Vulnerability Experiment Campaign Evaluation Team (2012)
- Panelist, US Dept. of Energy, Research Priorities in Terrestrial-Aquatic Interfaces Report Team (2016)
- Contributor, 2nd State of the Carbon Cycle Report, US Global Change Research Program (2016-2018)
- Reviewer for five federal agencies or organizations on 20 review panels in the past 8 years

9. Selected publications

Smith, AP, B Bond-Lamberty, **BW Benscoter**, MM Tfaily, CR Hinkle, C Liu, and VL Bailey. 2018. Shifts in pore connectivity from precipitation versus groundwater rewetting increases soil carbon loss after drought. 2017. Nature Communications. doi:10.1038/s41467-017-01320-x

McClellan, M, X Comas, **BW Benscoter**, R Hinkle, and D Sumner. 2017. Estimating belowground carbon stocks in isolated wetlands of the Northern Everglades watershed using ground penetrating radar and aerial imagery. Journal of Geophysical Research-Biogeosciences, 122. doi: 10.1002/2016JG003573

Abbott, B, and others (98 co-authors). 2016. Biomass offsets little or none of permafrost carbon release from soils, streams, and wildfire: an expert assessment. Environmental Research Letters, 11: 034014 ***-Featured in journal's 'Highlights of 2016' collection***

Turetsky, MR, **BW Benscoter**, S Page, G Rein, G van der Werf, A Watts. 2014. Global vulnerability of peatlands to fire and carbon loss. Nature-Geosciences. DOI: 10.1038/NGEO2325

Benscoter, BW, DK Thompson, JM Waddington, MD Flannigan, M Wotton, W DeGroot, and MR Turetsky. 2011. Interactive effects of vegetation, soil moisture, and bulk density on the depth of burning of thick organic soils. International Journal of Wildland Fire. 20 (3): 418-429. ***-One of 10 papers featured in IJWF 25th Anniversary Special Issue***

1. Name

Dale E. Gawlik

2. Education

University of Wisconsin Stevens Point;	B.S. Wildlife	1984
Winthrop College	M.S. Biology	1988
Texas A&M University	Ph.D. Wildlife Science	1994

3. Academic experience

2007-present	Director, Environmental Science Program, Florida Atlantic University
2013-present	Professor, Department of Biological Sciences, Florida Atlantic University (advised 10 PhD students, 20 MS students, 35 BS students, and 2 Postdoctoral Associates)
2011-2012	Senior Visiting Fellow, Australian Wetlands and River Centre, University of New South Wales.
2008-2013	Associate Professor, Department of Biological Sciences, Florida Atlantic University
2003-2008	Assistant Professor, Department of Biological Sciences, Florida Atlantic University
1994	Postdoctoral Research Associate, Texas A&M University
1993-1994	Tom Slick Senior Graduate Fellow, Texas A&M University

4. Non-academic experience

1994-2003 Senior Environmental Scientist, Everglades Division, South Florida Water Mgt. District

5. Certifications

- Certified Senior Ecologist, The Ecological Society of America, 2006 to present.
- Master Bird Bander, U.S. Geological Survey Bird Banding Lab, 2004 to present.
- Certified Wildlife Biologist, The Wildlife Society, 1999 to present.

6. Current membership in professional organizations

- American Society for Ornithology
- Association of Field Ornithologists
- Ecological Society of America
- Florida Chapter of The Wildlife Society
- Florida Ornithological Society
- IUCN Heron Specialist Group
- IUCN Stork, Ibis, and Spoonbill Specialist Group
- The Wildlife Society
- Waterbird Society
- Wilson Ornithological Society

7. Honors and awards

- *Keynote address*, Florida Ornithological Society, Davie, FL, 2018
- *Plenary Speaker*, Annual Conference of the Florida Chapter of The Wildlife Society, Gainesville, FL, 2017.
- *Researcher of the Year* (Professor level), Charles E. Schmidt College of Science, Florida Atlantic University, 2016.
- *Researcher of the Year* (Associate Professor level), Florida Atlantic University, 2009.
- *Plenary speaker, Symposium on Coastal Restoration and Enhancement through Science and Technology (CREST), Thibodaux, LA, 2003.*
- *Elective Member*, American Ornithologists Union, 2002 to present.

8. Select service activities

Elected positions:

- *Councilor*, Waterbird Society, 2017-2019
- *Secretary*, Association of Field Ornithologists, 2016-2017, 2018-2019
- *Councilor*, Wilson Ornithological Society, 2016-2018.
- *Councilor*, Association of Field Ornithologists, 2013-2016.
- *President-elect, President, Past President, Vice President, Secretary, Representative to the Southeast Section of The Wildlife Society, Executive Board Member at Large*, Florida Chapter of The Wildlife Society, 2001 -2014.
- *Chair Elect, Chair, Past Chair,* Restoration Working Group, The Wildlife Society, 1999-2003.
- Other service activities:
- *Steering Committee*, IUCN Heron Specialist Group Symposium, 2016
- *Research Advisory Council*, Rookery Bay National Estuarine Research Reserve, 2015.
- *Program Committee*, 2015, 2017, and 2019 Greater Everglades Ecosystem Restoration Conferences, 2013-2019.
- *Science Advisory Committee*, Gulf Coast Bird Observatory, Lake Jackson, TX, 2012–15.
- *Science Advisory Committee* for the Whooping Crane Eastern Partnership, U.S. Fish and Wildlife Service, 2011-present.
- *Dissertation Reviewer*, University of New South Wales, Sydney, Australia, 2010.
- *Dissertation Reviewer*, University of New England, Armidale, Australia, 2010.
- *Chair,* Boating Diving Safety Committee, Florida Atlantic University, 2017-2018
- *Search Committee* for Director of Harbor Branch Oceanographic Institute, Florida Atlantic University, 2015-2016.

9. Select peer-reviewed publications (9 recent out of 71 total)

- Calle, L., L. Green, A. Strong, and D. E. Gawlik. 2018. Time-integrated habitat availability is a resource attribute that informs patterns of use in intertidal areas. Ecological Monographs 88: 600-620.
- Klassen, J. A. and D. E. Gawlik. 2018. Does a long-term shift in Wood Stork diet foreshadow adaptability to human-induced rapid environmental change? Journal of Field Ornithology 89:126-139.
- Chastant, J. E. and D. E. Gawlik. 2018. Water-level fluctuations influence wading bird prey availability and nesting in a managed lake ecosystem. Waterbirds 41: 35-45.
- Klassen, J. A. and D. E. Gawlik. 2017. Tradeoffs between fine-scale site measurements and coarse sensory data for long-term monitoring of pulsed wetlands. Freshwater Biology 62: 649-663.
- Chastant, J. E., M. L. Petersen, and D. E. Gawlik. 2017. Nesting substrate and water-level fluctuations influence wading bird nesting patterns in a large shallow eutrophic lake. Hydrobiologia 788: 371-383.
- Klassen, Jessica A., D. E. Gawlik, and P. C. Frederick. 2016. Linking Wading Bird Prey Selection to Number of Nests. Journal of Wildlife Management 80: 1450-1460
- Botson, Bryan A., D. E. Gawlik, and J. C. Trexler. 2016. Mechanisms that generate resource pulses in a fluctuating wetland. PLoS ONE 11: e0158864.
- Calle, L., D. E. Gawlik, Z. Xie, L. Green, B. Lapointe, and A. Strong. 2016. Effects of tidal periodicities and diurnal foraging constraints on the density of foraging wading birds. Auk 133: 378-396.
- Beerens, J. M., P. C. Frederick, E. G. Noonburg, and D. E. Gawlik. 2015. Determining habitat quality for species that demonstrate dynamic habitat selection. Ecology and Evolution 5: 5685-5697.

3. Select professional development activities

- *Co-organized symposium,* System-wide science: translating a trophic hypothesis foundation for restoration. Greater Everglades Ecosystem Restoration Conference, Coral Springs, FL, 2015
- *Co-organized symposium*, Biology of the Great Egret. Waterbird Society Conference, La Paz, Mexico, 2015.
- *Panelist* for evaluation of Society of Ecological Restoration International Primer on Ecological Restoration. Conference on Ecological and Ecosystem Restoration, New Orleans, 2014.

1. Name

Louis A. Merlin, Ph.D., AICP

Assistant Professor, School of Urban and Regional Planning, Florida Atlantic University

2. Education

Ph.D. in Urban and Regional Planning
University of North Carolina, Chapel Hill, 2014

Master of City and Regional Planning
Georgia Institute of Technology, 2004

Master of Science in Operations Research
Georgia Institute of Technology, 1999

Bachelor of Arts in Mathematics, Cum Laude
Yale University, 1994

3. Academic experience

2016- present Assistant Professor, School of Urban and Regional Planning, College of Design and Social Inquiry, Florida Atlantic University

2014-2016 Dow Sustainability Postdoctoral Fellow, Taubman College of Architecture and Urban Planning, University of Michigan

4. Non-academic experience

Associate, EDAW, Inc., Atlanta, GA, 2003 – 2009

5. Certifications or professional registrations

American Institute of Certified Planners, 2007 - Present

6. Current membership in professional organizations

American Planning Association

7. Honors and awards

STRIDE University Transportation Center Student of the Year, 2015
Graduate and Professional Student Federation Excellence in Mentoring Award, 2014
Doctoral Fellow, Royster Society of Fellows, 2009 – 2014
EDAW Early Career Leadership Development Forum, 2008

Service activities (within and outside of the institution)

Transportation and Land Development Committee (ADD30), Transportation Research Board, The National Academies of Science, Engineering, and Medicine
Florida Atlantic University, School of Urban and Regional Planning
School of Urban and Regional Planning Diversity Committee
Master of Urban and Regional Planning Program Committee
College for Design and Social Inquiry
Faculty Steering Committee
Undergraduate Program Committee
Mentor through FAU's The Mentoring Project

9. Selected publications

Levine, J., Grengs, J., and Merlin, L.A. From Mobility to Accessibility: Transforming Urban Transportation and Land-Use Planning. Cornell University Press.

Merlin, L.A., Levine, J., and Grengs, J. (2018). Accessibility analysis for transportation

projects and plans. Transport Policy. 69, 35-48. DOI: https://doi.org/10.1016/j.tranpol.2018.05.014.
Merlin, L.A., and Hu, L. (2017). Does competition matter in measures of job accessibility? Explaining employment in Los Angeles. Journal of Transport Geography. 64, 77-88. DOI: http://dx.doi.org/10.1016/j.jtrangeo.2017.08.009.
Merlin, L.A. (2017). Comparing automated shared taxis and conventional bus transit for a small city. Journal of Public Transportation. 20(2), 19-39. DOI: http://dx.doi.org/10.5038/2375-0901.20.2.2.
Levine, J., Merlin, L.A., and Grengs, J. (2017). Project-level accessibility analysis for land-use planning. Transport Policy. 53, 107-119. DOI: http://doi.org/10.1016/j.tranpol.2016.09.005.
Merlin, L.A. (2017). A portrait of accessibility change for four US metropolitan areas. Journal of Transport and Land Use. 10(1), 309-336. DOI: http://dx.doi.org/10.5198/jtlu.2015.808.
Merlin, L.A. (2014). Measuring community completeness: Jobs-housing balance, accessibility, and convenient local access to nonwork destinations. Environment and Planning B. 41(4), 736-756. DOI: https://doi.org/10.1068/b120010p.
Song, Y., Merlin, L.A., and Rodriguez, D. A. (2013). Comparing measures of urban land use mix. Computers, Environment, and Urban Systems. 42, 1-13. DOI: https://doi.org/10.1016/j.compenvurbsys.2013.08.001.

1. Name

Diana Mitsova, Ph.D.
Associate Professor & Director, Visual Planning Technology Lab, School of Urban & Planning, Florida Atlantic University

2. Education

Ph.D., Regional Development Planning
University of Cincinnati 2008

Masters of Public Affairs
Indiana University Purdue University Indianapolis, School of Public and Environmental Affairs, 2003

3. Academic experience

2016-present	Associate Professor and Director, Visual Planning Technology Lab, School of Urban and Regional Planning, Florida Atlantic University
2018-present	Affiliate Associate Professor in Geosciences, Florida Atlantic University
2014-present	Associate Professor, School of Urban & Regional Planning, Florida Atlantic University
2008-2014	Assistant Professor, School of Urban & Regional Planning, Florida Atlantic University
2004-2008	Graduate Research Assistant, University of Cincinnati
2003-2004	Program Director I / Research Analyst, State of Indiana, Indianapolis
2001-2003	Graduate Research Assistant, Center for Urban Policy and the Environment, Indianapolis

4. Non-academic experience

5. Certifications or professional registrations

6. Current membership in professional organizations

7. Honors and awards

8. Service activities

- **PRAISys (**Probabilistic Resilience Assessment of Interdependent Systems) - A computational platform for probabilistic analysis of infrastructure interdependencies (under development) – a collaborative CRISP 2 Project funded by the National Science Foundation involving Lehigh University, Florida Atlantic University, and Georgia State University.
- **ADAPT: Adaptation Design and Planning Tool for Urban Areas in the Coastal Zone, a collaborative project involving architects, urban planners, civil engineers, and environmental scientists from Florida Atlantic University. The project was awarded the 2018 National AIA Institute Honor Award** for Regional and Urban Design **by the American Institute of Architects.**
- **SE Florida Living Shorelines** Suitability Analysis Tool – an interactive mapping tool available through the coastalresilience.org website (http://maps.coastalresilience.org/seflorida/) developed in collaboration with The Nature Conservancy and the Shoreline Resilience Working Group of the Regional Climate Compact.
- **Sea Level Rise Vulnerability Framework for USGS Ecosystem Portfolio Model**, a collaborative project between FAU School of Urban and Regional Planning and USGS. A white paper for **SUS Climate Change Task Force: Science addressing the needs of Florida Agencies, Industry and Citizenry (**http://floridaclimate.org/whitepapers/**).** A White Paper for the Kresge Foundation**, Impacts of Sea Level Rise on Public Health in Southeast Florida** (http://flhealthinnovation.org/sea-level-rise-mapping).
- A peer reviewer/panelist for the **NSF-FEWS 2016**, **USEPA STAR 2015 Fellowship**

Applications: EPA-2015-STAR --F1 Sustainable and Healthy Communities- Multidisciplinary Approaches To Optimize Decision Outcomes, September 10-11, 2015, virtual panel; Site visit team, **NSF 3-Gen Engineering Research Centers** (ERC) Program, Atlanta, GA, November 7-8, 2016. A peer reviewer/**USEPA STAR 2013 Fellowship Applications** – B2 Global Change, panel meetings March 13-15, 2013, Washington, DC; **USEPA STAR 2012 Fellowship Applications** – A3-2 Social Sciences, panel meetings March 8-9, 2012, Washington, D; Reviewer of six chapters of the textbook *Global Climate Change: A First Course*, Jones and Bartlett Publishers (2010).

- *To date, I have mentored 11 PhD students in Geosciences (either as a chair or a committee member), 1 PhD student in Urban Planning, 1 PhD student in Computer Engineering, 6 Master's thesis students, and 4 undergraduate honors theses.*

9. Selected publications:

- **Mitsova, D.** & Esnard. A-M. (2019). *Geospatial Applications for Climate Adaptation Planning.* New York, NY & Abingdon, UK: Routledge /Taylor & Francis.
- **Mitsova, D**. (2019). Supporting natural hazards management with geospatial technologies. In *Oxford Research Encyclopedia of Natural Hazard Science,* Oxford University Press. doi: http://dx.doi.org/10.1093/acrefore/9780199389407.013.283.
- **Mitsova, D**., Escaleras, M., Esnard, A-M, Sapat, A., Lamadrid, A.J. (2019). The Effects of Infrastructure Service Disruptions and Socioeconomic Vulnerability on Hurricane Recovery. *Sustainability, 11(2), 516-532; doi:3390/su11020516* (Special issue on *Natural Disasters and Economics*).
- **Mitsova, D**., Esnard, A.-M., Sapat, A., & Lai, B.S. (2018). Socioeconomic vulnerability and electric power restoration timelines in Florida: The case of Hurricane Irma. *Natural Hazards,* https://doi.org/10.1007/s11069-018-3413-x.
- **Mitsova, D**. (2018). Integrative Interdisciplinary Frameworks for Critical Infrastructure Interdependency Analysis, *Risk Analysis*, DOI: 10.1111/risa.13129. [Epub ahead of print].
- **Mitsova, D.**, C. Bergh, G. Guannel, C. Lustic, M. Renda, J. Byrne, A. Graves, S. Reed, R. Alhawiti, K. Cresswell, and A. Goldberg. (2018). Spatial Decision Analysis of Nature-Based Shoreline Stabilization Options in South Florida's Estuarine Environments, *Journal of Environmental Planning and Management*, DOI: https://doi.org/10.1080/09640568.2017.1398637
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- Labiosa, W.B., W.M. Forney, A-M. Esnard, D. **Mitsova**, R. Bernknopf, P. Hearn, D. Hogan, L. Pearlstine, D. Strong, H. Gladwin, and E. Swain. (2013). The South Florida Ecosystem Portfolio Model: An Integrated Multi-criteria Scenario Evaluation Web Tool for Participatory Land-Use Planning in the Face of Sea Level Rise, *Journal of Environmental Modeling and Software*, 41: 210-222, (http://dx.doi.org/10.1016/j.envsoft.2012.10.012).
- **Mitsova, D**. and A.M. Esnard. (2012). Holding Back the Sea: An Overview of Shore Zone Management and Research Needs. *Journal of Planning Literature,* 27(4): 446 - 459.
- **Mitsova, D**., A.M. Esnard, and Y. Li. (2012). Using Enhanced Dasymetric Mapping Techniques to Improve the Spatial Accuracy of Sea Level Rise Vulnerability Assessments, *Journal of Coastal Conservation: Planning and Management,* 16(3): 355-372.
- Esnard, A.M., A. Sapat, and **D. Mitsova**. (2011). An Index of Relative Displacement Vulnerability to Hurricanes. *Natural Hazards*, 59(2): 833-8

1. Name

John L. Renne, Ph.D., AICP

Associate Professor, Director for Urban and Environmental Solutions
Program Coordinator, Bachelor of Urban Design and Bachelor of Urban and Regional Planning,
School of Urban & Regional Planning, Florida Atlantic University

2. Education

Ph.D. in Urban Planning and Policy Development
Major Fields: Transportation and Land Use Planning
Edward J. Bloustein School of Planning and Public Policy
Rutgers University, New Brunswick, New Jersey, 2005

Master of Urban and Regional Planning (Outstanding Student)
Concentration: Economic Development
College of Architecture and Planning
University of Colorado at Denver, 2000

Bachelor of Environmental Design (with Honors)
Major: Urban Planning and Design
Minor: Economics
College of Architecture and Planning
University of Colorado at Boulder, 1999

3. Academic experience

January 2016 – present Associate Professor, School of Urban and Regional Planning, Florida Atlantic University
January 2016 – present Coordinator, Undergraduate Programs, School of Urban and Regional Planning, Florida Atlantic University
March 2016 – present Director, Center for Urban and Environmental Solutions, School of Urban and Regional Planning, Florida Atlantic University
April 2013 – present Transport Studies Unit, School of Geography and the Environment, Oxford University, Oxford, United Kingdom
August 2016 – present Honorary Research Associate,
April 2013 – August 2016 Senior Visiting Research Associate
August 2005 – December 2015 Department of Planning and Urban Studies and Transportation Studies Program, Merritt C. Becker Jr. University of New Orleans Transportation Institute, University of New Orleans
August 2005 – August 2011 Assistant Professor
August 2011 – December 2015 Associate Professor
August 2005 – August 2011 Associate Director, UNO Transportation Center
August 2011 – December 2015 Director, Merritt C. Becker Jr. UNO Transportation Institute August 2014 – August 2015 Associate Provost for Urban Initiatives

4. Non-academic experience

2014 – Present Creator and Director, TOD Index

April 2007 – Present Managing Director, The TOD Group & Denver TOD Fund,

5. Certifications or professional registrations

American Institute of Certified Planners (AICP)

6. Current membership in professional organizations

Transportation Research Board; American Planning Association; Urban Land Institute;

7. Honors and awards

Available upon request

8. Service activities (within and outside of the institution)
Available upon request

9. Selected publications

- **John Renne** and Billy Fields (Eds.). Transport Beyond Oil. Washington, D.C.: Island Press, 2013.
- Carey Curtis, **John Renne** and Luca Bertolini (Eds.). Transit Oriented Development: Making It Happen. Surrey, UK: Ashgate, 2009.
- **John Renne** and David Listokin. "The opportunities and tensions of historic preservation and transit oriented development (TOD)." Cities. Vol. 90, pp. 249-262, 2019.
- **John Renne**. "Emergency evacuation planning and policy for carless and vulnerable populations in the United States and United Kingdom." International Journal of Disaster Risk Reduction. Vol. 31, pp. 1254-1261, 2018.
- **John Renne**. "Transit-oriented development and ports: A national analysis in the United States." The Journal of Transport and Land Use. Vol. 11, No. 1, pp. 297-304, 2018.
- **John Renne** and Tara Tolford. "A planning tool for evaluating vehicles miles travelled and traffic safety forecasts of growth management scenarios: A case study of Baton Rouge and New Orleans." Transportation Research Part D, Vol. 59, pp. 237-245, 2018.
- **John Renne**, Shima Hamidi and Reid Ewing. "Transit Commuting, the Network Accessibility Effect, and the Built Environment in Station Areas across the United States." Research in Transportation Economics. Vol. 60, pp. 35-43, 2016.
- **John Renne**, Tara Tolford, Shima Hamidi and Reid Ewing. "The Cost and Affordability Paradox of Transit-Oriented Development: A Comparison of Housing and Transportation Costs across Transit-Oriented Development, Hybrid and Transit-Adjacent Development Station Typologies." Housing Policy Debate. Vol. 26. No. 4-5., pp. 819-834, 2016.

10. Professional development activities

Co-Founder, National Evacuation Conference; Organizer, TOD Academy; Chair, TRB Transportation and Land Development Committee; Chair, Mobility Committee, Urban Land Institute, Southeast Florida and Caribbean Council; Board, Palm Beach County Planning Congress, Board Chair, Evacuteer.org

1. Name
Tara L. Root, Ph.D.
Associate Profesor, Department of Geosciences, Florida Atlantic University

2. Education
Ph.D., Geology
University of Wisconsin Madison, Wisconsin, 2005

M.S., Geology
University of Wisconsin Madison, Wisconsin, 2000

B.S., Geological Engineering
Colorado School of Mines Golden, Colorado, 1998

3. Academic experience

2013 – present	Associate Professor and Manager Water Analysis Lab Core Facility, Department of Geosciences, Florida Atlantic University
2006 – 2013	Assistant Professor, Department of Geosciences, Florida Atlantic University
2005 – 2006	Visiting Assistant Professor, Department of Geosciences, Florida Atlantic University

4. Non-academic experience
Fellow, 1999-2002, Office of Civilian Radioactive Waste Management Fellowship Program

5. Certifications or professional registrations

6. Current membership in professional organizations
- Geological Society of America
- South Florida Hydrologic Society

7. Honors and awards
FAU excellence and innovation in undergraduate teaching award (2013)

8. Service activities (within and outside of the institution)
- Editor of The Hydrogeologist, Newsletter for the Hydrogeology Division of the Geological Society of America (2019)
- Member of steering committing for forming FAU chapter of the Association for Women Geologist (2018 – present)
- Student Outreach Coordinator for the Hydrogeology Division of the Geological Society of America (2016 – present)
- Geological Society of America Campus Representative (2008 – present)
- Member College of Science Seed Grant Review Panel (2018 – present)
- Member Department of Geosciences Personnel Committee (2013 – present)
- Member M.S. Geosciences Admissions Committee (2018 – present)
- Member M.S. Environmental Sciences Admissions Committee (2018 – present)
- Co-chair Environmental/Marine Geology Faculty Search Committee (present)

8. Selected publications
- Weisner, M., **Root, T.**, Harris, M., Liu W., in review. Tap water perceptions and socioeconomics in Palm Beach County, FL. Why are the poor so dissatisfied? *Sustainable Production and Consumption.*
- Survis, F.D. and **Root, T.L.**, 2017. The rain-watered lawn: Informing effective lawn watering

behavior. *Journal of Environmental Management*, 199:109-115.

- Survis, F.D., **Root, T.L.**, and Pathak, C.S., 2017. Identifying seasonal opportunities to save water: Using weekly rainfall and evapotranspiration patterns to evaluate outdoor water restriction policy in South Florida. *Water Conservation Science and Engineering*, 2(4):133-143.
- **Root, T.L.**, 2014. Review of Groundwater for the 21st Century: A Primer for Citizens of Planet Earth. *Groundwater*, 52:647-648.
- **Root, Tara**, 2013. Book Review: Albert C. Hine, Geologic History of Florida, Major Events that Formed the Sunshine State. *The Florida Geographer*, 44, 54-55.
- **Root, Tara**, 2013. Book Review: Robert Brinkmann, Florida Sinkholes, Science and
- Policy. *The Florida Geographer*, 44, 56.
- Kuhn, T. and **Root, T.**, 2012. Environmental controls on the distribution and vigor of an endangered grass (*Panicum abscissum* Swallen). *Papers of the Applied Geography Conferences,*35:403-411.
- Survis, F. and **Root, T**. 2012. Evaluating the effectiveness of water restrictions: A case study from southeast Florida. *Journal of Environmental Management* 112:377-383.
- **Root, T.**, Gotkowitz, M., Bahr, J., and Attig, J. 2009. Arsenic geochemistry and hydrostratigraphy in Midwestern U.S. glacial deposits. *Ground Water* 48:903-912.
- Lakhan, S., **Root, T.**, and Fadiman, M. 2009. Household water in northern Trinidad: Source, collection, storage, and socioeconomics. *The Florida Geographer* 40:48-61.
- **Root, T.** 2008. Arsenic speciation and form in a glacial aquifer in the Midwestern United States. *Papers of the Applied Geography Conferences*, 31:25-33.
- **Root, T.** and Carlson, E. 2007. Water quality and hydrology of an environmental preserve in Palm Beach County, Florida. *Papers of the Applied Geography Conferences*, 30:457-465.
- **Root, T.**, Bahr, J., and Gotkowitz, M.., 2005. Geochemical and environmental controls on arsenic in ground water in southeastern Wisconsin, *in* O'Day, P. et al., Advances in Arsenic Research, American Chemical Society Symposium Series, 915, pp. 161-173.

9. Professional development activities

- Horiba Jobin Yvon Ultima 2 ICP Spectrometer Training (1 wk) (fall 2013)
- NASA forum on higher education: building collaborations among colleges of science, engineering, and education (2009)
- On the Cutting Edge, Early Career Geoscience Faculty: Teaching, Research, and Managing Your Career Workshop (2007)

1. Name:

Zhixiao Xie, Ph.D.
Professor and Chair, Department of Geosciences, Florida Atlantic University

2. Education
Ph.D., Geography
State University of New York at Buffalo, 2002

M.S., Computer Science & Engineering
State University of New York at Buffalo, 2002

M.S., in Ecology
Chinese Academy of Sciences, China, 1993

B.S., Geography
Peking University, China, 1990

3. Academic experience

05/2015-present	Chair, Geosciences Department, Florida Atlantic University, Boca Raton, FL
08/2014-present	Professor, Geosciences Department, Florida Atlantic University, Boca Raton, FL
09/2014-05/2015	Associate Dean for Research and Partnership Initiatives, College of Science, Florida Atlantic University, Boca Raton, FL
09/2011-05/2015	Director of Center for GIS (Geographic Information Analysis and Modeling)
08/2009-07/2014	Associate Professor, Geosciences Department, Florida Atlantic University, Boca Raton, FL
08/2003-07/2009	Assistant Professor, Geosciences Department, Florida Atlantic University, Boca Raton, FL

4. **Non-academic experience**

5. **Certifications or professional registrations**

6. **Current membership in professional organizations**

- Association of American Geographers (AAG)
- Chinese Professionals in Geographic Information Sciences (CPGIS)

7. Honors and awards

8. Service activities (within and outside of the institution)

- 2014-present College of Science EXCOM
- 2013-2014 Chair of FAU Science College Master Researcher Committee
- 2013-2015 Chair of FAU Science College Graduate Program Committee
- 2011-2012 Member, college Master Researcher program
- 2007-2010 Member of Academic Program Committee for Environmental Sciences
- 2018 (SP) Program review team for Department of CEGE
- 2015 (SP) University Honors Council
- 2014-2015 College of Science Representative, FAU Council on International Education
- 2014-2015 FAU HBOI IRL Observatory Science and Technology Advisory Committee
- 2013-2015 Member, FAU University Graduate Council
- 2013-2015 Member, FAU Graduate Programs Committee
- 2013-2015 Member, FAU Research Committee

- 2013-present Invited Editorial Advisory Board member of the ISPRS Journal of Photogrammetry and Remote Sensing
- 2018 Member of program committee for Fifth International Workshop on Earth Observation and Remote Sensing Applications (EORSA 2018)
- 2016 Member of program committee for Fourth International Workshop on Earth Observation and Remote Sensing Applications (EORSA 2016)
- 2014 Member of program committee for Third International Workshop on Earth Observation and Remote Sensing Applications (EORSA 2014)
- 2014 Session Chair -Vehicular Transportation Outcomes, AAG 2014
- 2013 Co-Organizer of three sessions for AAG 2013 titled "Remote Sensing and GIS Techniques in Wetland and Coastal Ecosystems" and session chair for one of the session
- 2012 Member of program committee (Abstract Committee) for Second International Workshop on Earth Observation and Remote Sensing Applications (EORSA 2012)

9. Selected publications

- Forbes, D. and Z. Xie, 2018. Identifying Process Scales in the Indian River Lagoon, Florida using Wavelet Transform Analysis of Dissolved Oxygen, Ecological Complexity, 36: 149-167.
- Xie Z., and Ziegler H, 2017. Mapping Urban Population at Housing Unit Level with Integrated Geospatial Technology, Reference Module in Earth Systems and Environmental Sciences, Elsevier, 2017. 16-Sep-16 doi: 10.1016/B978-0-12-409548-9.10420-8.
- Telis, P.A., Xie, Z., Liu, Zhongwei, Li, Yingru, and Conrads, P.A., 2015. The Everglades Depth Estimation Network (Eden) Surface-Water Model, Version 2: U.S. Geological Survey Scientific Investigations Report 2014–5209, 42
- Xie, Z. and J. Yan 2013. "Detect Traffic Accident Clusters with Network Kernel Density Estimation and Local Spatial Statistics: An Integrated Approach". Journal of Transport Geography, 31: 64-71.
- Johnson, B., and Z. Xie, 2013. Classifying a High Resolution Image of an Urban Area Using Super-object Information. ISPRS Journal of Photogrammetry and Remote Sensing, 83: 40-49.
- Xie, Z., C. Zhang, and L. Berry, 2012. Geographically Weighted Modeling of Surface Salinity in Florida Bay Using Landsat TM Data. Remote Sensing Letters, 4: 76-84.
- Xie, Z., L. Pearlstine, and D.E. Gawlik, 2012. Develop a Finer Resolution DEM to Support Hydrological Modeling and Ecological Study in the Northern Everglades Freshwater Wetland. GIScience & Remote Sensing, 49: 664-686.
- Zhang, C. and Z. Xie 2012. Combining Object-based Texture Measures with a Neural Network for Vegetation Mapping in the Everglades from Hyperspectral Imagery". Remote Sensing of Environment, 124: 310-320.
- Xie, Z., and J. Yan, 2008. Kernel Density Estimation of Traffic Accidents in a Network Space. Computers, Environment and Urban Systems, 32: 396-406.
- Xie, Z., C. Roberts, and B. Johnson, 2008. Object Based Target Search Using Remotely Sensed Data: A Case Study in Detecting Invasive Exotic Australian Pine in South Florida. ISPRS Journal of Photogrammetry and Remote Sensing, 63: 647-660

10. Professional development activities

- AAAS Communicating Science Workshop, Feb. 28, 2018
- "Department Chairpersons Workshop", FSU Institute for Academic Leadership, Mission Inn Resort, Howey-in-the-Hills, Florida, Oct. 1- 4, 2017
- "Department Chairpersons Workshop", FSU Institute for Academic Leadership, Mission Inn Resort, Howey-in-the-Hills, Florida, June 4 – 7, 2017
- "Essentials of Academic Leadership: Augmentation", FAU Center for Leadership and Professional Development, Boca Raton, FL, Dec 01, 2014.
- "Essentials of Academic Leadership" workshop, FAU Center for Leadership and Professional Development, Boca Raton, FL, Oct 06, 2014.

STRATEGIC PLAN (2018-2022)
Department of Civil, Environmental and Geomatics Engineering
(Approved by Faculty on April 9, 2018)

Vision
To be nationally recognized as an eminent engineering program with excellence in education, research and community engagement.

Mission
To provide our engineering students with a high-quality education on fundamental concepts and engineering design, and to conduct cutting-edge research in urban mobility/infrastructure and water resources/environmental sustainability in state-of-the-art learning environments to benefit communities in Florida and beyond.

Listed goals for the Strategic Plan (2018) will be revisited and revised, as necessary on a biannual basis. Measures of success will be collected and reported annually.

Goal 1 – Be Nationally Recognized for High-Quality Research

- **Objective 1.1 – Support existing centers and labs in the Department and develop new externally funded research centers**
  - **Strategy 1.1.1** – Evaluate existing research centers and labs in the Department and develop a plan to enhance productivity and visibility
    - *Measure of success: All existing centers and labs in the department meet performance metrics*
    - Plan:
      - Develop appropriate performance metrics for the research centers and labs of the Department.
  - **Strategy 1.1.2** – Sustain existing Department centers and labs
    - *Measure of success: All centers in the Department must have active and continuing research funding, support graduate students and provide ongoing outreach through technical publications and periodic seminars.*
    - Plan:
      - Reorganize existing research centers and labs with deficient performance
      - Oversight of existing research center/lab activities including partner institutions to maintain research and scholarly activities
      - Develop collaboration among existing Department research centers and across the College and University
      - Prioritize technical publications, outreach, and other scholarly activities related to research centers and labs in the Department
      - Organize an outreach seminar annually per center (one option would be "Lunch and Learn" seminar with professional development hours (PDHs))
  - **Strategy 1.1.3 –** Secure funding for new centers in the emerging areas of research
    - *Measure of success: One new State or federally funded center of excellence within a five-year period*
    - Plan:

- Identify emerging research areas of national significance
- Identify potential partners within and outside university
- Develop multidisciplinary, multiple college, multi-university proposals

- **Objective 1.2 – Maintain a sustainable funding level to support faculty, research, and teaching assistants**
  - **Strategy 1.2.1 –** Implement research incentive program
    - *Measure of success: Percentage of faculty taking advantage of incentive program > 50%*
    - Plan:
      - Identify research funding requirements for faculty members to achieve their stated goals
      - Evaluate and adjust teaching load and TA support based on the research productivity
      - Identify funding mechanisms that help faculty achieve research funding goals through external fundraising, securing gifts from foundations, providing professional development training, certificate programs, and special events.
      - Provide faculty professional development incentives (for licensure, continuing education, committee membership in professional societies, attendance to major conferences, etc.)
  - **Strategy 1.2.2 –** Recruit additional faculty to strengthen emerging areas of potential research funding, such as environmental, transportation, and structural engineering
    - *Measure of success: Number of research-active faculty > 75%*
    - Plan:
      - Evaluate and address immediate strategic faculty hiring needs in the areas of environmental and transportation. Specifically, focus next two faculty hires:
        1) in air pollution to interface between the UTC/urban mobility focus group and the environmental focus group (note there is significant regulatory funding at the state and federal level that are available for research related to air pollution from vehicles, multi-modal transportation systems, landfills, treatment facilities and contributions to coastal waterways from fallout), and
        2) in transportation to strengthen areas outside of freight mobility and intelligent transportation systems that will make FAU highly competitive for the next round of UTC competition
      - Address future strategic faculty hiring needs in infrastructure and materials which is the area where future innovations will be focused due to changing climate and oceanic water quality considerations
      - For any junior faculty member, the Department will reduce his/her teaching load to one course first semester until they secure tenure. The Department will also provide him/her with travel funds to visit funding agencies.
      - An official mentor will also be assigned to incoming junior faculty. Faculty mentors will receive time release which will be specified in annual assignment
      - Conduct an annual evaluation of strategic hiring needs that aligns with State and national priorities
      - Recruiting non-tenure track faculty such as high calibre visiting/adjunct faculty and research faculty addressing the needs of the Department

- **Strategy 1.2.3 –** Increase research productivity
  - *Measure of success: External funding support > External funding support in 2018 (target research expenditure $150K/faculty)*
  - Plan:
    - Meet at least once per year with FAU lobbyist
    - Identify potential funding opportunities that meet with faculty strengths to take advantage of the unique combination of faculty expertise to compete for high profile research opportunities like UTC
    - Identify co-collaborators at FAU and other institutions, and host interdisciplinary forum events with potential collaborators from other universities and industry
    - Create periodic research update seminars on current research in the department, and identify areas faculty want to move their research into (i.e. what are they interested in)
    - Engage in local professional societies and local community affairs to learn of opportunities, use contacts to develop potential projects (FDOT, local business, local governments), engage with DAC/GEPAC/AAC on potential areas of collaboration
    - Improve laboratories and address technician hiring needs
- **Objective 1.3 – Increase output of scholarly activities**
  - **Strategy 1.3.1 –** Recognize departmental scholarly work
    - *Measure of success: Number of scholarly work products (books, monographs, and other peer-reviewed publications) > 100*
    - Plan:
      - Encourage faculty to publish books, submit three peer reviewed papers per year, and three conference papers per year
      - Develop incentives for scholarly work, fund support for travel, and use presentations for recruitment purposes
      - Increase the number of journal editors among faculty members
- **Objective 1.4 – Provide state-of-the-art research laboratories and facilities**
  - **Strategy 1.4.1 –** Develop laboratory improvement plan
    - *Measure of success: Graduate exit and faculty survey results show satisfaction in laboratories and facilities*
    - Plan:
      - Develop a laboratory maintenance, acquisition, and upgrade priority list that is updated annually
      - Address the need to hire laboratory technicians
      - Create a fund for laboratory improvement and launch $450K campaign
      - Explore the possibility of utilizing FAU Engineering and Technology Core services
  - **Strategy 1.4.2 –** Hire laboratory technicians for structures and environmental laboratories
    - *Measure of success: Number of laboratory technicians > Two*
    - Plan:
      - Address the need to hire laboratory technicians
      - Create a fund for laboratory improvement, launch $450K campaign
      - Create oversight/safety/security management policies

- **Objective 1.5 – Raise the visibility of the Department in the local and national stages**
  - **Strategy 1.5.1 –** Disseminate faculty research success
    - *Measure of success: Publish Research News Letter twice a year*
    - Plan: Compile and distribute to the professional community a bi-annual newsletter to provide the research community with timely update on the important progresses on research and faculty achievements
  - **Strategy 1.5.2 –** Encourage faculty to serve on national and international level of technical committees
    - *Measure of success: Each faculty serves at least one national or international committee*
  - **Strategy 1.5.3 –** Encourage faculty to publish books, prepare fee-based short courses, webinars (e.g., ASCE) and workshops.
  - **Strategy 1.5.4. –** Provide three professional development training (i.e., Lunch and Learn workshops or meetings), one certificate program and one special event per year.

Goal 2 – Be Nationally Recognized for High-Quality Education

- **Objective 2.1 –** Improve undergraduate curricula to prepare students for a challenging and competitive work environment
  - **Strategy 2.1.1 –** Improve FTIC student retention rate and graduation rate
    - *Measure of Success: 2nd year retention rate for FTIC students ≥ 80%, and four-year graduation rate ≥ 50%*
    - Plan:
      - Closely work with academic advisors to monitor student progress in the areas of math and physics and provide them with proper advice on the career path
      - In addition to the Fundamentals of Engineering (FE) class, students should be exposed to CEGE major areas at early semesters
      - Improve program curricula by increasing the number of technical electives through cross-listing with graduate courses, and provide flexibility in course offerings to students to increase student knowledge in core areas
      - Reevaluate the pre-professional requirements and pre- and co-requisites
  - **Strategy 2.1.2 –** Improve outcomes on the licensing exams (FE/FS)
    - *Measure of Success: Annual FE/FS pass rate for CEGE ≥ 70%*
    - Plan:
      - Include licensure information in all department courses, introduce FE/FS manual on day 1, encourage use of the FE/FS manual for reference materials in course exams, and include FE/FS style questions for part of the grade in the course
      - Increase design content of design core classes (4000-level) in all core areas
      - Conduct annual review of course syllabi and topics taught in all courses to ensure FE/FS topics are being covered
      - Coordinate with professional student clubs in the department to schedule faculty or industry-professional led FE/FS review classes.
  - **Strategy 2.1.3 –** Provide state-of-the-art learning environments and laboratories
    - *Measure of success: Graduate exit survey and course outcome survey results show satisfaction in laboratories and facilities*
    - Plan:

- Provide a laboratory maintenance, acquisition, and upgrade priority list that is updated annually
- Address the need to hire laboratory technicians
- Create a fund for laboratory improvement and launch $450K campaign
- Manage laboratory fee budgets
- Pursue lab certification for establishing core facilities for within the university and for the community

- **Strategy 2.1.4 –** Improve teaching assistant performance
  - *Measure of success: Teaching assistant survey results show satisfaction*
  - Plan:
    - Create a TA selection committee and evaluate the TA requirements of the Department
    - Provide TA training each semester, require lab safety training, require students to attend class they are assigned to (if never took the course), and specify teaching load responsibilities
    - Provide a letter grade on the TA performance from the instructor for each class taught
    - Consider hiring undergraduate graders
- **Strategy 2.1.5–** Increase diversity of faculty and students
  - *Measure of success: Percentage of underrepresented faculty ≥ 30% and Percentage of underrepresented students ≥ 50%*
  - Plan:
    - Implement targeted faculty hiring and targeted student recruitment
    - Create a plan for a professor of practice in the future who can serve as liaison between industry and academia
- **Strategy 2.1.6 –** Increase graduate job placement or continuing education in engineering-related fields
  - *Measure of success: Percentage of graduates employed full-time in engineering or pursuing graduate degree ≥ 90%*
  - Plan:
    - Identify key industry members, elected officials, lobbyists, etc. that should be on the Department Advisory Council (DAC), Geomatics Program Advisory Council (PAC) and Alumni Advisory Councils (AAC)
    - Meet with industry recruiters and employers and Alumni Advisory Council (AAC) regarding lessons learned since graduation and encourage alumni to meet with students regarding importance of education and licensure
    - Invite professionals to evaluate student work, particularly in 4000-level coursework
    - Provide networking opportunities in coursework and engagement activities, and develop a schedule of lectures/talks by professionals from industry on topics related to job search, resume writing and interviewing skills, current trends in the industry, etc.

- **Objective 2.2 – Improve MS curricula**
  - **Strategy 2.2.1 –** Provide flexibility to expand opportunities for working professionals to better prepare them for the career
    - *Measure of success: MS degree completions per year ≥ 20*
    - Plan:

- Create a non-thesis, non-project (course only) option of 30 credits to help students in career advancement and readiness to sit for the PE exam
- Include the possibility of waiving standardized tests (e.g., GRE) on a case-by-case basis
- Increase the number of online courses and explore the possibility of creating online degree programs and weekend programs.
- Contact all students who have completed a minimum of 9 credits of graduate coursework at FAU but did not complete the degree, to notify them that they can switch to the course only option to finish their degree on-line
- Conduct periodic review of the 5-year course offering plan schedule
- Meet with DAC, GEPAC, AAC to encourage their working professionals to pursue graduate study and create active recruiting quotas for DAC, GEPAC, AAC
- Simplify assessment procedures for SACS, ABET, FLBOG, etc.
- Explore the possibility of weekend Master's program.

  - **Strategy 2.2.2 –** Develop a marketing plan to support recruiting
    - *Measure of success: MS candidate headcount ≥ 80*
    - Plan:
      - Create marketing materials for MS degree options and faculty research to distribute via website and direct email contacts
      - Encourage working professionals to pursue course-only MS degree option and improve pathway by which working professionals can engage with CEGE faculty through the MS program
      - Advertise end of semester thesis presentations and defenses to encourage undergraduate students to attend
      - Actively use travel dollars for recruiting purposes
      - Schedule open houses/workshops to highlight faculty research
      - Develop web page listing of department alumni, student testimonials, research group presentations to different agencies (e.g., FDOT or others), and lab facilities
  - **Strategy 2.2.3** – Increase research output for thesis-option MS students
    - *Measure of success: Each MS candidate publishes one paper per year*
    - Plan:
      - Increase funding for support of MS student RAs
      - Develop a graduate course to help thesis option students with design of experiments, literature review and data analysis
      - Add additional requirements to MSCV (require end of the semester progress presentations to thesis committees with assessment; a Satisfactory grade "S" in thesis credits can only be awarded after the progress presentation, and assessment forms are filed with the CEGE staff, require one research article or conference proceedings paper submitted for publication for each thesis-option student before he/she applies for graduation)
      - Increase participation at local conferences for student/faculty

- **Objective 2.3 – Improve doctoral program by establishing an independent Ph.D. program**
  - **Strategy 2.3.1 –** Develop Ph.D. program focused on urban mobility/infrastructure and water resource/environmental sustainability topic areas

- *Measure of success: Ph.D. degree completions per year ≥ 3*
- Plan:
  - Prepare Ph.D. program proposal and submit new program for approval
  - Develop means for working professionals to participate in the Ph.D. program
  - Develop research trainee partnerships with industries that hire Ph.D. graduates (i.e., SFWMD, NOAA, USGS, etc.)
  - Increase guaranteed funding for Ph.D. student support

- **Strategy 2.3.2 –** Develop a marketing plan and implement a recruiting strategy
  - *Measure of success: Ph.D. headcount ≥ 15*
  - Plan:
    - Increase Ph.D. student headcount in OME program until they can be migrated to the independent Ph.D. program
    - Create marketing materials for Ph.D. options and faculty research to distribute via website and direct email contacts
    - Encourage working professionals to pursue Ph.D. and improve pathway by which working professionals can engage with CEGE faculty through the BS/Ph.D. and MS/Ph.D. program
    - Advertise end of semester dissertation presentations and defenses to encourage undergraduates and MS candidates to attend
    - Actively use travel dollars for recruiting purposes
    - Schedule open houses/workshops to highlight faculty research
    - Develop web page listing of department alumni, student testimonials, research group presentations to different agencies (e.g., FDOT or others), and lab facilities
- **Strategy 2.3.3 –** Increase research output for Ph.D. students
  - *Measure of success: Each Ph.D. student publishes two papers per year*
  - Plan:
    - Increase funding for support of Ph.D. student RAs
    - Develop a graduate course to help thesis option students with design of experiments, literature review and data analysis
    - Add additional requirements to Ph.D. (require end of the semester progress presentations to dissertation committees with assessment; a Satisfactory grade "S" in dissertation credits can only be awarded after the progress presentation, and assessment forms are filed with the CEGE staff, require two research articles or conference proceedings paper submitted for publication for each Ph.D. student before he/she applies for graduation
    - Increase participation at local conferences for student/faculty

Goal 3 – Be Recognized for Community and Industry Engagement

- **Objective 3.1 – Engage community, DAC, GEPAC and AAC in curriculum development, design, research, internships, and job placement**
  - **Strategy 3.1.1 –** Increase activities with DAC, GEPAC, and AAC
    - *Measure of success: Number of event activities > three per year*
    - Plan:
      - Set end-of-semester meetings (at the beginning of each semester) to update DAC, PAC, and AAC on department activities, provide interaction with

graduating students via senior design presentations and encourage industry members to stay for more than one senior design presentation
        - Provide an annual mechanism for curricular input and industry engagement with faculty
        - Encourage fund raising activities via student organizations and other events on campus to host large industry events, such as Infrastructure Night and Concrete Expo
        - Launch $450K campaign to raise funds to improve laboratory conditions
        - Develop/distribute departmental highlights and points of pride each semester on social media
    - **Strategy 3.1.2 –** Organize outreach events to highlight research
        - *Measure of success: Number of events > three*
        - Plan:
            - Encourage faculty speaking engagements guided toward the local community
            - Create events where faculty can discuss research and collaboration with industry partners
            - Encourage faculty to have links to the Department webpages
- **Objective 3.2 – Increase community engagement activity**
    - **Strategy 3.2.1 –** Utilize curriculum to facilitate community interaction with outside mentors/clients
        - *Measure of success: Number of academic service learning offerings > ten*
        - Plan:
            - Encourage academic service learning opportunities
            - Require community engagement discussions/presentations (public hearing, public presentation, or other meeting) with the community involved with class projects
    - **Strategy 3.2.2** – Encourage student organizations to pursue community engagement
        - *Measures of success: Number of students participating > 50%*
        - Plan:
            - Identify community engagement opportunities, post information on department website to encourage students to attend, provide photographs and audio to FAU outreach groups, provide one student group interview with public media per year
            - Encourage students to join at least one professional organization and attend off-campus professional meetings each year, provide FAU branding to highlight event
            - Encourage students/faculty to participate in regional competitions
    - **Strategy 3.2.3 –** Establish partnerships with other universities
        - *Measures of success: Number of partnerships > two*
        - Plan:
            - Encourage national and international peer exchange by inviting national/international scholars for short and long-term visits and encourage our CEGE faculty to do the same
            - Encourage each faculty member to reach out to at least one institution to facilitate MOU process for faculty exchange and graduate student recruitment

APPENDIX G. TESTIMONIALS

University of Pittsburgh

Swanson School of Engineering
Department of Civil and Environmental Engineering

742 Benedum Hall
3700 O'Hara Street
Pittsburgh, PA 15261
412-624-9870
412-624-0135 (fax)

Yan Yong
Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University

October 12, 2019

Dear Dr. Yong,

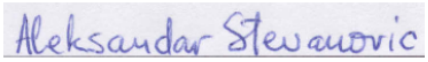
I write this letter to support CEGE's long-sought goal to establish a PhD program at the Department of Civil, Environmental, and Geomatics Engineering. Over the last ten years, from the time I joined FAU in 2009 until I left in 2019, we have missed many opportunities to see our best graduate students to continue their post-graduate education by pursuing their PhD degrees at CEGE. Many of them joined other national and international PhD programs while others, unsure of funding opportunities (which would be otherwise offered through CEGE PhD-related assistantships) decided to continue their careers in industry. Below is a list of all of those students which essentially represents missed opportunities for FAU – not just to graduate future professors and industry leaders but also to ensure continuous excellence of the academic research. Of course, there are many more MSc students who graduated from FAU CEGE and who could be substituted by qualified PhD students from the nation or abroad, if only the CEGE could offer a PhD degree.

1. Milan Zlatkovic – Continued PhD at University of Utah instead of joining FAU's program. Currently assistant professor at the University of Wyoming.
2. Nikola Mitrovic – Continued PhD at Nanyang Technological University in Singapore. Joined FAU as a post-doc. Currently employed in Siemens ITS Digital Lab (TX).
3. Dusan Jolovic – Continued PhD at New Mexico State University. Currently Project Engineer at Garver (TX).
4. Reza Rashid – Continued PhD at UNC Charlotte. Currently Traffic Engineer at Daniel Consultants Inc (MD).
5. Marija Ostojic – Continued PhD at Northwestern University. Expected to graduate in Spring 2020.
6. Natasha Petrovska – Interested to enrol in Computer Science and Electrical Engineering at FAU because CEGE could not offer a PhD degree.
7. Igor Dakic – Continued PhD at ETH Zurich (Swiss Federal Institute of Technology in Zurich). Expected to graduate in Spring 2020.
8. Danilo Radivojevic – Decided to find a job in industry but was a potential candidate for PhD if such a degree was offered at FAU. Currently Product Manager at Cubic/Trafficware (TX).

9. Djurdjija Mitrovic – Decided to find a job in industry but was a potential candidate for PhD if such a degree was offered at FAU. Currently searching for a job in industry.
10. Sharmin Chowdhury – Decided to find a job in industry but was a potential candidate for PhD if such a degree was offered at FAU. Currently Product Manager at Cubic/Trafficware (TX).
11. Nemanja Dobrota – Continued PhD at the University of Pittsburgh. Expected to graduate in fall 2021.
12. Suhaib Al Shayeb – Continued PhD at the University of Pittsburgh. Expected to graduate in fall 2021.

I wish this list will help you further justify the need for a PhD program at CEGE. Please let me know if you need anything else and good luck. The CEGE deserves a PhD program and I hope this time it will get it.

Sincerely,



Aleksandar Stevanovic, PhD, PE
Associate Professor

Department of Civil & Environmental Engineering
Swanson School of Engineering
University of Pittsburgh
218D Benedum Hall
3700 O'Hara Street
Pittsburgh, PA 15261
Tel: (412) 383-3766
email: stevanovic@pitt.edu

From: Kazi Hussain <khussain2017@fau.edu>
Sent: Friday, October 11, 2019 2:25 PM
To: Yan Yong <yongy@fau.edu>
Subject: Happy to know that the CEGE Department at FAU is going to have the PhD program

Dear Dr. Yong,

I am Kazi Albab Hussain, currently pursuing my Ph.D. in Civil Engineering at the University of Nebraska-Lincoln. I am a Civil, Environmental and Geomatics Engineering Department, Florida Atlantic University alumnus, graduated with my master's in the summer of 2019.

If there was a Ph.D. program in the CEGE department at FAU when I graduated, I would have definitely applied for it, which would have definitely saved two years of my life. It was always surprising to me that the CEGE department at FAU with so many brilliant faculty and lab facilities did not have its own Ph.D. program. While I was talking to my current supervisor at the University of Nebraska-Lincoln about my previous school, she was also very much surprised, as she is familiar with a couple of faculty as achieving national prominence in their respective fields.

I am very much happy that finally CEGE is going to have the Ph.D. program in the department. This is going to be very much convenient for the current students. I appreciate all the hard work that you and the other members of the department have made to make this happen.

Sincerely,
Kazi Albab Hussain

From: Rahamat Ullah Tanvir <rtanvir2017@fau.edu>
Sent: Friday, October 11, 2019 9:00 AM
To: Yan Yong <yongy@fau.edu>
Subject: Ph.D. Program in the Department of CEGE at FAU

Dear Dr. Yong,
Good morning. I hope you are doing well. It has been almost two months since I have graduated from FAU with the masters degree. Currently, I am doing my Ph.D. at the University of Missouri Columbia. I am greatly thankful to the department for the support and guidance throughout my time at FAU. It came to my knowledge that the Department of Civil, Environmental and Geomatics Engineering is planning to start the Ph.D. program. It would be really fantastic, and more talented students would then be interested in the department. Personally, it was very likely that I would continue my Ph.D. studies at FAU after my masters if there was a Ph.D. program in CEGE. I really liked my advisor, the other faculty members as well as the research facilities there. Unfortunately, there was no Ph.D. program, so I had to pursue other opportunities. I believe, a Ph.D. program in the department would be really helpful to retain the current masters students as well as getting new students from other universities. I deeply hope that there will be a Ph.D. program in the very near future. I wish you all the success. Thank you very much.

Sincerely yours,
Rahamat Ullah Tanvir
Doctoral Student
Department of Civil and Environmental Engineering
University of Missouri-Columbia
Lafferre Hall, Columbia, MO 65211

From: Md. Fahim Salek <msalek2017@fau.edu>
Sent: Friday, October 11, 2019 5:32 PM
To: Yan Yong <yongy@fau.edu>
Subject: Choice of Ph.D. Institution

Dear Dr. Yong:
I wanted to explain my choice of Ph.D. Institution. I started my master's study in environmental engineering at Florida Atlantic University in 2017. At the same time, I joined LabEES, a well-established research group at FAU. My supervisor Dr. Daniel Meeroff was working on landfill leachate management at that time. While working there, I developed a particular interest in the field of environmental engineering and wished to continue my academic career as a research assistant for a Ph.D. program. Although, FAU would be the perfect place for me to continue my research because I made a good connection with my supervisor in two years, but the absence of a Ph.D. program in environmental engineering led me to choose another institution to continue my research and study. Now I am doing my Ph.D. at Auburn University and have to start everything from the beginning. I really wish that FAU CEGE had a Ph.D. program that started in the Fall of 2019.

Regards,

Md Fahim Salek
Graduate Research Assistant
Department of Civil Engineering
Auburn University
Telephone: (561) 774-5443

From: Sharmily Rahman <rahmans2018@fau.edu>
Sent: Tuesday, October 15, 2019 5:58 PM
To: Yan Yong <yongy@fau.edu>
Subject: Regarding interest in the FAU Env. Engg. Ph.D. program

Dear Dr. Yong:
I am currently working as a Master's student in Civil Engineering (Water Resources/Environmental Engineering Concentration) with Dr. Meeroff and plan to graduate in Spring 2020. I am really interested to start my Ph.D. from the following Summer here at FAU. Dr. Meeroff's research interests align with mine, and he has a very well equipped lab. I want to take advantage of this opportunity as I work towards my Ph.D. Since I have been at FAU for the past one year, it would be a smooth transition for me to continue my studies here. I have found the professors at FAU to be very helpful, cooperative and highly experienced. So, I hope I get the chance to continue on to the Ph.D. program with my amazing mentor, Dr. Meeroff. Please let me know if the proposed Ph.D. will be approved in case I need to apply elsewhere.

Best,
Sharmily

From: Yan Yong <yongy@fau.edu>
Sent: Wednesday, November 13, 2019 10:32 PM
To: Jaffar Alqazzaz <jalqazzaz2017@fau.edu>
Dear Jaffar,
Thank you for your interest in the FAU Ph.D. program in Transportation and Environmental Engineering. The Ph.D. proposal is now with BOG for approval. If approved, the program will start in Fall 2020. I will keep you posted.
Best regards,

Yan Yong
Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Office: (561)297-3445

From: Jaffar Alqazzaz <jalqazzaz2017@fau.edu>
Sent: Wednesday, November 13, 2019 6:17 PM
To: Yan Yong <yongy@fau.edu>
Subject: Ph.D. Program

Hello Dr. Yong,

Hope all is well. I have an interest in FAU's Ph.D. program for Civil Engineering. I believe this degree can assist me in many different ways in the future. Can you send me any relevant information that I need to know?

Regards,
Jaffar Alqazzaz

-EXTERNAL REPORT-
FOR FLORIDA ATLANTIC UNIVERSITY TRANSPORTATION AND ENVIRONMENTAL ENGINEERING PH.D. PROPOSAL

Shahram Pezeshk, Ph.D.
Chair and Professor, Department of Civil Engineering, University of Memphis
Ashok Kumar, Ph.D.
Chair and Distinguished University Professor, Department of Civil and Environmental Engineering, The University of Toledo

November 7, 2019

OVERVIEW

The team consisting of Dr. Pezeshk and Dr. Kumar visited and reviewed the Department of Civil, Environmental, and Geomatics Engineering (CEGE), situated with Florida Atlantic University's College of Engineering and Computer Science, on October 31 and November 1, 2019. Before the site visit, the team reviewed the proposed Ph.D. proposal documents produced by CEGE. During the site visit, the review team met with the following key personnel:

- Dr. Bret S. Danilowicz (Provost & Vice President for Academic Affairs)
- Dr. Russel Ivy (Associate Provost for Programs and Assessment)
- Dr. Stella Batalama (Dean of the College of Engineering and Computer Science)
- Mihaela Cardei (Associate Dean for Graduate Studies and Professor)
- Javad Hashemi (Associate Dean for Research and Professor)
- Dr. Yan Yong (CEGE Department Chair)
- Dr. Daniel Meeroff (CEGE Associate Chair)
- Aneesh Goly and Jennifer Smith (CEGE Advisory Board Members)
- Tenured faculty in CEGE
- Untenured faculty in CEGE

In addition to the formal meetings, the review team met informally with departmental personnel during mealtimes. The review team toured the CEGE facilities in the Engineering West and Instructional Services buildings. Specific laboratories toured include the Materials Lab, Environmental Research Labs, Student Maker Space (Concrete Canoe), Applied Hydraulics Lab, Environmental Chemistry/Engineering Lab, AutoCAD Lab, Transportation Lab, and the Capstone Design Lab.

In general, the review team was charged with providing input on the CEGE proposed Ph.D. program.

INTRODUCTION

The Department of Civil, Environmental & Geomatics Engineering (CEGE) has prepared a unique proposal to offer a Ph.D. in Transportation and Environmental Engineering to meet the demands of Ph.D. graduates who are capable of solving local, regional, and national problems in transportation area involving environmental inputs. Both the areas (transportation as well as environmental) form an important part of the economy nationally as well as regionally. The new program will help in providing solutions for transportation challenges that are impacted by the environment in Florida. For example, an increase in sea levels along the Florida coastline will affect the Everglades and land use in the state of Florida in the coming years. These issues along with the sustainability of resources need to be involved in the design process while modernizing transportation systems in the state.

More examples of projects related to transportation and environment are given below:

1. Vertical Container Ports: A Solution for a Sustainable Future Oceanic Transportation
2. Real-Time Charging Scheduling for Large-Scale Electric Vehicles
3. Achieving Climate and Equity Goals in Ports: Reducing Ambient NOx With Environmental Artificial Trees (EAT)
4. Measuring Resilience and Efficiency of Transportation Networks in Urban Cities
5. Developing Tools and Approaches, such as Life-Cycle Cost Analysis, that will Identify Cost-Effective Materials and Methods to Facilitate Road and Bridge

Rehabilitation/Maintenance Decision-Making and Improve The Long-Term Benefits of Transportation Investments
6. Maximize Opportunities for Cap-and-Trade to Reduce The Impact of Transportation on Climate Change
7. Bio-Diesel Study for a Urban Transportation System: Cost-Benefit Analysis and Environmental Impact
8. Characterization and Speciation of Fine Particulate Matter Inside The Public Transport Buses Running on Bio-Diesel
9. Combustion Chemistry of Biodiesel for The Use in Urban Transport Buses: Experiments and Modeling

The above example projects are currently relevant and will require advanced transportation as well as environmental backgrounds to solve the complex challenges. Moreover, environmental impact assessment is an integral part of large transportation projects in the US.

At present, transportation engineers with the help of environmental engineers, carry out the design. This approach costs more money at every stage of deploying new/modified transportation systems. The new crop of Ph.D.s from FAU's proposed Transportation and Environmental Engineering doctoral program who are trained in transportation as well as the environmental engineering will be able to provide cost-effective solutions for Floridians and the natural systems that bring tourists to Florida. As such, Florida residents and visitors will continue to enjoy a good quality of life by overcoming the impact of climate change on the transportation systems in vulnerable coastal areas.

The proposal provides an overview of the program, degree requirements, need of the program, supply/demand analysis of graduates from the program, and financial support of research and students. The proposed curriculum contains basic elements of a Ph.D. program: course work, qualifying examination, proposal defense and examination of the final dissertation. The proposed program requires the students to submit a paper before the submission of dissertation. The entire course work is available in DL (distance learning) mode.

The Department has been attracting external funding from federal agencies along with state agencies to support graduate students.

The proposed program will help in faculty retention and recruitment. Alumni has shown interest in joining the Ph.D. program after graduation.

The report provides our views on the appropriateness of the proposed program and readiness of FAU to offer such a program.

Appropriateness of the Proposed Degree Program

1) **In your professional opinion, please comment on perceived student demand for the proposed program. What type of student would be interested in this program? What type of employment would be available to the student following graduation? Is both the student demand for the program and potential job market sustainable for this degree program into the foreseeable future?**

CEGE has a single graduate program, the MS of Civil Engineering (MSCV) that provides a pathway for graduates of all CEGE undergraduate programs to pursue a graduate degree. A stated goal of the Dean and numerous faculty members is for CEGE to become nationally

recognized for high-quality education and research. Indeed, this comprises CEGE's vision statement. However, nationally-recognized high-quality research is most often associated with programs that produce Ph.D. graduates.

CEGE currently has no Ph.D. program. In response, CEGE faculty have developed a workaround, whereby they co-advise Ph.D. students working through the Sustainable Infrastructure Ph.D. option in the Ocean and Mechanical Engineering (OME) Ph.D. program. The OME Ph.D. students, even though they may be focused on issues related to civil engineering, are required to take the majority of their coursework through the Ocean and Mechanical Engineering department. As a result, their coursework is frequently not well aligned with their intended area of expertise. A more practical solution would be to initiate a Ph.D. program in civil engineering. This would have the advantage of allowing students to focus not only on their research but also their coursework, upon their intended area of expertise. The proposal for a Ph.D. program in Transportation and Environmental Engineering is an attractive option, which has advantages that include capitalizing upon CEGE's current research strengths and would also avoid duplicating other civil engineering Ph.D. programs in the region. We believe CEGE requires a Ph.D. program if it seeks to become a nationally-recognized research leader. Students in that program must be able to focus their research as well as their coursework upon their specific area of expertise. We found that all faculty, Associate Deans, Dean, Associate Provost, and Provost are very supportive of a Ph.D. in Transportation and Environmental Engineering.

The proposed new Ph.D. degree program in Transportation and Environmental Engineering responds to the critical emerging need to address two interlinked and interdependent systems (i.e., transportation and environmental systems) that impact the reliability, resiliency, and sustainability of our nation's current and future built and natural environments, which is an essential issue for South Florida. The proposed combined Transportation and Environmental Engineering Ph.D. program focuses on the interdependency of transportation and environmental system linkages to address critical challenges that enable the well-being of one or both systems through multi-dimensional research that merges traditional transportation and environmental engineering together as a single system.

Based on market analyses provided, discussions with faculty, the University administrators, and Advisory Board members, it is clear that there is real and sustainable demand for the proposed program, and there is ample opportunity for jobs after graduating from the proposed program. Currently, there are 12 students pursuing the OME Ph.D. program who will switch to the proposed program. Based on regional needs and interest in Environmental and Transportation combined areas, there will be a great interest by potential students to participate in the proposed Ph.D. program.

The program will attract fresh MS graduates in different engineering and science disciplines as well as consulting engineers who want to start solving complex transportation projects involving environmental issues. FAU has been able to attract Ph.D. students for the current program without any difficulty. This clearly indicates that prospective students are aware of the availability of Ph.D. training at FAU.

The graduates of the program will be attractive to consulting companies and regulatory agencies. Typically, they have to hire engineers in each area now. Once the graduates are available from this program, the tendency will be to hire engineers having both expertise. Engineers from Latin America will be attracted to the program. The College has made several visits to promote the current graduate programs.

Consulting companies will benefit from the new graduates because they will have the ability to bid on complex transportation projects outside the state and around the globe.
We met the members of the industrial advisory board (IAB) who are from local consulting companies and provide services on design and construction of transportation projects in southern Florida. They feel that there is a lack of highly trained engineers who can solve growing problems in the transportation area impacted by changing environmental conditions in Florida. They pointed out the impact due to the rise in sea level on the Everglades and on transportation issues. This will further affect current land use planning in Florida. Both of these problems (rise of sea level and coming changes in land use) need to be incorporated in transportation planning in Florida. They clearly see a need for engineers who can solve complex problems involving multiple areas involving large capital expenditures.

The need to solve transportation problems involving environmental issues is continuously growing due to public interest. Therefore, we do see more opportunities for Ph.D.'s in this area.

2) **Is the proposed body of curriculum appropriate for the job skills needed for the professions referenced above? What unfilled need or gap would the degree program fill in the workforce?**

The program proposes one required course each from transportation and environmental areas. The students will choose 21 credit hours of courses from transportation, environmental and interdisciplinary areas as shown in the table on page 47 of the proposal. The idea is to prepare the students to solve transportation problems requiring environmental input. The students will consult with their advisor to select the courses. Faculty as well as industrial advisory members felt that the list of courses will meet the demand of skills needed to solve problems in southern Florida. Of course, new hires will introduce more specialized courses over time.

The report prepared by the outside consultant (Hanover) clearly indicates a gap in the demand of Ph.D. graduates (approximately estimated as 290 per year) required to fill the current needs and the supply of Ph.D.'s (24 in 2016) in Florida from the current separate Ph.D. programs in transportation and environmental areas. The gap between supply and demand of Ph.D.'s per year clearly indicates a short supply of Ph.D.'s in Florida. The proposed program at FAU will produce five Ph.D.'s/year in about 3 years.

MS graduates according to IAB members, cannot meet localized research and development. Moreover, the state needs transportation engineers having the following skills:

- Application of drone and information technologies (IT)
- Emerging technologies
- Sustainability
- Ph.D.'s to educate future workforce
- New markets as a result of changes in sea level, automated vehicles, and alternative fuels for transportation systems

3) **Does the proposed degree program seem to fit with the institutional goals and mission (strategic plan) of the institution?**

The proposed Ph.D. goal is encapsulated in the departmental vision and mission statements

below:

Vision: To be nationally recognized for high-quality education and research

Mission: To provide our engineering students with a high-quality education on fundamental theories and engineering design, and to conduct cutting-edge research in urban mobility/infrastructure and water resources/ environmental sustainability to benefit communities in Florida and beyond.

Both Provost and Dean of Engineering are very bullish on the proposed program. This proposal fits well with the University's goal to be in the top 100 programs in the nation. Major Ph.D. degree programs are needed to be successful. Both the College of Engineering and College of Medicine will drive this aspiration for the University in coming years. The fifth pillar of the strategic plan emphasizes artificial intelligence (AI) and data science and will be driven by engineering, science, and medicine programs. An $18.00 million program is being considered by the state for FAU.

Institutional Readiness to Successfully Offer the Degree Program

1) **Does FAU have adequate faculty numbers and expertise/credentials to successfully implement the program? Is the faculty research active enough to successfully mentor doctoral students?**

The following faculty will be participating in the proposed Ph.D. program:

• Madasamy Arockiasamy, Ph.D. • Fred Bloetscher, Ph.D. • Jinwoo Jang, Ph.D. • Evangelos Kaisar, Ph.D. • David Kan, Ph.D. • Masoud Lashaki, Ph.D. • Daniel Meeroff, Ph.D. • Sudhagar Nagarajan, Ph.D. • Barry Rosson, Ph.D. • Panagiotis Scarlatos, Ph.D. • Khaled Sobhan, Ph.D. • Hongbo Su, Ph.D. • Ramesh Teegavarapu, Ph.D.	• James VanZwieten, Ph.D. • Peng Yi, Ph.D. • Yan Yong, Ph.D. • New Hire, Ph.D. (Fall 2020) • Eric Dumbaugh, Ph.D. (Urban Planning) • Dale Gawlik, Ph.D. (Geoscience) • Louis Merlin, Ph.D. (Geoscience) • Diana Mitsova, Ph.D. (Urban Planning) • Colin Polsky, Ph.D. (Geoscience) • John Renne, Ph.D. (Urban Planning) • Tera Root, Ph.D. (Geoscience) • Zhixiao Xie, Ph.D. (Geoscience)

The mentioned faculty members above will provide adequate expertise to implement the program successfully.

A research-based MS program has been in the Department for some time. The Department also has 12 Ph.D. students who are currently working through the OME Ph.D. program in the College. These students will join the proposed doctoral program after its approval.
CEGE has 17 faculty members and is in the process of hiring four more faculty in the coming years. 7-8+ faculty members will form the core of the new program coming fall and will supervise Ph.D. students. They have been writing grant proposals and journal papers. Therefore, the faculty is in good shape to implement the proposed program. Current MS

students and consulting engineers in the area have expressed interest in joining the new Ph.D. program.

2) **Are the institutional, College, and Department resources adequate to support the degree program? (i.e., Library, funding for students, research labs and equipment, etc.)**

Laboratory facilities are spread over three campuses: Sea Tech, Jupiter, and Boca Raton.

Boca Raton: • **Materials Lab (EW162)** • **Environmental Lab (EW262)** • **Transportation Lab (IS101)** • **Geotechnical Lab (EW263)** • **Senior Design Lab (IS103)** • **CAD Lab (IS113 shared with other classes)**	**Sea Tech:** • **Transportation Research and Education Hub** • **Air Pollution Lab** **Jupiter:** • **Geomatics Lab**

These labs cover environmental as well as transportation areas. In addition, southeast Florida will serve as an open field laboratory for collecting field data for day-to-day complex transportation problems. Computing facilities are already in place to perform data analytics to look for new solutions.

FAU has an extensive library, and the students will have access to journals and databases for literature search. The library is open 24 hours a day for use.

Department is funding 12 Ph.D. students from external funds, presidential scholarship, and TA funding. Current funding trends clearly indicate that this level of support will continue. Moreover, faculty are writing new proposals, and new faculty will prepare another set of proposals. Opportunities exist for funding from the following key agencies:

- Florida DOT
- DOE funding on emissions and energy use for transportation systems
- NASA for education of the impact of transportation on the environment

The CEGE Department is ready to develop public-private partnerships on projects involving transportation and environment.

3) **Do you feel strong support for the degree program from the College and upper-level administration?**

The location of FAU is a good strength for the job market. The College Dean strongly supports the proposed Ph.D. program, and upper administration wants the program to happen to improve the ranking of the University. We felt that there is a strong support for the proposed program. The administration has already started investing in the program by hiring new faculty.

4) **What are the major strengths of FAU to successfully offer this degree program?**

FAU has general facilities to house the program and has a record of accomplishment of attracting external funding in the Department. In addition, the Department has put together an

attractive curriculum for the Ph.D. program. The administration is supportive of the Ph.D. program to increase the reputation of the University by developing new knowledge to improve the quality of life for Floridians.

Possible funding by the state for the fifth pillar of the strategic plan will be a definite plus. This program will provide $12 million in recurring funding and $6 million in one-time funding.

Offering engineering courses in a DL mode (hybrid offerings) will attract working engineers to this program. FAU has facilities to offer courses in a DL mode.

5) **What will be the major challenges of FAU to successfully offer this degree program?**

We found it difficult to find any major challenges in offering the degree program during our discussions with the faculty, college administration, and upper administration. The University has adequate space and faculty. With the projection of over 4 million dollars in research grants this year, no immediate challenges are facing FAU to implement the Ph.D. program successfully. Need will continue to increase in areas involving modeling and smart infrastructure.

CEGE does not currently employ dedicated technicians to manage the labs. This can lead to numerous negative outcomes, especially for experimental research activities. Employing individuals with the skill set to safely operate equipment, maintain chemicals, train students to work safely in the labs, and enforce lab safety standards is essential.

CONCLUDING REMARKS

FAU is ready to implement the proposed Ph.D. program in transportation and environmental engineering. The program will produce engineers to help in the economic development of the state and to improve the quality of life of Floridians.

DEPARTMENT OF CIVIL, ENVIRONMENTAL AND GEOMATICS ENGINEERING
FLORIDA ATLANTIC UNIVERSITY

Campus Visit Itinerary

Date: Thursday, October 31, 2019		
TIME / LOCATION	**ACTIVITY**	**PARTICIPANTS**
6:15 p.m.	Hotel Pickup	Dr. Yan Yong (561-542-9788)
6:30 p.m. - 8:00 p.m. Seasons 52 2300 NW Executive Center Dr. Boca Raton, FL 33431	Dinner	Dr. Russ Ivy Dr. Yan Yong
8:00 p.m.	Return to Hotel	Dr. Yan Yong
Date: Friday, November 1, 2019		
TIME / LOCATION	**ACTIVITY**	**FAU PARTICIPANTS**
7:00 a.m. – 8:15 a.m. Farmers Table (Behind Wyndham) 1901 N Military Trial Boca Raton, FL 33431	Breakfast	Dr. Madasamy Arockiasamy Dr. Javad Hashemi Dr. David Kan
8:15 a.m. – 8:30 a.m. / In route to FAU		Dr. Javad Hashemi (561)212-0711
8:30 a.m. – 9:00 a.m./EE308	Meet with Dean	Dr. Stella Batalama
9:00 a.m. – 10:30 a.m. / EE326	Meet with Department Leadership Team	Dr. Yan Yong Dr. Daniel Meeroff Dr. Ramesh Teegavarapu
10:30 a.m. – 11:00 a.m. / AD320	Meet with Provost and Associate Provost	Dr. Bret Danilowicz Dr. Russ Ivy
11:00 a.m. – 11:30 a.m. /EW308B	Meet with Associate Deans	Dr. Mihaela Cardei Dr. Javad Hashemi
11:45 p.m. – 1:15 p.m. / Faculty Club	Lunch	Dr. Mihaela Cardei Dr. Masoud Lashaki Dr. Daniel Meeroff Dr. Ramesh Teegavarapu
1:30 p.m. – 2:00 p.m.	Facility tour	Dr. Yan Yong
2:00 p.m. – 2:45 p.m. /IS103	Meet with CEGE Faculty	CEGE Faculty
3:00p.m. – 3:30 p.m./IS103	Meet with members of Department Advisory Board (DAB)	Dr. Aneesh Goly Ms. Jennifer Smith representing Dr. Ben Chen
3:30 p.m. – 4:30 p.m./IS103	Open Work Period	
4:30 p.m. – 5:00 p.m. /EE308	Meet with Dean	Dr. Stella Batalama
5:00 p.m.	Return to hotel	Dr. Yan Yong
6:15 p.m.	Hotel Pickup	Dr. Evangelos Kaisar (561-613-7057)
6:30 p.m. / Taverna Kyma 6298 N Federal Hwy Boca Raton, FL 33487 561-994-2828	Dinner	Dr. Sudhagar Nagarajan Dr. Evangelos Kaisar Dr. Barry Rosson Dr. Khaled Sobhan
8:30 p.m.	Return to hotel	CEGE Faculty

Dr. Shahram Pezeshk
Chair and Professor
Department of Civil Engineering
The University of Memphis
spezeshk@memphis.edu
(901)606-6934

Dr. Ashok Kumar
Chair and Professor
Department of Civil and Environmental Engineering
University of Toledo
ashok.kumar@utoledo.edu
(419)934-0678

Shahram Pezeshk, Ph.D., P.E., F.ASCE
Professor and Department Chair

Engineering Science Building - Room 104A
Department of Civil Engineering
The University of Memphis
Memphis, TN 38152
Phone: (901) 678-4727 (office) Fax: (901) 678-3026 Department: (901) 678-2746

Email: spezeshk@memphis.edu

RESEARCH INTEREST

Dr. Pezeshk's research within last 30 years has focused on numerous projects relating to probabilistic seismic hazard analysis and seismic site-specific studies. Dr. Pezeshk has been collaborating with researchers with the Mid-America Earthquake Center (MAEC), the Center for Earthquake Research and Information (CERI), the Central United States Earthquake Consortium (CUSEC), the Tennessee Department of Transportation (TDOT), the Illinois Department of Transportation (IDOT), Arkansas Highway Transportation Department (AHTD), the United States Geological Survey (USGS), and many other public and private organizations.

Dr. Pezeshk is internationally known for his development of ground motion prediction equations (GMPEs) also referred to as "attenuation relationships." The GMPEs has been used by AASHTO for development of hazard maps used for design of transportation structures in Central and Eastern United States. His work has been adopted by the USGS in development of hazard maps used for seismic design and analysis of buildings as well as nuclear facilities. He has received research funds from various funding agencies to perform research in the area of seismic exploration and probabilistic seismic hazard analyses.

EDUCATION

DEGREE	DISCIPLINE	INSTITUTION	YEAR
B.S.	Civil Engineering	University of Illinois, Urbana-Champaign	1982
M.S.	Civil Engineering	University of California at Berkeley	1983
Ph.D.	Civil Engineering	University of Illinois, Urbana-Champaign	1989

APPOINTMENT

RANK/POSITION	DEPARTMENT/DIVISION	*INSTITUTION/COMPANY/ORGANIZATION*	PERIOD
Chair	Civil Engineering	The University of Memphis	2008-Present
Interim Chair	Civil Engineering	The University of Memphis	2007-2008
Professor	Civil Engineering	The University of Memphis	1999-Present
Associate Professor	Civil Engineering	The University of Memphis	1994-1999
Assistant Professor	Civil Engineering	Memphis State University	1989-1994
Bridge Engineer	Hanson Engineers	Springfield, Illinois	1987-1989

Ashok Kumar, Ph.D., P.Eng., *BCEE*

Distinguished University Professor & Chair

Department of Civil & Environmental Engineering
The University of Toledo
2801 W. Bancroft Street
Toledo, Ohio 43606-3390
Phone: *(419)530-8120/8136*
E-mail: *akumar@utoledo.edu*

RESEARCH INTEREST

Dr. Kumar has interests in air pollution, risk analysis and environmental information technology. His recent accomplishments include the development and evaluation of ambient and indoor air quality models, study of air quality impact due to public transportation buses running on biodiesel, study of radon problems/ mitigation systems in Ohio and analysis of air pollution data.

EDUCATION

Ph.D., Environmental Fluid Mechanics, University of Waterloo; 1977
M.A.Sc. (Master of Applied Science), Mechanical Engineering, University of Ottawa; 1972
B.Sc.Eng. (Hons.), Mechanical Engineering, Aligarh University, India; 1970

APPOINTMENT

Assistant Professor of Civil Engineering, 1980
Associate Professor of Civil Engineering, 1983
Professor, 1989-Present
Chairman, 2004-Present

RELATED EXPERIENCE

- Research Fellow, Argonne National Laboratory; Summer 1987
- Environmental Consultant, Toledo Edison Co., Toledo, OH; Summer 1981 and Summer 1982
- Atmospheric Physicist (Special Studies), Environmental Affairs Dept., Syncrude Canada Ltd., Edmonton, Alberta; February 1977 - October 1980
- Part-time Consultant, Envirodyne Ltd., Waterloo, Ontario; November 1974 - May 1976
- Assistant Analyst, Office of Institutional Research, The University of Calgary, Calgary, Alberta; April 1973 - June 1974
- Adjunct Faculty Member, Industrial Health, Medical College of Ohio, Toledo; 1988-89, 1995-2006
- Adjunct Professor, Public Health and Homeland security, The University of Toledo Health Science Campus,2007-Present

Honors and awards

- Fellow member, Air and Waste Management Association (1997)
- L.A. Ripperton Award for distinguished achievement as an educator in the field of air pollution control, Air and Waste Management Association, June 2003
- Honorary Member, Air and Waste Management Association, 2014.

Ph.D. in Transportation and Environmental Engineering
The Department of Civil, Environmental & Geomatics Engineering offers a Doctor of Philosophy (Ph.D.) degree focused on urban mobility and environmental/water resources sustainability. This degree provides students with a fundamental and applied research-based education suitable for seeking employment in industry, government, or academia.

Admission Standards

1. Applicants shall have a Master's Degree in Engineering, Science, Urban Planning, Transportation Logistics, or Mathematics from an accredited college or university. A student with outstanding scholastic achievement who holds only a baccalaureate degree in Engineering, Science, Urban Planning, Transportation Logistics, or Mathematics from an accredited college or university may be admitted directly to this Ph.D. program and be eligible to earn the Masters' *en Passant* with a Master of Science in Civil Engineering degree with a concentration in Transportation/Geomatics Engineering or Water Resources/Environmental Engineering. Specific requirements for the B.S. to Ph.D. path will follow guidelines set by the College of Engineering and Computer Science for all of its doctoral programs. The path is given in the FAU Catalog as: "*The normal path from B.S. degree to Ph.D. degree in the College of Engineering and Computer Science is through the M.S. degree and its associated requirements. The B.S. to Ph.D. Program gives highly qualified students in the College the option of bypassing the M.S. degree and moving to their doctoral research activities more rapidly. B.S. to Ph.D. students will not be required to write an M.S. thesis. Students selecting the B.S. to Ph.D. option who fail to pass the Ph.D. Qualifying/Candidacy examination will be allowed to switch to an M.S. program, complete the degree requirements and receive the M.S. degree. Admission to the B.S. to Ph.D. Program may be granted to students entering or already in a graduate engineering program, including students selected for the joint B.S. to M.S. program*".

   The policy for doctoral programs in the College of Engineering and Computer Science at FAU requires students with bachelor's degrees in non-engineering disciplines: "*to satisfy the undergraduate engineering requirements and earn an M.S. degree in Engineering. To receive the M.S. degree in Engineering, these students must correct deficiencies in their programs of study by taking, in addition to regular graduate engineering courses, certain undergraduate engineering courses appropriate to the master's degree objective. Four or five such courses are typically required of students with B.S. degrees in science and 10-12 courses for non-science/engineering students. The plan of study will be individually tailored to each student's academic background, graduate engineering degree objective and relevant experience. It is expected that full-time students with appropriate preparation and background in math, science and engineering will complete the undergraduate courses phase of the plan of study in one year*."
   (https://www.fau.edu/academic/registrar/PREcatalog/engineering.php#mast)

   Additional eligibility requirements are:
   a) a cumulative GPA of 3.00,
   b) completion of at least two semesters of college calculus with grades of "B" or better,
   c) satisfaction of departmental minimum GRE score requirements, and

d) a letter of recommendation from their potential graduate advisor.

The Department of Civil, Environmental and Geomatics Engineering requires the following deficiency coursework for students without an engineering bachelor' degree from an accredited program: two fundamental engineering courses in the relevant area, as determined by the graduate supervisory committee.

2. Applicants must have a 3.0 GPA (on a 4.0 scale) or better in the last 60 credits of work attempted and must have an official transcript forwarded directly to the FAU Graduate College from each college-level institution attended;
3. Applicants must submit the Graduate Record Examination (GRE) score. The GRE requirement can be waived with proof of passing the Fundamentals of Engineering (FE) or Principles and Practice of Engineering (PE) exam. The GRE requirement is waived for applicants that have a Master of Science degree from FAU's College of Engineering and Computer Science.
4. A student from a non-English-speaking country is required to take the Test of English as a Foreign Language (TOEFL) and achieve a score of at least 550 (paper-based) or 213 (computer-based) or 79 (iBT). This requirement may be waived for students who have obtained a prior degree from a U.S. institution;
5. Applicants must submit to the Graduate College at least two letters of recommendation attesting to the student's ability to pursue with distinction a curriculum of advanced study and research in a chosen area;
6. Applicants should abide by the policies and regulations and the graduate admission requirements of the University as outlined in this University Catalog;
7. Conditional admission may be permitted if the above conditions are not met.

Graduation Requirements
The degree will be conferred on candidates who have fulfilled the following requirements:

1. Completed the curriculum for Ph.D. in Transportation and Environmental Engineering:
   - Successful completion of 72 credits of course and dissertation work beyond the baccalaureate degree with a minimum grade of "B." Up to 30 credits of coursework from an approved Master's Degree may be applied;
   - Students must maintain a minimum 3.0 GPA in all coursework attempted for the degree;

Core Course	Sustainability and Pollution Prevention	ENV 6932	3
Core Course	Transportation System Analysis	TTE 6501	3
	2 semesters of Graduate Seminar	CGN 5937	0
	Academic Specialization Electives*		9
	Free Electives**		6
	Dissertation (minimum)**		21

*Of the minimum 9 credits of Academic Specialization Electives, which must be at the 6000 level, select from the approved Mobility, Sustainability, and Interdisciplinary Electives lists.
**These can be from the approved list of academic specialization electives or other courses approved by the Dissertation/Supervisory Committee. No more than 3 credits of directed independent study may be used to satisfy this requirement.
***Up to 3 credits of graduate internship (EGN5940) can be used to satisfy the 21-credit

dissertation minimum. These credits may not be taken until successfully passing the qualifying exam to enter candidacy.

2. Successful completion of a qualifying exam is required prior to completion of 21 credits of coursework beyond the Master's Degree;
3. Successful completion of a dissertation proposal defense is typically required before registering for dissertation credits;
4. Prior to the dissertation defense, the student is required to have published or have accepted for publication a refereed research paper in a field of study deemed acceptable by the dissertation committee. A journal article is preferred, but a peer-reviewed conference paper is also acceptable;
5. Successful completion of an oral defense of the written doctoral dissertation based on original research in the student's area of specialization. The Dissertation/Supervisory Committee, the Department Chair and the Graduate College must have approved the dissertation and oral defense;
6. Complied with the University's Graduate Policies and Regulations and satisfied the University's Graduate Degree Requirements.

Dissertation/Supervisory Committee: Upon acceptance into the Ph.D. Program, a student will select or be assigned an advisor. The student's Ph.D. dissertation committee will have a minimum of four members. Three committee members must be from the FAU graduate faculty or associate graduate faculty according to the FAU Graduate College guidelines, at least one of which is from the Department of Civil, Environmental & Geomatics Engineering. The final member may be a qualified expert from industry or academia with affiliate graduate faculty status. One of the members shall serve as the chair of the supervisory committee. In unusual circumstances, with the approval of the Department Graduate Committee, two members may co-chair; however, off-campus experts or adjunct faculty may not serve as sole committee chair. The Dissertation/Supervisory Committee shall approve the plan of study, monitor academic progress, approve the dissertation topic, prepare, give, and evaluate the Qualifying Exam, evaluate the dissertation defense, and approve the final doctoral dissertation document.

Qualifying Exam: After successful completion of 21 credits of coursework beyond the Master's Degree and within 12 months of completion of graduate coursework, the student will be required to complete a qualifying examination. This written exam is in the field of concentration given by each member of the Dissertation/Supervisory Committee. Performance on any part of the qualifying exam in the judgment of the Dissertation/Supervisory Committee may result in a pass, fail, or fail with the option to re-take. Students may request in writing to repeat the exam. Students failing the Qualifying Exam twice will be dismissed from the program. After passing the Qualifying Exam with the approval of the dissertation/supervisory committee, a student advances to candidacy.

Proposal Defense: After successful completion of the Qualifying Exam and prior to applying for graduation, the candidate will orally defend the dissertation proposal to the Dissertation/Supervisory Committee for approval.

Dissertation Defense: The doctoral dissertation shall be written in the format specified by the Graduate College. The dissertation must be defended orally and represent an original piece of research that advances the body of knowledge in the field. A written dissertation is submitted to the members of the committee may approve, suggest additional work or reject the dissertation work after the defense.

APPENDIX J. DEPARTMENT SUPPORT LETTERS FOR COURSES OUTSIDE CEGE

RE: Course Information
Zhixiao Xie
Tue 10/22/2019 2:43 PM

Dr. Yong,
Below is the information you requested. We will be able to accommodate the students in the proposed Ph.D. program:

EVR6334	Env. Restoration	3 credits	In person	Once every 2 yrs	12
EVR6358	Restoration Impl. & Mgmt.	3 credits	In person	Once every 2 yrs	12
GLY6746	Global Env. Change	3 credits	In person	Once every 2 yrs	12
GEA6277	Human-Env. Interactions	3 credits	online	Every Fall	20
GLY6888	Coastal Hazards	3 credits	In person	Once every 2 yrs	12
GLY6737	Coastal Environments	3 credits	In person	Once every 2 yrs	12

Thank You,
Zhixiao

Dr. Zhixiao Xie
Professor and Chair
Geosciences Department
Florida Atlantic University
Tel: 561-297-2852
Office: SE 456A

From: Yan Yong
Sent: Tuesday, October 22, 2019 2:22 PM
To: Zhixiao Xie <xie@fau.edu>
Cc: Dan Meeroff <dmeeroff@fau.edu>
Subject: Course Information

Dear Dr. Xie,

In our proposed Ph.D. program, we would like to include 6 Geosciences graduate courses to the list of electives. I will appreciate it if you can provide me with information about these 6 classes in terms of available seats, delivery format and frequency.

EVR6334 – Env. Restoration
EVR6358 – Restoration Impl. & Mgmt.
GLY6746 – Global Env. Change
GEA6277 – Human-Env Interactions
GLY6888 – Coastal Hazards
GLY6737 – Coastal Environments

Many thanks,
Yan Yong
Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Office: (561)297-3445
Steven Bourassa

Tue 10/22/2019 3:17 PM

Yan,

Yes, good to catch up with you. Here are the details regarding the URP courses. Each one is taught once a year in the term indicated and has room for more students.

URP 6277, Summer, Mostly online
URP 6406, Spring, Fully online
URP 6425, Spring, Mostly online
URP 6429, Fall, Fully online
URP 6711, Fall, In-person

Steve

From: Yan Yong
Sent: Tuesday, October 22, 2019 2:05 PM
To: Steven Bourassa <sbourassa@fau.edu>
Cc: Dan Meeroff <dmeeroff@fau.edu>
Subject: Course Information

Hi Steve,

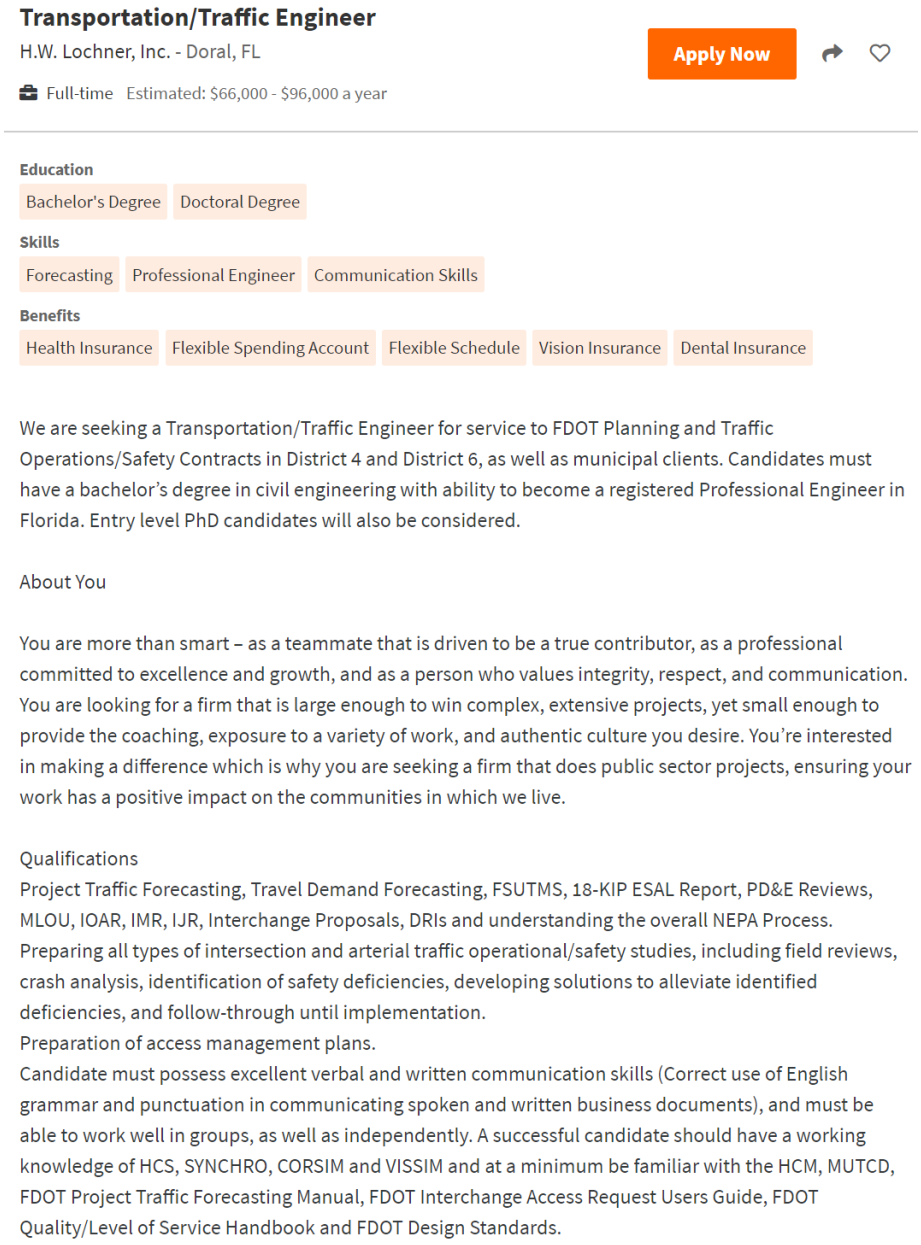
Good to talk to you at lunch time. In our proposed Ph.D. program, we would like to include 5 Urban Planning graduate courses to the list of electives. I will appreciate it if you can provide me with information about these classes in terms of available seats, delivery format and frequency.

Many thanks,
Yan Yong
Professor and Chair
Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Office: (561)297-3445

APPENDIX K. SELECTED JOB OPENINGS DOWNLOADED ON APRIL 19, 2020

TRANSPORTATION ENGINEERING

1. **Job Title** Transportation/Traffic Engineer
   Qualification BS, PhD
   Employer H.W. Lochner, Inc. - Doral, FL
   https://www.simplyhired.com/job/mpZ5oUlmixFd1X0nd9a6oFpAtyco1Y1YxlmBbA1T-EucBUeaPX1qgQ?isp=0&q=civil+engineer+phd



Transportation/Traffic Engineer

H.W. Lochner, Inc. - Doral, FL

Apply Now

Full-time Estimated: $66,000 - $96,000 a year

Education

Bachelor's Degree | Doctoral Degree

Skills

Forecasting | Professional Engineer | Communication Skills

Benefits

Health Insurance | Flexible Spending Account | Flexible Schedule | Vision Insurance | Dental Insurance

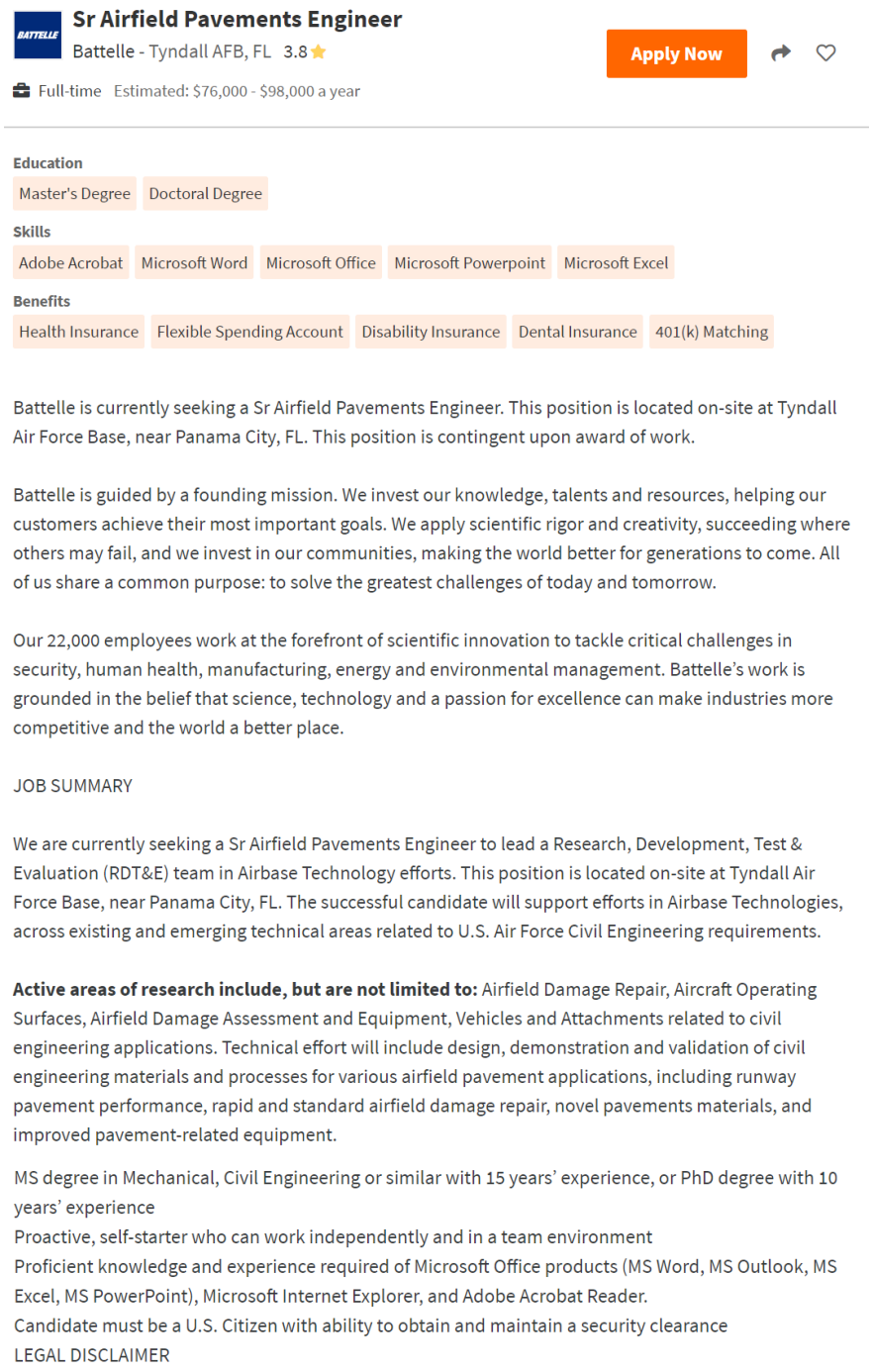
We are seeking a Transportation/Traffic Engineer for service to FDOT Planning and Traffic Operations/Safety Contracts in District 4 and District 6, as well as municipal clients. Candidates must have a bachelor's degree in civil engineering with ability to become a registered Professional Engineer in Florida. Entry level PhD candidates will also be considered.

About You

You are more than smart – as a teammate that is driven to be a true contributor, as a professional committed to excellence and growth, and as a person who values integrity, respect, and communication. You are looking for a firm that is large enough to win complex, extensive projects, yet small enough to provide the coaching, exposure to a variety of work, and authentic culture you desire. You're interested in making a difference which is why you are seeking a firm that does public sector projects, ensuring your work has a positive impact on the communities in which we live.

Qualifications
Project Traffic Forecasting, Travel Demand Forecasting, FSUTMS, 18-KIP ESAL Report, PD&E Reviews, MLOU, IOAR, IMR, IJR, Interchange Proposals, DRIs and understanding the overall NEPA Process.
Preparing all types of intersection and arterial traffic operational/safety studies, including field reviews, crash analysis, identification of safety deficiencies, developing solutions to alleviate identified deficiencies, and follow-through until implementation.
Preparation of access management plans.
Candidate must possess excellent verbal and written communication skills (Correct use of English grammar and punctuation in communicating spoken and written business documents), and must be able to work well in groups, as well as independently. A successful candidate should have a working knowledge of HCS, SYNCHRO, CORSIM and VISSIM and at a minimum be familiar with the HCM, MUTCD, FDOT Project Traffic Forecasting Manual, FDOT Interchange Access Request Users Guide, FDOT Quality/Level of Service Handbook and FDOT Design Standards.

2. **Job Title** Senior Airfield Pavements Engineer
   Qualification MS/15 year, PhD/10 year
   Employer Battelle - Tyndall AFB, FL
   https://www.simplyhired.com/job/oO3Lw89Rz-xLvJUNGt1JlcyTYCEo0ZoBuRfOBPEBXmZFJD8sGBOCTw?isp=0&q=civil+engineer+phd



Sr Airfield Pavements Engineer

Battelle - Tyndall AFB, FL 3.8

Apply Now

Full-time Estimated: $76,000 - $98,000 a year

Education

Master's Degree | Doctoral Degree

Skills

Adobe Acrobat | Microsoft Word | Microsoft Office | Microsoft Powerpoint | Microsoft Excel

Benefits

Health Insurance | Flexible Spending Account | Disability Insurance | Dental Insurance | 401(k) Matching

Battelle is currently seeking a Sr Airfield Pavements Engineer. This position is located on-site at Tyndall Air Force Base, near Panama City, FL. This position is contingent upon award of work.

Battelle is guided by a founding mission. We invest our knowledge, talents and resources, helping our customers achieve their most important goals. We apply scientific rigor and creativity, succeeding where others may fail, and we invest in our communities, making the world better for generations to come. All of us share a common purpose: to solve the greatest challenges of today and tomorrow.

Our 22,000 employees work at the forefront of scientific innovation to tackle critical challenges in security, human health, manufacturing, energy and environmental management. Battelle's work is grounded in the belief that science, technology and a passion for excellence can make industries more competitive and the world a better place.

JOB SUMMARY

We are currently seeking a Sr Airfield Pavements Engineer to lead a Research, Development, Test & Evaluation (RDT&E) team in Airbase Technology efforts. This position is located on-site at Tyndall Air Force Base, near Panama City, FL. The successful candidate will support efforts in Airbase Technologies, across existing and emerging technical areas related to U.S. Air Force Civil Engineering requirements.

Active areas of research include, but are not limited to: Airfield Damage Repair, Aircraft Operating Surfaces, Airfield Damage Assessment and Equipment, Vehicles and Attachments related to civil engineering applications. Technical effort will include design, demonstration and validation of civil engineering materials and processes for various airfield pavement applications, including runway pavement performance, rapid and standard airfield damage repair, novel pavements materials, and improved pavement-related equipment.

MS degree in Mechanical, Civil Engineering or similar with 15 years' experience, or PhD degree with 10 years' experience
Proactive, self-starter who can work independently and in a team environment
Proficient knowledge and experience required of Microsoft Office products (MS Word, MS Outlook, MS Excel, MS PowerPoint), Microsoft Internet Explorer, and Adobe Acrobat Reader.
Candidate must be a U.S. Citizen with ability to obtain and maintain a security clearance
LEGAL DISCLAIMER

3. **Job Title** Airfield Pavement and Materials Engineer, Jr-Level
   Qualification MS required, PhD a plus
   Employer Tigerbrain Engineering, Inc. - Oviedo, FL
   https://www.simplyhired.com/job/zL6oDBIAVdf8-xL2rWsHOqWKNpFIx4XBDHeVKLeXq_8cwU3Sch-W4w?isp=0&q=civil+engineer+phd

Airfield Pavement and Materials Engineer, Jr-Level

Tigerbrain Engineering, Inc. - Oviedo, FL

Apply Now

Full-time Estimated: $74,000 - $96,000 a year

Education

Master's Degree | Doctoral Degree

Skills

Military Experience | Fundamentals of Engineering | Communication Skills | Microsoft Excel | AutoCAD

Benefits

Health Insurance | Health Savings Account | 401(k) Matching | Vision Insurance | Dental Insurance

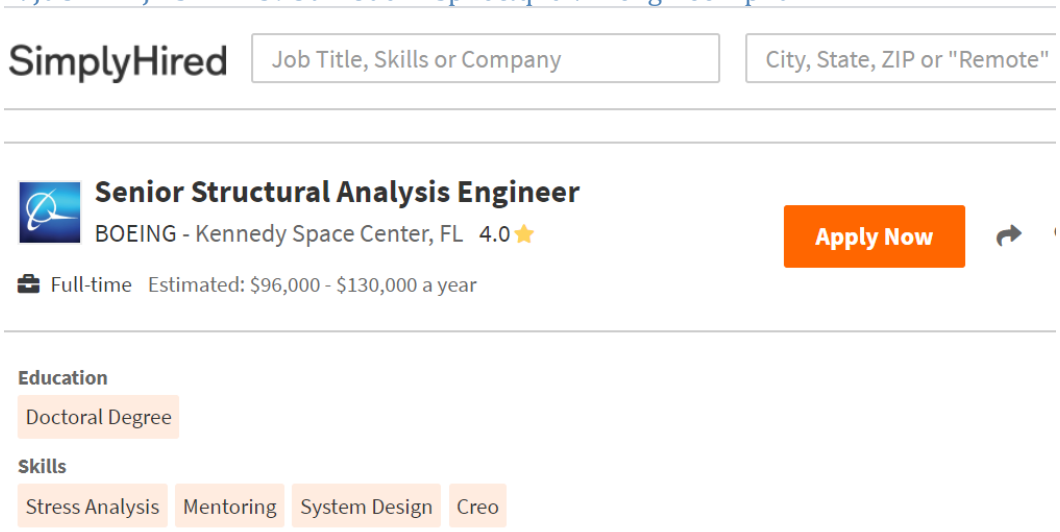
COMPANY OVERVIEW: Tigerbrain Engineering, Inc. is a global reach civil engineering design firm primarily serving the US Department of Defense. Our team provides Air Base and Intermodal Infrastructure design services throughout the US, Europe, Middle East, Asia, Africa, and the Caribbean; an emerging market is India. Tigerbrain maintains an impeccable reputation for quality, and employs those looking to execute projects to the fullest extent. Engineers engage in all aspects from field investigations, creating effective designs, and supporting the construction inspectors. Projects include military airfields, container handling, and sea ports.

ESSENTIAL DUTIES & RESPONSIBILITIES:
The engineer will work under the guidance of a senior Airfield Engineer (Vice President or President) to learn the Company's process for designing DoD Airfields with the intent to lead projects, and the growth potential to become a Project Manager and mentor junior staff:
Prepare boring and pavement testing plans; prepare geotechnical scopes of work
Be onsite during geotechnical investigation
Delineate areas of pavement repair based upon visual and testing data
Develop pavement thickness designs using appropriate software and design methods
Utilize advanced pavement software when needed
Prepare drawing markups and sketches for plans production
Edit technical specifications for materials
Generate design reports documenting complete study, analysis and recommendations and documentation
Be present during construction to observe key aspects of design, respond to RFIs and resolve construction conflicts
Conduct DCP testing and analysis
Conduct visual pavement evaluations
Other duties as may be assigned
REQUIREMENTS & QUALIFICATIONS: Jr-Level (0 - 4 years' experience)
Due to the other types of projects in the Company, all candidates must be a US citizen and capable of passing US security background checks. US military contract requirements do not allow dual-citizenship and non-US citizens
Demonstrated experience in more than one state or country
Prior US military experience a plus
Advanced Excel and Word ability
AutoCAD knowledge a plus, but not required
Ability to travel and work at domestic and international project sites; required
Company sponsors travel logistics, passport, business visas, travel vaccinations, safety and security training, and other site-specific needs
Drug-free, alcohol-free, and smoke-free workplace

EDUCATION & EXPERIENCE:
Minimum MS in Civil Engineering; PhD a plus
Passed Fundamentals of Engineering Exam
Strong writing and communication skills
Foreign languages a plus
Database capability a plus
Compensation: US $55,000 – US $68,000; pay commensurate with capabilities

4. **Job Title** Senior Structural Analysis Engineer

Qualification PhD
Employer BOEING - Kennedy Space Center, FL
https://www.simplyhired.com/job/eRf-tr-HfND3006s3v8OxHx5-LIfVJdUmzKfJLis1nnH39Uthn8ucA?isp=0&q=civil+engineer+phd



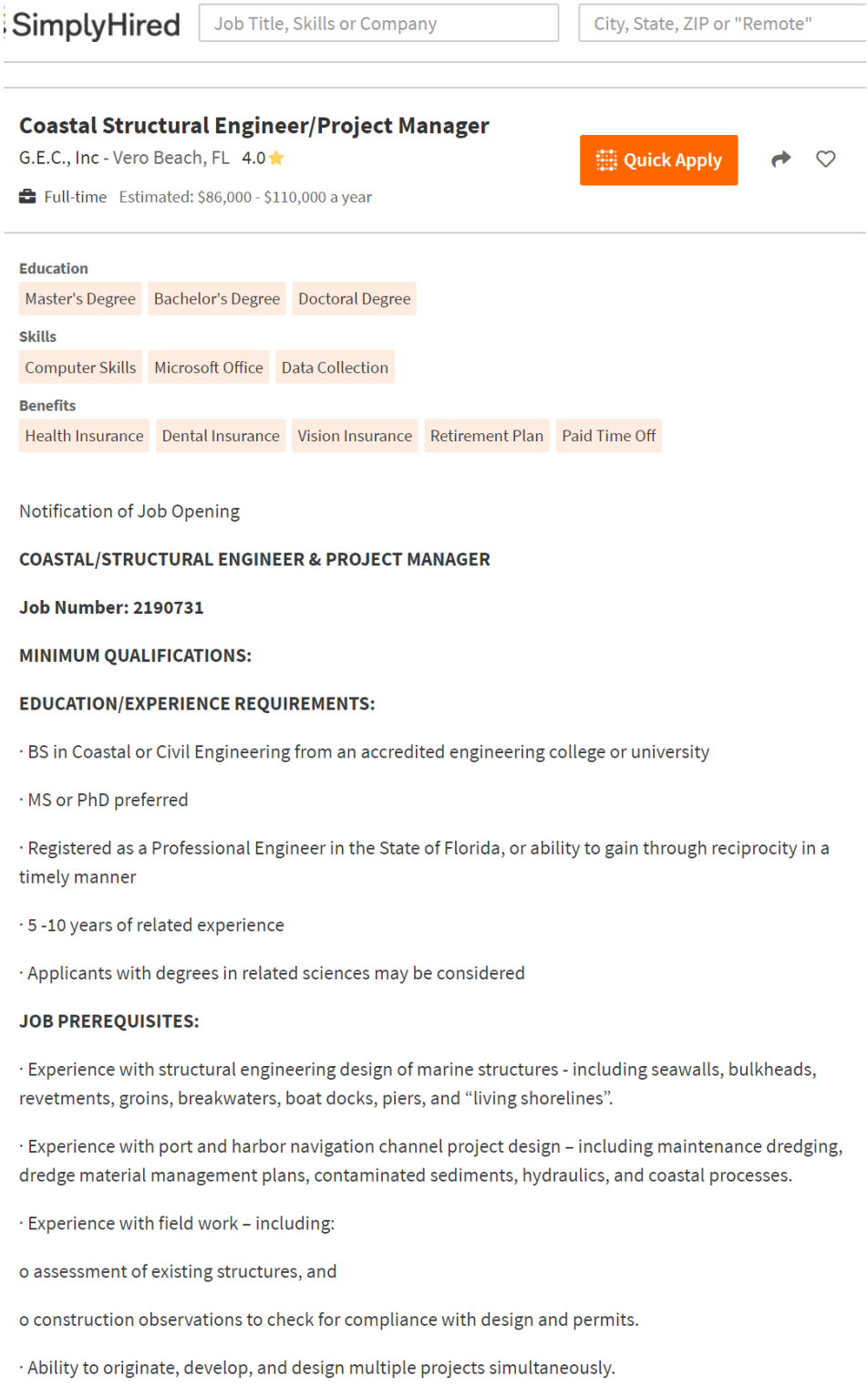
At Boeing, we are all innovators on a mission to connect, protect, explore and inspire. From the seab outer space, you'll learn and grow, contributing to work that shapes the world. Find your future with

The Boeing Defense, Space and Security, Space and Launch division is seeking an Senior Structural Analysis Engineering (Level 5) to provide support to the X-37B and other proprietary programs for th Experimental Systems Group (ESG). The Experimental Systems Group is part of Boeing Space and Launch, In-Space Vehicles organization, which manages the company's major commercial and government satellite and ground programs for communications, national defense and other mission

This position will develop, integrate and document structural requirements to establish the system design. This position coordinates with other engineering groups to establish the product's environm and loads development, guide product design and verifies structural integrity by using analytical methods, such as finite element models/simulations, hand calculations, design-sine and other analy tools (NASTRAN, PATRAN, CREO-Simulate, Common Structures Workstation, and home-grown tools) throughout the product life-cycle. The position will lead a small team of stress engineers to provide mentorship and help define priorities. This position is located in Kennedy Space Center, FL.

Basic Qualifications (Required Skills and Experience):
Experience performing stress analysis using manual hand calculations
Experience working with analysis tools, such as Nastran/Patran
Experience as a Stress Analysis engineering lead
Experience with drawing release processes

5. **Job Title** Coastal Structural Engineer/Project Manager
Qualification BS, MS/preferred, PhD/preferred
Employer G.E.C., Inc - Vero Beach, FL
https://www.simplyhired.com/job/jiUva9E1EtXK1VTc6MTy1n9fvctgAWXcOrMHfp8-oTCfZi8cgXAdsQ?isp=0&q=civil+engineer+phd



6. **Job Title** Lead Structural Analysis Engineer
   Qualification BS/9 years, MS/7 years, PhD/4 years
   Employer BOEING - Kennedy Space Center, FL
   https://www.simplyhired.com/job/eBsDwXfffvUl1eWraGZSBiGaJoNExDYdlMa_Sax0CnjOuJheKJI9aQ?isp=0&q=civil+engineer+phd

SimplyHired | Job Title, Skills or Company | City, State, ZIP or "Remote"

Lead Structural Analysis Engineer

BOEING - Kennedy Space Center, FL 4.0

Full-time Estimated: $89,000 - $130,000 a year

Apply Now

Education

Bachelor's Degree | Master's Degree | Doctoral Degree

Skills

Stress Analysis | Mentoring | System Design | Creo

At Boeing, we are all innovators on a mission to connect, protect, explore and inspire. From the seabed to outer space, you'll learn and grow, contributing to work that shapes the world. Find your future with us.

The Boeing Defense, Space and Security, Space and Launch division is seeking an Lead Structural Analysis Engineering (Level 4) to provide support to the X-37B and other proprietary programs for the Experimental Systems Group (ESG). The Experimental Systems Group is part of Boeing Space and Launch, In-Space Vehicles organization, which manages the company's major commercial and government satellite and ground programs for communications, national defense and other missions.

This position will develop, integrate and document structural requirements to establish the system design. This position coordinates with other engineering groups to establish the product's environment and loads development, guide product design and verifies structural integrity by using analytical methods, such as finite element models/simulations, hand calculations, design-sine and other analysis tools (NASTRAN, PATRAN, CREO-Simulate, Common Structures Workstation, and home-grown tools) throughout the product life-cycle. This position is located in Kennedy Space Center, FL.

This position offers relocation based on candidate eligibility. Basic relocation is available for internal candidates.

Primary Responsibilities:
Performs detailed structural analysis to determine structural integrity (margins of safety), using classical techniques and Boeing tools, to support drawing release, establishes maintenance/inspection programs and supports the Manufacturing Review Board process.
Integrates component-level structural math models and performs integrated analysis, using finite element methods, to develop internal loads and stresses in order to verify structural integrity.
Performs structural analysis and provides expertise to respond to customer inquiries, develops service bulletins, investigates failures and coordinate with regulatory agencies, to maintain continued airworthiness/mission capability.
Guides structural design and configuration development. Performs trade studies to optimize structure and meet program requirements.
Documents structural analyses and data, required to show compliance with Boeing, customer and regulatory requirements, at a component level.

7. **Job Title** Airfield Technology Principal Research
Qualification BS/8-10 years, MS/5-8 years, PhD/5 years
Employer Battelle - Tyndall AFB, FL
https://www.simplyhired.com/job/kGxMe_8wg1bIZyXcav5-psw9z0_BGljrl8LQdflh3HzJoU2-8XQrgw?isp=0&q=civil+engineer+phd

Airfield Technology Principal Research Engineer

Battelle - Tyndall AFB, FL 3.8

Apply Now

Full-time Estimated: $63,000 - $89,000 a year

Education

Doctoral Degree | Bachelor's Degree

Skills

Adobe Acrobat | Project Management | Microsoft Word | Mechanical Knowledge | Microsoft Office

Benefits

Health Insurance | Flexible Spending Account | Disability Insurance | Dental Insurance | 401(k) Matching

Battelle is guided by a founding mission. We invest our knowledge, talents and resources, helping our customers achieve their most important goals. We apply scientific rigor and creativity, succeeding where others may fail, and we invest in our communities, making the world better for generations to come. All of us share a common purpose: to solve the greatest challenges of today and tomorrow.

Our 22,000 employees work at the forefront of scientific innovation to tackle critical challenges in security, human health, manufacturing, energy and environmental management. Battelle's work is grounded in the belief that science, technology and a passion for excellence can make industries more competitive and the world a better place.

JOB SUMMARY

We are currently seeking an Airfield Technology Principal Research Engineer to assist in Research, Development, Test & Evaluation (RDT&E) in Airbase Technology efforts. This position is located on-site at Tyndall Air Force Base, near Panama City, FL. The successful candidate will support efforts in Airbase Technologies, across existing and emerging technical areas related to U.S. Air Force Civil Engineering requirements.

Active areas of research include, but are not limited to: Airfield Damage Repair, Aircraft Operating Surfaces, Airfield Damage Assessment and Equipment, Vehicles and Attachments related to civil engineering applications. Technical effort will include assisting in the design, demonstration and validation of civil engineering materials and processes for various airfield pavement applications, including runway pavement performance, rapid and standard airfield damage repair, novel pavements materials, and improved pavement-related equipment.

8. **Job Title** Business Intelligence Engineer, Amazon Transportation Services
Qualification MS, PhD
Employer Amazon.com Services LLC - Atlanta, GA
https://www.simplyhired.com/job/QHRjcnZGLrWoqa5Ukx-RqgE2QwHFItSuHd4ffXyaHCxAhvBEQjvd7Q?isp=0&q=civil+engineer+phd

Business Intelligence Engineer, Amazon Transportation Services

Amazon.com Services LLC - Atlanta, GA 3.6

Apply Now

Full-time Estimated: $85,000 - $110,000 a year

Education

Master's Degree | Doctoral Degree

Skills

R | Data Visualization | Business Intelligence | Big Data | Analysis Skills

- 3+ years of experience as an analyst or engineer in the data/BI space
- Experience with data visualization using Tableau, Quicksight, or similar tools
- Experience with SQL
- 3+ years of relevant experience in business intelligence
- Advanced degree (Master's, PhD) in Computer Science, Engineering, Math, Finance, Statistics or related discipline
- Proficient in SQL and ETL
- Proficient in Tableau and/or other BI tools
- Proficient in leveraging Python, R or Matlab to manipulate data and set up automated processes as per business requirements

PLEASE NOTE: This role can sit in either Seattle, WA or Atlanta, GA.

The Amazon Transportation Services (ATS) team is responsible for developing an in-depth understanding of our current network and designing our future networks. We are looking for experienced and motivated Business Intelligence Engineer with outstanding leadership skills, proven ability to develop, automate, and manage analytical solutions.

This position requires excellent statistical and analytical abilities, deep knowledge of business intelligence solutions and data engineering practices, and the ability to collaborate with various teams across Amazon. The successful candidate will be a self-starter comfortable with ambiguity, capable of working in a fast-paced environment, possess a strong attention to detail, and able to collaborate with customers to understand and transform business problems into requirements and deliverables.

Responsibilities include but are not limited to:

- Write queries and output efficiently, and have in-depth knowledge of the data available in area of expertise. Pull the data needed with standard query syntax; periodically identify more advanced methods of query optimization. Convert data to make it analysis-ready.
- Dive deep to help drive key business decisions through data insights and improve a wide range of internal products that impact ATS Linehaul Business
- Own the design and development of automated solutions for recurrent reporting and in-depth analyses including learning, publishing, and managing our operational business metrics decks
- Drive continuous improvement of our analytical processes by automating, scaling, and simplifying self-service support for our customers
- Invent new ways to explore our data and work with Program Managers to identify opportunities and transform business problems into defined data and reporting requirements

9. **Job Title** Senior Pavement Engineer
   Qualification BS, MS/preferred, PhD/preferred
   Employer Engineering & Research International, Inc. - Savoy, IL
   https://www.simplyhired.com/search?q=civil+engineer+phd&pn=2&job=ZPcf014OHgDLhK6tzPHMjTq3jIrOdMiDQI9HuZUxS0gfs4j3CMS6rQ

Senior Pavement Engineer

Engineering & Research International, Inc. - Savoy, IL

8 days ago Full-time

Estimated: $94,000 - $130,000 a year

Quick Apply

Education

Master's Degree | Doctoral Degree | Bachelor's Degree

Skills

Business Development | Construction Inspection | Geotechnical Engineering | Non-destructive Testing | Writing Skills

Benefits

Health Insurance | Flexible Schedule | Dental Insurance | Retirement Plan | Paid Time Off

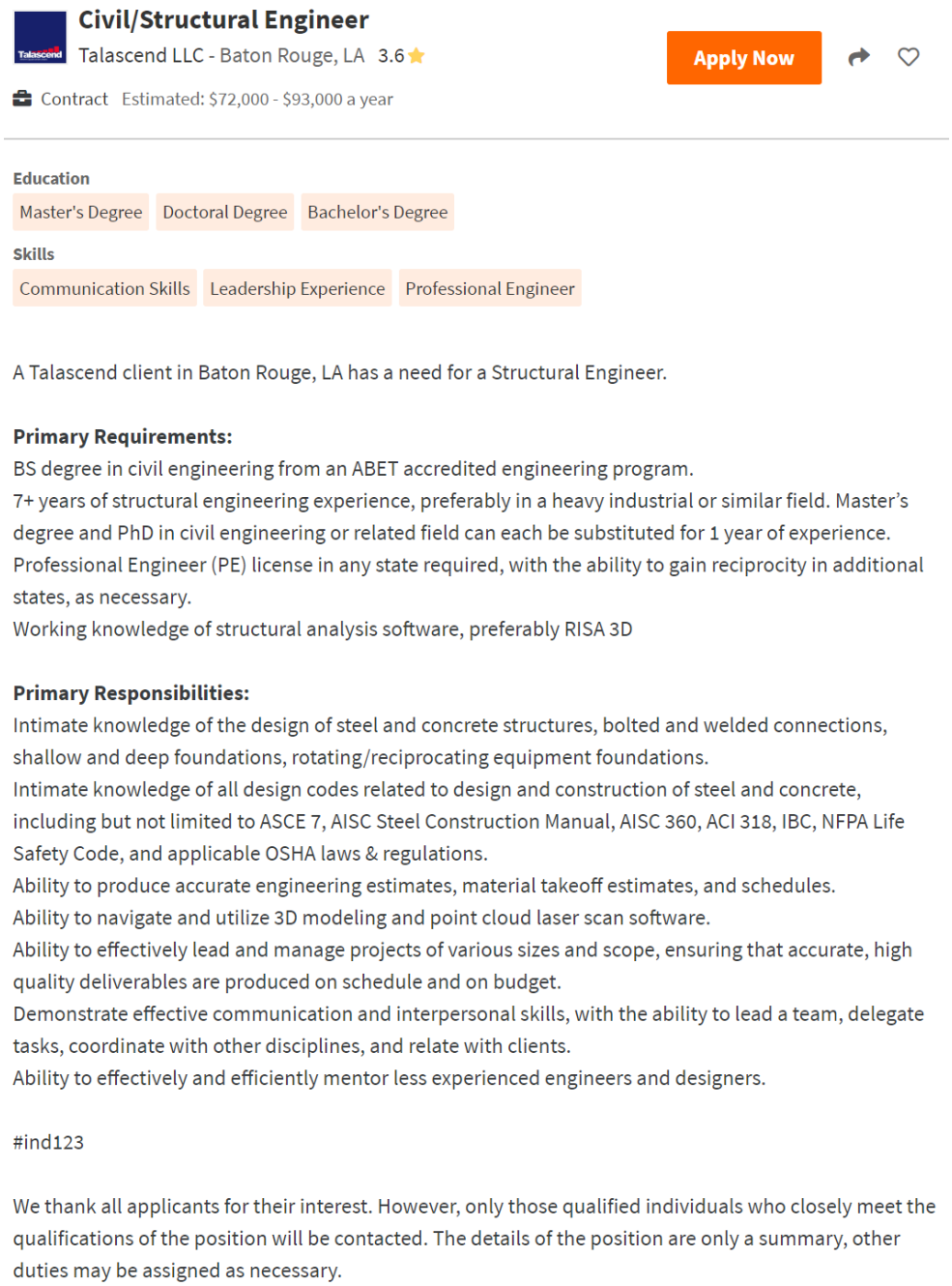
Senior Pavement Engineer Position

Engineering and Research Int'l, Inc. (ERI) is a civil engineering firm specializing in pavement management, pavement design & rehabilitation, pavement testing, geotechnical engineering, construction inspection, materials testing, Geographic Information Systems (GIS), as well as research and education in these areas.

ERI has an immediate opening for a full-time Senior Pavement Engineer in our office located in Savoy, Illinois. We are looking for a motivated and well-organized individual with "whatever-it-takes" attitude in problem solving. The main skills for this position include:

- 5-10 years of experience with implementation of pavement and asset management systems. Experience with various PMS software packages such as MicroPAVER, Cartegraph, StreetSaver, RoadMatrix, Cityworks, HMPS, dTIMS, etc. for cities, municipalities, counties, state DOTs, airports, and federal agencies.
- 3-5 years of experience with various non-destructive pavement condition data collection testing equipment and data analysis techniques. This includes automated pavement condition data collection vehicles, Falling Weight Deflectometers (FWD), Ground Penetration Radars (GPR), high speed profilers, friction testers, etc.
- 3-5 plus years of experience in both empirical and mechanistic pavement design and pavement evaluations
- Experience in building construction inspection and materials testing
- Experience in Geographic Information Systems (GIS) integration and mapping of assets for pavement management systems

10. **Job Title** Civil/Structural Engineer
    Qualification BS/7 year, MS/1 year, PhD/1 year
    Employer Talascend LLC - Baton Rouge, LA
    https://www.simplyhired.com/job/Bx2SQoqAH5BrcxCYkJYrb1NF5tumGOlpwlSCeT8x3Pah0v6tM7hHfA?isp=1&sjdu=WkMb5KhGNDDLBP7nkNNtQb9ZFWYwujb_27yjHnpD_GGSGA3bJcpbJm7IE9fk5aLBtOo5PuzguoqgXoSmrASqK4Vq75aee7xqNFxIDFPLWV6bMcLih-S6aE_cC2BP7mI_OYlbhF6F0ejrgS7Uuje0ioEdItdXpjXXQU0iDniELZLytk6BuZu1gOLYDJe5-il7ezA1ZK_0X1Lr81BItzH4d1KOy5NdUJo6zWiaCw&q=civil+engineer+phd



Civil/Structural Engineer

Talascend LLC - Baton Rouge, LA 3.6

Apply Now

Contract Estimated: $72,000 - $93,000 a year

Education

Master's Degree | Doctoral Degree | Bachelor's Degree

Skills

Communication Skills | Leadership Experience | Professional Engineer

A Talascend client in Baton Rouge, LA has a need for a Structural Engineer.

Primary Requirements:

BS degree in civil engineering from an ABET accredited engineering program.
7+ years of structural engineering experience, preferably in a heavy industrial or similar field. Master's degree and PhD in civil engineering or related field can each be substituted for 1 year of experience.
Professional Engineer (PE) license in any state required, with the ability to gain reciprocity in additional states, as necessary.
Working knowledge of structural analysis software, preferably RISA 3D

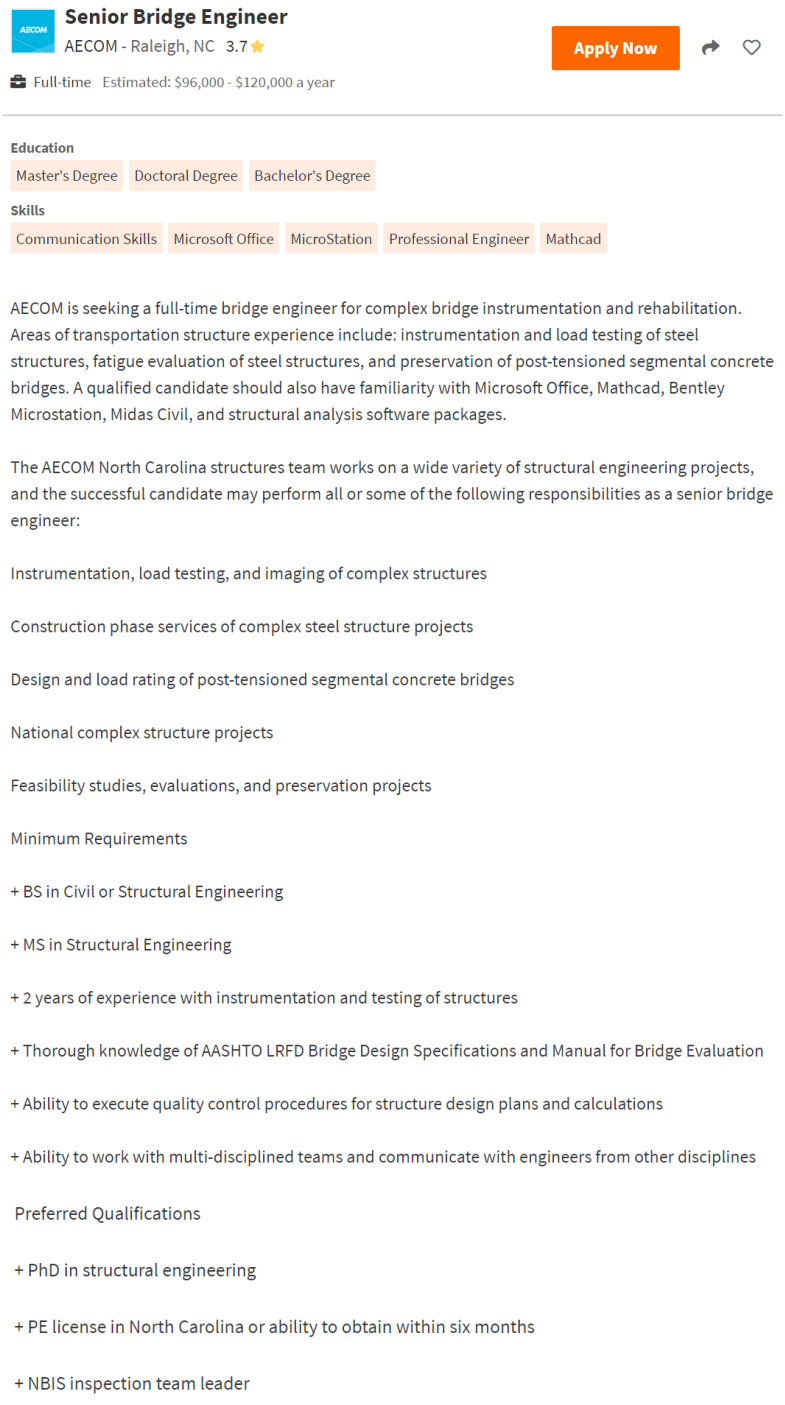
Primary Responsibilities:

Intimate knowledge of the design of steel and concrete structures, bolted and welded connections, shallow and deep foundations, rotating/reciprocating equipment foundations.
Intimate knowledge of all design codes related to design and construction of steel and concrete, including but not limited to ASCE 7, AISC Steel Construction Manual, AISC 360, ACI 318, IBC, NFPA Life Safety Code, and applicable OSHA laws & regulations.
Ability to produce accurate engineering estimates, material takeoff estimates, and schedules.
Ability to navigate and utilize 3D modeling and point cloud laser scan software.
Ability to effectively lead and manage projects of various sizes and scope, ensuring that accurate, high quality deliverables are produced on schedule and on budget.
Demonstrate effective communication and interpersonal skills, with the ability to lead a team, delegate tasks, coordinate with other disciplines, and relate with clients.
Ability to effectively and efficiently mentor less experienced engineers and designers.

#ind123

We thank all applicants for their interest. However, only those qualified individuals who closely meet the qualifications of the position will be contacted. The details of the position are only a summary, other duties may be assigned as necessary.

11. **Job Title** Senior Bridge Engineer
    Qualification BS/2 year, MS/2 year, PhD/0 year
    Employer AECOM - Raleigh, NC
    https://www.simplyhired.com/job/j37cNTRpckrXfGaxoWOvFj56ezbXrAXZJ14GaUCp2DkfwYBJdah92w?isp=0&q=civil+engineer+phd



Senior Bridge Engineer
AECOM - Raleigh, NC 3.7

Apply Now

Full-time Estimated: $96,000 - $120,000 a year

Education

Master's Degree | Doctoral Degree | Bachelor's Degree

Skills

Communication Skills | Microsoft Office | MicroStation | Professional Engineer | Mathcad

AECOM is seeking a full-time bridge engineer for complex bridge instrumentation and rehabilitation. Areas of transportation structure experience include: instrumentation and load testing of steel structures, fatigue evaluation of steel structures, and preservation of post-tensioned segmental concrete bridges. A qualified candidate should also have familiarity with Microsoft Office, Mathcad, Bentley Microstation, Midas Civil, and structural analysis software packages.

The AECOM North Carolina structures team works on a wide variety of structural engineering projects, and the successful candidate may perform all or some of the following responsibilities as a senior bridge engineer:

Instrumentation, load testing, and imaging of complex structures

Construction phase services of complex steel structure projects

Design and load rating of post-tensioned segmental concrete bridges

National complex structure projects

Feasibility studies, evaluations, and preservation projects

Minimum Requirements

+ BS in Civil or Structural Engineering

+ MS in Structural Engineering

+ 2 years of experience with instrumentation and testing of structures

+ Thorough knowledge of AASHTO LRFD Bridge Design Specifications and Manual for Bridge Evaluation

+ Ability to execute quality control procedures for structure design plans and calculations

+ Ability to work with multi-disciplined teams and communicate with engineers from other disciplines

Preferred Qualifications

+ PhD in structural engineering

+ PE license in North Carolina or ability to obtain within six months

+ NBIS inspection team leader

12. **Job Title** Senior Structural Engineer
    Qualification MS required, PhD preferred
    Employer Ingman - Chicago, IL
    https://www.simplyhired.com/job/7c0EObCveFMPkU01ggOS-iPXsVX0zU8hgOuQPKzY8-enJpwac4kr9Q?isp=0&q=civil+engineer+phd

Senior Structural Engineer

Ingman Ingman - Chicago, IL

Apply Now

Full-time Estimated: $93,000 - $120,000 a year

Education

Master's Degree | Doctoral Degree

Skills

Customer Relationship Management | Proposal Writing | Project Management | Communication Skills | Professional Engineer

Benefits

Health Insurance

Req I D

Job-2201

Rate

$140k++

Primary Skills

Design of repairs on existing structures

Description

This is a full-time position with a
generous full benefits package. Relocation expenses will be provided if required.

Requirements:

- MS in Civil/Structural

Engineering from a respected US university; PhD preferred

- PE license in Illinois; SE

preferred

- 15+ years of structural analysis,

investigation, and design repair of existing structures

13. **Job Title** Sr. Principal Structural Engineer
Qualification BS/9 years, MS/7 years, PhD/4 years
Employer Northrop Grumman - Oklahoma City, OK
https://www.simplyhired.com/job/dl0oxkU41rq-anwJsRliEYpgf2oEUg8gSO6UpCORpWT10Q7d5v0sAg?isp=0&q=civil+engineer+phd

Sr. Principal Structural Engineer

Northrop Grumman - Oklahoma City, OK 4.0

Apply Now

9 days ago Full-time Estimated: $90,000 - $120,000 a year

Education

Master's Degree | Bachelor's Degree | Doctoral Degree

Skills

Military Experience

At Northrop Grumman, our employees have incredible opportunities to work on revolutionary systems in air and space that impact people's lives around the world today, and for generations to come. Our work preserves freedom and democracy, and advances human discovery and our understanding of the universe. We look for people who have bold new ideas, courage and a pioneering spirit to join forces to invent the future, and have a lot of fun along the way. Our culture thrives on intellectual curiosity, cognitive diversity and bringing your whole self to work - and we have an insatiable drive to do what others think is impossible. Our employees are not only part of history, they're making history.

Northrop Grumman Aerospace Systems has an opening for a Principal Structural Analysis Engineer to join our team of highly qualified and diverse individuals. This position will be located in Oklahoma City, Oklahoma and will perform structural analysis on metallic airframe structures.

Essential Functions:

- Develop solutions to difficult technical problems that are thorough, imaginative, practical, and consistent with program objectives.
- Coordination and clear communication with other engineering disciplines during the development of design solutions.
- Concise presentation and explanation of structural issues/solutions to internal management and customer representatives.
- Review of completed analyses, drawings, and repairs for accuracy, clarity, and completeness.
- Evaluation of engineering products for conformity to standards, procedures, and specifications.

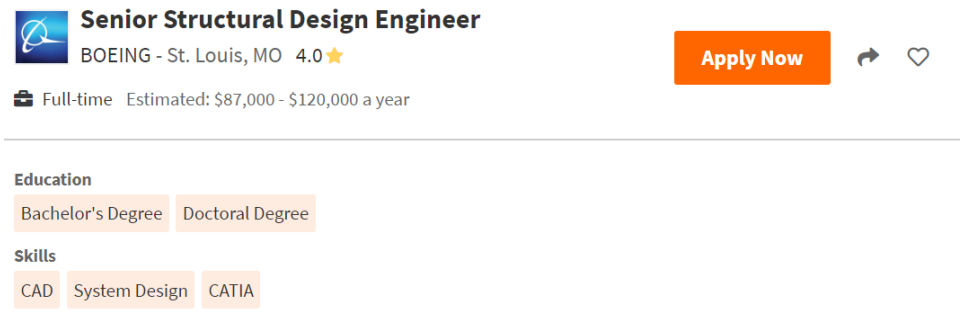
Qualifications:

Basic Qualifications:

- Bachelor's Degree in a STEM (Science, Technology, Engineering or Mathematics) discipline from an accredited university and 9+ years of STEM Aerospace engineering experience, or a Master's Degree in a STEM discipline and 7+ years of Aerospace experience, or 4+ years of experience with a PhD.
- Experience in Metallic or Composite Structural Analysis of primary and secondary aircraft structures.
- Ability to obtain and maintain a DoD Secret security clearance.

14. **Job Title** Senior Structural Design Engineer

Qualification BS/9 years, MS/7 years, PhD/4 years
Employer BOEING - St. Louis, MO
https://www.simplyhired.com/job/5FCr2DwsleFi7wRZZNcuykFlZPpSU0R0u5pZgBD2fvHqiMpcfZyTrw?isp=0&q=civil+engineer+phd



Senior Structural Design Engineer
BOEING - St. Louis, MO 4.0
Apply Now
Full-time Estimated: $87,000 - $120,000 a year

Education
Bachelor's Degree Doctoral Degree

Skills
CAD System Design CATIA

At Boeing, we are all innovators on a mission to connect, protect, explore and inspire. From the seabed to outer space, you'll learn and grow, contributing to work that shapes the world. Find your future with us.

Boeing is hiring senior Structural Designers (Level 4) in Saint Louis, MO to support engineering sustaining and development efforts. Several new programs and projects on F-15, F/A-18, Autonomous Systems and Phantom Works are projecting needs for more structural engineers.

Position Responsibilities:
Develops, integrates and documents structural requirements to establish the system design.
Develops, maintains and modifies structural and component designs, using 3-D Computer Aided Design tools and/or other design methods, to provide product definition to other engineering groups, production operations, suppliers and external customers throughout the product lifecycle.
Leads performance, integration and analysis of tests to validate and verify systems and components meet requirements and specifications.
Reviews and approves work of design staff to assure procedural compliance as well as defect free deliverables.
Manages supplier development, test and production activities and coordinates with the supplier to optimize the design and achieve program goals.
Assists with investigation of emerging technologies to develop concepts for future product designs to meet projected requirements.
Works under minimal direction.

This position requires the ability to obtain a US Security Clearance for which the US Government requires US Citizenship.

Basic Qualifications (Required Skills/Experience):
Experience in structural design process from conceptual layout phase through build-to-package release.
Experience in Model Based Definition.
NX/Teamcenter or CATIA/ENOVIA skills.

Preferred Qualifications (Desired Skills/Experience):
Bachelors degree of higher in Mechanical, Aerospace or Civil Engineering field.

15. **Job Title** Staff Civil Engineer - Research
Qualification MS, PhD/preferred
Employer Applied Research Associates, Inc - Champaign, IL
https://www.simplyhired.com/job/syt0IlbOUP2Ed2kspq_uyn7gnaoEavP3QYxkcz2_MF_2_7t1TPS42Q?isp=0&q=civil+engineer+phd

Staff Civil Engineer - Research

Applied Research Associates, Inc - Champaign, IL 4.0

Apply Now

Full-time Estimated: $74,000 - $99,000 a year

Education

Master's Degree | Doctoral Degree

Skills

R | Geotechnical Engineering | Communication Skills | Research Experience | Statistics

Please respond by uploading your resume and a cover letter. In your cover letter, please describe research and/or writing projects in which you worked independently and why you think you are a good fit for this position. Candidates without a cover letter will be summarily rejected.

ARA is seeking civil engineers, with emphasis in pavements, materials, and/or geotechnical engineering, to work full-time in our Transportation Research & Technology Deployment Group in Champaign, Illinois.

ARA is an employee-owned scientific research and engineering company dedicated to solving critical national problems to improve our safety, security, and way of life. In transportation, this translates to providing innovative technologies and services in the areas of asset management, pavement management, pavement evaluation, pavement design, and related research studies. Our expertise in these areas allows our clients to better address the challenges they face in cost-effectively designing, building, maintaining, and preserving roadway and airfield networks. Our mission is to provide in-depth and diversified engineering, research, and technical support services.

We are looking for engineers who are dynamic, crave and are comfortable with autonomy, and enjoy solving complex problems; someone who wants a job that offers challenges that go beyond routine, repetitive tasks.

Working for the ARA Transportation Research & Technology Deployment Group is a unique experience because our engineers are actively involved in all aspects of the profession, which includes problem solving, using subject matter knowledge and innovation to offer high-quality solutions to our clients, marketing to bring in new business, and writing high quality proposals in response to request for proposals (RFPs). With this position comes a high level of freedom to be innovative and self-directed along with an ability to pursue projects and tasks that are truly interesting and meaningful.

While most work will be performed independently with supervision and guidance, the candidate we are seeking is one who is also able to work as a member of an integrated team, and who exhibits a collegial and professional demeanor towards colleagues and external stakeholders.

Required Education and Skills:

Master's degree or higher in Civil Engineering (PhD preferred).
Demonstrated understanding of pavement engineering, pavement materials, and geotechnical engineering as they relate to transportation infrastructure or related fields, with a strong emphasis and in-depth knowledge of Mechanistic Empirical Pavement Design Guide procedures and use of AASHTOWare® Pavement ME Design.
Strong written and verbal communication skills and organizational skills. Publication in peer-reviewed journals and relevant conference presentations a plus.
Knowledge of statistics and data analysis. Experience with SAS, R, or any equivalent statistical software package a plus.

16. **Job Title** Senior Geotechnical Engineer
    Qualification PhD
    Employer AGS/Aetypic - San Francisco, CA
    https://www.simplyhired.com/job/NfTJEEdYw_XcpmqpnqTxKBWX_CP_Uf6tnJsR8Lz_8SQkLiyxafNQ5A?isp=0&q=civil+engineer+phd

Senior Geotechnical Engineer

AGS/Aetypic - San Francisco, CA

Quick Apply

Full-time Estimated: $97,000 - $130,000 a year

Education

Doctoral Degree

Skills

Geotechnical Engineering | Writing Skills | Microsoft Office | Communication Skills | Driver's License

Benefits

Health Insurance | Dental Insurance | 401(k) Matching | 401(k)

AGS, Inc., an established engineering firm based in San Francisco, is seeking a full-time Senior Geotechnical Engineer. We are proud to be called home to leading technical experts in seismic, soil improvement, shallow and deep foundations systems and liquefaction mitigation measures. We offer competitive compensation and benefits. We are looking for innovative professional to provide efficient, sustainable solutions for challenging and unique projects.

This position is based in San Francisco, California and provides geotechnical analysis and design; and technical project management on projects related to infrastructure, bridges, traditional and specialty geo-structures, and ground improvement. Demonstrated experience in liquefaction assessments, seepage, groundwater, seismic response, stability, and deep foundation systems are required.

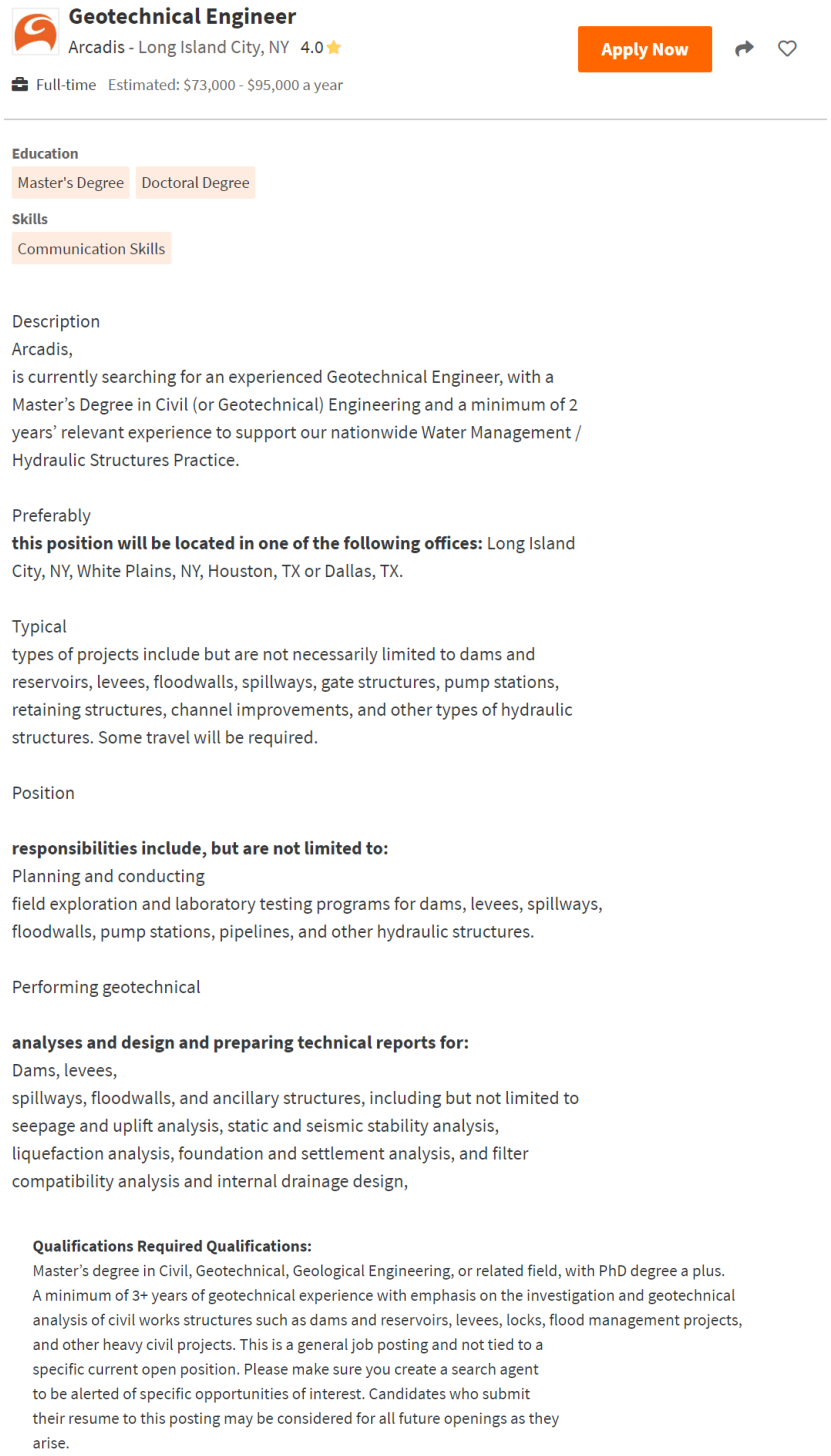
Responsibilities

Competent to serve as Engineer-of-Record on design and design-build projects
Plan, schedule, coordinate and execute detailed phases of geotechnical and geophysical investigations, testing programs, instrumentation programs, and other technical work
Responsible for project management and execution, including budget development and monitoring, management of all staff and subcontractors working on project
Provide direction to and mentoring to technical staff in completing project tasks
Provide quality control review of technical work, reports and deliverables
Prepare project proposals
Interface with client project managers, government regulators, outside consultants, subcontractors, and other stakeholders
Contribute to business development efforts, outreach and materials.

Qualifications

Advanced degree (MSCE or PhD) in civil engineering from a U.S. college or university with an ABET-accredited civil/geotechnical engineering program is required
At least eight (8) years of relevant engineering experience is required
Candidates must have proven experience in successfully executing projects from inception, into planning and scheduling, through design, to completion of deliverables. Must demonstrate provision of strong technical direction/support for geotechnical aspects of projects
Specialization in geotechnical engineering is required
Experience in geo-structural analysis and seismic stability and deformation analyses is preferred
Exposure to FLAC analysis is a plus.

17. **Job Title** Geotechnical Engineer
Qualification MS, PhD preferred
Employer Arcadis - Long Island City, NY
https://www.simplyhired.com/job/6SdEOWO4MEV2GPVZlC-gYUaJ7fbEO5NVveE-5aNg7lFyIbTYLFqdBA?isp=0&q=civil+engineer+phd



Geotechnical Engineer
Arcadis - Long Island City, NY 4.0
Apply Now
Full-time Estimated: $73,000 - $95,000 a year

Education
Master's Degree Doctoral Degree

Skills
Communication Skills

Description
Arcadis,
is currently searching for an experienced Geotechnical Engineer, with a Master's Degree in Civil (or Geotechnical) Engineering and a minimum of 2 years' relevant experience to support our nationwide Water Management / Hydraulic Structures Practice.

Preferably
this position will be located in one of the following offices: Long Island City, NY, White Plains, NY, Houston, TX or Dallas, TX.

Typical
types of projects include but are not necessarily limited to dams and reservoirs, levees, floodwalls, spillways, gate structures, pump stations, retaining structures, channel improvements, and other types of hydraulic structures. Some travel will be required.

Position

responsibilities include, but are not limited to:
Planning and conducting
field exploration and laboratory testing programs for dams, levees, spillways, floodwalls, pump stations, pipelines, and other hydraulic structures.

Performing geotechnical

analyses and design and preparing technical reports for:
Dams, levees,
spillways, floodwalls, and ancillary structures, including but not limited to seepage and uplift analysis, static and seismic stability analysis, liquefaction analysis, foundation and settlement analysis, and filter compatibility analysis and internal drainage design,

Qualifications Required Qualifications:
Master's degree in Civil, Geotechnical, Geological Engineering, or related field, with PhD degree a plus.
A minimum of 3+ years of geotechnical experience with emphasis on the investigation and geotechnical analysis of civil works structures such as dams and reservoirs, levees, locks, flood management projects, and other heavy civil projects. This is a general job posting and not tied to a specific current open position. Please make sure you create a search agent to be alerted of specific opportunities of interest. Candidates who submit their resume to this posting may be considered for all future openings as they arise.

18. **Job Title** ENGINEER CONSTRUCTION 4
Qualification BS/9 years, MS/7 years, PhD/4 years
Employer Huntington Ingalls Industries - Newport News, VA
https://www.simplyhired.com/job/8vUwo4tTusnzbcclkIrJ9BrDIDlB17fjVEdouRIhIebn1ZdAtXkXSw?isp=1&sjdu=KOsGvyj63TYIP8G-4i_I0hfElWcZr-cQY_7BFRqDGq3U-aLri4efoQr-

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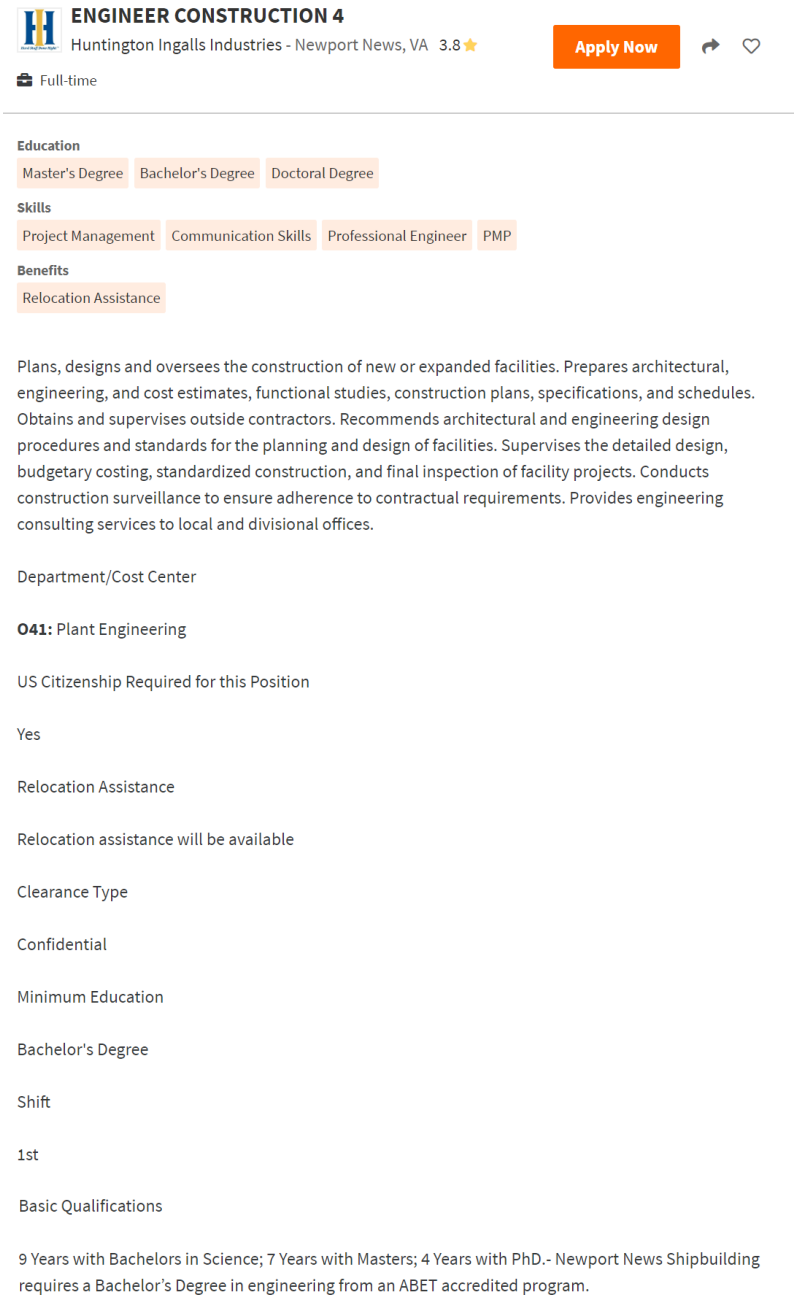


ENGINEER CONSTRUCTION 4

Huntington Ingalls Industries - Newport News, VA 3.8

Apply Now

Full-time

Education

Master's Degree | Bachelor's Degree | Doctoral Degree

Skills

Project Management | Communication Skills | Professional Engineer | PMP

Benefits

Relocation Assistance

Plans, designs and oversees the construction of new or expanded facilities. Prepares architectural, engineering, and cost estimates, functional studies, construction plans, specifications, and schedules. Obtains and supervises outside contractors. Recommends architectural and engineering design procedures and standards for the planning and design of facilities. Supervises the detailed design, budgetary costing, standardized construction, and final inspection of facility projects. Conducts construction surveillance to ensure adherence to contractual requirements. Provides engineering consulting services to local and divisional offices.

Department/Cost Center

O41: Plant Engineering

US Citizenship Required for this Position

Yes

Relocation Assistance

Relocation assistance will be available

Clearance Type

Confidential

Minimum Education

Bachelor's Degree

Shift

1st

Basic Qualifications

9 Years with Bachelors in Science; 7 Years with Masters; 4 Years with PhD.- Newport News Shipbuilding requires a Bachelor's Degree in engineering from an ABET accredited program.

ENVIRONMENTAL ENGINEERING

1. Senior Research Scientist
   Qualification PhD
   Employer SRI International - Saint Petersburg, FL
   https://www.simplyhired.com/job/eqDZ6peyyUSIicQDxT9sG0yQ0wSkW1nPFWKrUKho0Rk4YfckaEwkVA?isp=0&q=environmental+engineer+phd

Sr Research Scientist

SRI International - Saint Petersburg, FL 3.7

Apply Now

Full-time Estimated: $82,000 - $110,000 a year

Education

Doctoral Degree

Skills

Business Development | MATLAB | C/C++

SRI International is a nonprofit, independent research center serving government and industry moving R&D from the laboratory to the marketplace to create high value and real innovation. We work on some of the world's most important problems, collaborating across technical disciplines to spark new ideas and solutions. SRI's research and innovations have led to new industries and products that impact people's lives every day—from the computer mouse and interactive computing to medical ultrasound, cancer drugs, and much more.

Sponsored R&D is at the center of SRI's integrated business models. Our customer-centric focus is directed at meeting client and market needs to create and deliver new value, whether the outcome is an R&D solution, technology license, new product, or spin-off venture. As a nonprofit research institute, SRI International is driven by impact, not shareholder value. The revenue generated by our extensive R&D projects, commercialization activities, and marketplace solutions is reinvested in our capabilities, facilities, and staff to advance SRI's mission and meet client and partner needs.

Position Overview SRI St. Petersburg is expanding its research and development portfolio in the field of next-generation CBRNE (chemical, biological, radiological, nuclear and explosives) sensing technologies for a broad range of national security and intelligence community applications. We seek a seasoned principal investigator (PI) with excellent working knowledge in the areas of mass spectrometry, analytical chemistry, advanced sensors, sorbent technology, explosives, vacuum technology, and biochemistry to expand our business thrusts. The candidate will support a team of driven scientists, engineers, and program manager and make significant technical contributions to ongoing projects. Equally important, the candidate will lead business development activities for US Department of Defense (DoD) and Intelligence Community (IC) customers, as well as commercial clients, to expand our portfolio into new technology areas. The candidate will be self-driven to create and grow a new technology portfolio and is expected to travel frequently to develop and maintain relations with clients. The candidate will report directly to the laboratory director.
PhD or MS (+5-10 yrs. experience) in Analytical/Physical Chemistry
Mass spectrometry (MS) instrumentation and applications
Gas chromatography (GC) instrumentation and applications (including GC/MS)
Chemical library development, mass spectra deconvolution, and chemical identification Chemical sampling methodologies (gas-phase, liquids, aerosols, and surface)
Methods development for analytical chemistry
Data processing and analytics

2. **Job Title** Utilities Senior Engineer
   Qualification BS/8 year, MS/4 year, PhD/2 year
   Employer Pinellas County Government - Clearwater, FL
   https://www.simplyhired.com/job/510h-pNLpbvUpaueK0k9kc0XJDQrBC9P_EFmMTP8qu12Wu9yD1lDRA?isp=0&q=civil+engineer+phd

Utilities Senior Engineer

Pinellas County Government - Clearwater, FL 3.9

Apply Now

Contract $82,000 - $130,000 a year

Education

Bachelor's Degree | Master's Degree | Doctoral Degree

Skills

Microsoft Word | Microsoft Excel | Professional Engineer | Microsoft Office | Asset Management

Working Title: Utilities Senior Engineer

Location: 14 S. Ft. Harrison Avenue, Clearwater, FL 33756

This position is responsible for the management/design of large and more complex water, sewer studies, design projects, programs, the County's Material Specifications and Utility Standard Specifications. This is managerial level professional engineering work in a wide variety of engineering projects. An incumbent in this classification is responsible for planning, coordinating, and reviewing the work of subordinate professional and technical employees engaged in planning, construction, operation, maintenance, and utilities projects including water, sewer, reclaimed and other utility systems, including improving specialized use systems. Emphasis of the work is planning and coordinating a large number of projects from inception to completion; contract administration; and extensive coordination with consultants, contractors and other governmental entities. Work is complex and involves a wide range of public contact in coordinating delegated county engineering activities with both public and private organizations. The position includes management of subordinate staff in water, sewer and reclaimed water design and construction.

Position Specific Qualifications

Experience –Directly related to the assigned subject matter area of responsibility, for example, construction, project management, civil engineering, electrical, environmental management, that includes 3 years supervision of engineering activities.

Education – Degree in civil engineering or relevant engineering discipline.

Bachelor's degree as described above and Professional Engineering certification* with 8 years of experience as described above; or
Master's degree as described above and Professional Engineering certification* with 6 years of experience as described above; or
PhD degree as described above and Professional Engineering certification* with 4 years of experience as described above.

3. **Job Title** Civil/Environmental Engineer
   Qualification Professional Engineering level: MS/3 year, PhD/2 year
   Employer Sanitation Districts of Los Angeles County - California
   https://www.simplyhired.com/job/xkzavC_n_JjhWpcrCZaK2yDITsv00nKqD7P7CVkRu_RHWe5llE-53Q?isp=0&q=civil+engineer+phd

Civil/Environmental Engineer

Sanitation Districts of Los Angeles County - California 5.0

Apply Now

Full-time $91,000 - $130,000 a year

Education

Master's Degree | Bachelor's Degree | Doctoral Degree

Skills

Project Management | Technical Writing | Communication Skills | Professional Engineer | Analysis Skills

Benefits

Health Insurance | Tuition Reimbursement | Disability Insurance | Dependent Health Insurance Coverage | Life Insurance

JOB POSTING

The incumbent will perform engineering work related to wastewater management and/or solid waste management in areas such as: design, recycled water research and production, energy recovery, stormwater management, operations, water and air quality, planning, construction and source control.

This selection process may place engineers in the following sections: Air Quality Engineering, Budget & Finance, Construction Management, Energy Recovery, Industrial Waste, Joint Water Pollution Control Plant, Planning & Property Management, Public Information, Reuse & Compliance, Sewer Design, Solid Waste Planning, Solid Waste Operations & Engineering, Wastewater and Solid Waste Design, Wastewater Collection Systems, Wastewater Planning, Wastewater Research, Water Quality and Water Reclamation Plants. Please click here for more information on these sections.

To learn more about how we convert waste into resources, see the videos on this website:

https://www.lacsd.org/education/programs/downloadable_brochures/downloadable_media_n_videos.asp

Engineers are involved in all phases of our work, from conception to operation. Almost all engineering is performed in-house, and engineers are encouraged to consider internal transfer opportunities to promote professional growth.

MINIMUM QUALIFICATIONS

For the Engineering Associate classification, applicants must possess:

Option A: A bachelor's degree in a pertinent engineering discipline -AND- a master's degree in a pertinent engineering discipline;

Option B: A bachelor's degree in a related science -AND- an Engineer-In-Training Certificate -AND- a master's degree in a pertinent engineering discipline;

Option C: A bachelor's degree in engineering -AND- two years of professional engineering experience obtained after earning a bachelor's degree in engineering.

For the professional engineer level, applicants must possess a California Certificate of Registration as a Professional Engineer -AND- :

Option A: a master's degree in engineering -AND- three years of professional engineering experience;

Option B: a PhD in engineering -AND- two years of professional engineering experience;

Option C: six years of professional engineering experience subsequent to earning a bachelor's degree in engineering.

4. **Job Title** LEAD SCIENTIST - LEAD ENGINEER- PRINCIPAL SCIENTIST - HYDROGEOLOGY
Qualification MS/6year, PhD/5 year
Employer Southwest Research Institute - San Antonio, TX
https://www.simplyhired.com/job/438KTOds2uEG-qH2bThickPvvt3BVR1fir6RlBUDs9oFKkTw4R0bFg?isp=0&q=civil+engineer+phd

LEAD SCIENTIST - LEAD ENGINEER- PRINCIPAL SCIENTIST - HYDROGEOLOGY

Southwest Research Institute - San Antonio, TX 4.0

Apply Now

Full-time Estimated: $83,000 - $110,000 a year

Education

Master's Degree | Doctoral Degree

Skills

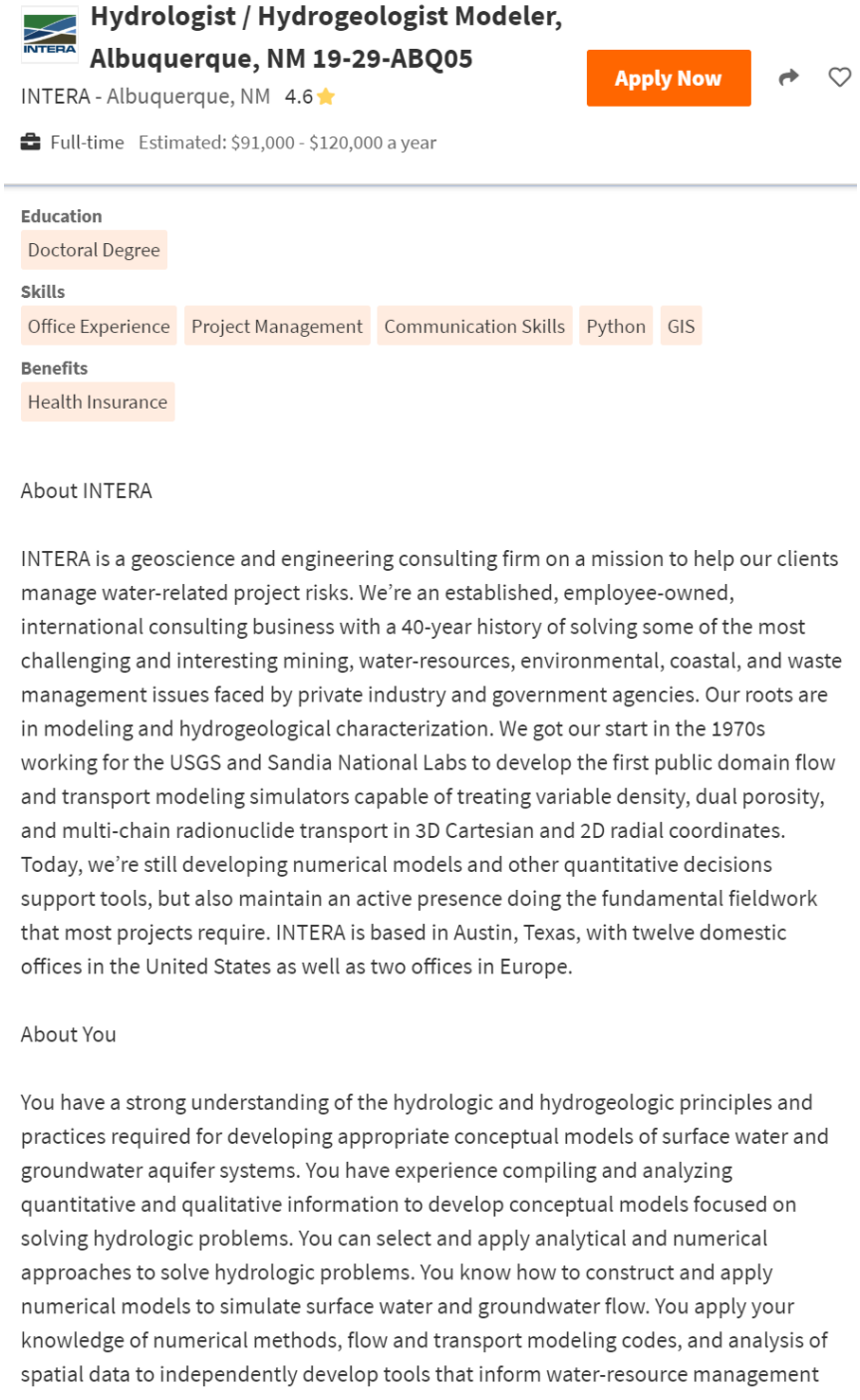
Research Experience | Driver's License

Join the Earth Science team serving as a hydrogeologist with expertise in groundwater and/or surface water modeling. Collaborate with current Earth Science staff to acquire and conduct technical project work in the area of water resource analysis, mentor junior staff on business development/client interactions, project management, and technical work, and present project results to clients and at scientific meetings. Will be responsible for the evaluation of groundwater availability models, and characterization and modeling of aquifers in semi-arid and temperate environments. Develop and apply analytical and numerical groundwater and surface water flow and transport models for alluvial, fluvial, karst, and/or fractured rock environments. Assess potential effects of hydraulic fracturing and wastewater disposal wells on water resource availability and quality. Mentor junior staff on business development/client interactions, project management, and technical work. Present project results to clients and at scientific meetings, workshops, and conferences, and publish results in peer-reviewed scientific journals.

Education/Experience:
Requires a MS degree in hydrogeology, hydrology, geology, civil engineering, environmental engineering, or related field with 6 more years of experience experience or a PhD degree with 5 or more years of experience. Requires Professional Geologist license in Texas (or ability to acquire within 1 year of employment). Professional Geologist license in other states is desirable. Must have at least a 3.0 GPA. Groundwater and/or surface water modeling experience in support of water resource analyses, particularly experience in arid and semi-arid environments, is required. Experience in design, execution, analysis, and interpretation of groundwater and/or surface water models using standard codes (e.g., MODFLOW, FEFLOW) is required. Demonstrated experience conducting independent and team research, including publication (journal articles, technical reports) and presentation of results to clients or at scientific meetings is required. Experience in a related area (e.g., aqueous geochemistry) is desirable. Frequent travel may be required. A valid/clear driver's license is required.

5. **Job Title** Hydrologist / Hydrogeologist Modeler
Qualification PhD
Employer INTERA - Albuquerque, NM

https://www.simplyhired.com/search?q=civil+engineer+phd&pn=7&job=IwVPU9ucQWtyMvqOkrv0NmkY6tA3k8-x53eWsuvuYtGKpDOCb_SsZA



Hydrologist / Hydrogeologist Modeler, Albuquerque, NM 19-29-ABQ05

Apply Now

INTERA - Albuquerque, NM 4.6

Full-time Estimated: $91,000 - $120,000 a year

Education

Doctoral Degree

Skills

Office Experience | Project Management | Communication Skills | Python | GIS

Benefits

Health Insurance

About INTERA

INTERA is a geoscience and engineering consulting firm on a mission to help our clients manage water-related project risks. We're an established, employee-owned, international consulting business with a 40-year history of solving some of the most challenging and interesting mining, water-resources, environmental, coastal, and waste management issues faced by private industry and government agencies. Our roots are in modeling and hydrogeological characterization. We got our start in the 1970s working for the USGS and Sandia National Labs to develop the first public domain flow and transport modeling simulators capable of treating variable density, dual porosity, and multi-chain radionuclide transport in 3D Cartesian and 2D radial coordinates. Today, we're still developing numerical models and other quantitative decisions support tools, but also maintain an active presence doing the fundamental fieldwork that most projects require. INTERA is based in Austin, Texas, with twelve domestic offices in the United States as well as two offices in Europe.

About You

You have a strong understanding of the hydrologic and hydrogeologic principles and practices required for developing appropriate conceptual models of surface water and groundwater aquifer systems. You have experience compiling and analyzing quantitative and qualitative information to develop conceptual models focused on solving hydrologic problems. You can select and apply analytical and numerical approaches to solve hydrologic problems. You know how to construct and apply numerical models to simulate surface water and groundwater flow. You apply your knowledge of numerical methods, flow and transport modeling codes, and analysis of spatial data to independently develop tools that inform water-resource management

6. **Job Title** Environmental Project Manager
   Qualification BS, MS/preferred, PhD/preferred
   Employer HydroGeoLogic, Inc - Denver, CO
   https://www.simplyhired.com/job/6LdgkY8QUXhx8I80Apqa3hxYz5AUZr_Hm3saCDkBcQhlxrixkciSug?isp=0&q=civil+engineer+phd

Environmental Project Manager

HydroGeoLogic, Inc - Denver, CO 3.7

Quick Apply

Full-time Estimated: $71,000 - $95,000 a year

Education

Master's Degree | Doctoral Degree | Bachelor's Degree

Skills

PMP | Communication Skills | Computer Skills | Data Collection | Microsoft Office

Description/Job Summary

HGL (HydroGeologic, Inc.), is an industry leader with over 30 years of experience providing comprehensive environmental engineering services by implementing innovative, effective, and sustainable solutions that address today's environmental, infrastructure, and natural resource challenges. HGL provides environmental engineering, remediation, and construction services, as well as Military Munitions Response Program support to the U.S. Department of Defense, U.S. Air Force, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Department of Energy, and other federal and state government clients. HGL is one of the few companies that remain committed to research and development, offering a dynamic work environment for creative, energetic professionals.

Currently, HydroGeoLogic, Inc. (HGL) has a position open in the Denver, CO area for anEPA and Abandoned Mine Land (AML) Environmental Project Manager to support HGL's growing business with the U.S. Environmental Protection Agency (EPA) and the Bureau of Land Management (BLM).

Required Experience

Experience working on EPA contracts and at AML sites in the western US.

The Senior Project Manager position requires 10-15 years of directly relevant experience, which must include extensive experience managing environmental investigation, remediation, LTRA, and/or construction projects for the EPA, BLM, DoD, and/or DOE.

Strong technical writing, organizational, and oral communication skills required. The successful candidate will show directly relevant experience that demonstrates a history of responsibility, initiative, motivation, and creative problem solving. Must also be willing to participate in project technical tasks ranging from fieldwork and field operations; development of specifications; and data management, evaluation, and report preparation.
Computer Proficiency in MS Office Suite required.

Preferred Experience

EPA Superfund and BLM experience is strongly desired.
Knowledge of CERCLA process and work phases is strongly desired.
Current certification of OSHA 40-hour HAZWOPER training is a plus.

Required Education

The Senior Project Manager requires a minimum of a BS in Environmental Engineering, Chemical Engineering, Civil Engineering, Geology, Hydrogeology, or a related environmental field of study. A PE or PG certification is a plus.

Preferred Education

An MS or PhD in a technical field is a plus. Project Management Professional (PMP) certification is desirable.

7. **Job Title** Environmental Engineer
   Qualification BS/6 years, MS/6 years, PhD/2 years
   Employer ManTech International Corporation - Hill AFB, UT
   https://www.simplyhired.com/job/Smb3VqYWuYgO1XvXv12F7d2CYD7OzGTBojpnfwfLzYuYF9n-NneXww?isp=0&q=civil+engineer+phd

Environmental Engineer

ManTech International Corporation - Hill AFB, UT 4.0

Apply Now

Full-time Estimated: $67,000 - $85,000 a year

Education

Master's Degree | Doctoral Degree | Bachelor's Degree

Skills

Professional Engineer | Systems Engineering

Secure our Nation, Ignite your Future

Secure our Nation, Ignite your Future

ManTech is currently seeking experienced professionals for the Air Force Nuclear Weapons Center at Hill Air Force Base-Ogden, Utah. This will be supporting the Integration Support Contract (ISC) 2.0. Intercontinental Ballistic Missile (ICBM) weapon systems.

As the Employer of Choice in the government services and solutions industry, ManTech seeks like minds who exhibit a sense of service, creativity and dedication. The ManTech family comprises a diverse yet united group of nearly 8,000 talented professionals around the globe, each bringing distinct backgrounds and skill sets to the team. Nearly half of us are veterans.

Your Opportunity:
Environmental Engineer

Responsibilities

Working level environmental-engineering services

Qualifications:
BS Degree in Biological, Chemical, Environmental or Civil Engineering AND 6+ years of related engineering experience... OR ...
BS Degree in an engineering discipline AND MS Degree in Biological, Chemical, Environmental or Civil Engineering AND 4+ years of related engineering experience... OR ...
BS and/or MS Degree in an engineering discipline AND PhD Degree in Biological, Chemical, Environmental or Civil Engineering AND 2+ years of related engineering experience
Contractor shall obtain and maintain certifications as required by current versions of AFMAN17-1303, DoDI 8570.01 -M, and other applicable laws and regulation
Systems Engineering Experience and/or Certification

8. **Job Title** Environmental Senior Research Scientist
   Qualification MS/8-10 years, PhD/0 years
   Employer Battelle – Columbus, OH
   https://www.simplyhired.com/job/LrM0LUZ35RyAjP9GgrHUZueMlSERaIigGZO6KD9lPx12Qe7DVxEF1A?isp=0&q=environmental+engineer+phd

Environmental Senior Research Scientist

Battelle - Columbus, OH 3.8

Apply Now

Full-time Estimated: $84,000 - $110,000 a year

Education

Master's Degree | Doctoral Degree

Skills

Communication Skills | Professional Engineer | PMP | Research Experience | Project Management

Benefits

Health Insurance | Flexible Spending Account | Disability Insurance | Dental Insurance | 401(k) Matching

Battelle is guided by a founding mission. We invest our knowledge, talents and resources, helping our customers achieve their most important goals. We apply scientific rigor and creativity, succeeding where others may fail, and we invest in our communities, making the world better for generations to come. All of us share a common purpose: to solve the greatest challenges of today and tomorrow.

Our 22,000 employees work at the forefront of scientific innovation to tackle critical challenges in security, human health, manufacturing, energy and environmental management. Battelle's work is grounded in the belief that science, technology and a passion for excellence can make industries more competitive and the world a better place.

We are seeking qualified applicants for a full-time Environmental Senior Research Scientist position at our headquarters in Columbus, Ohio although alternate locations can be considered.

JOB DESCRIPTION

Our Environmental Business Line conducts research, characterization, and remediation of environmental contamination, and designs and implements environmentally sustainable remedial technologies.

POSITION RESPONSIBILITIES:
As a Senior Research Scientist, the selected individual will design and lead complex and innovative environmental engineering and science projects to effectively characterize contamination in a wide array of media, and design and implement remedial systems to treat the contamination. Examples of responsibilities based on current and anticipated projects include:

9. **Job Title** Senior Research Environmental Engineer/Scientist
   Qualification PhD
   Employer Tetra Tech - Cincinnati, OH
   https://www.simplyhired.com/job/i6NrKF2Tu8lYugyIMOQnJF9A7x9RkduYx4Lw55cFBKQK_qf3n9oqaw?isp=0&q=environmental+engineer+phd

Sr. Research Environmental Engineer/Scientist

Tetra Tech - Cincinnati, OH 3.8

Apply Now

Contract Estimated: $93,000 - $140,000 a year

Education

Doctoral Degree

Skills

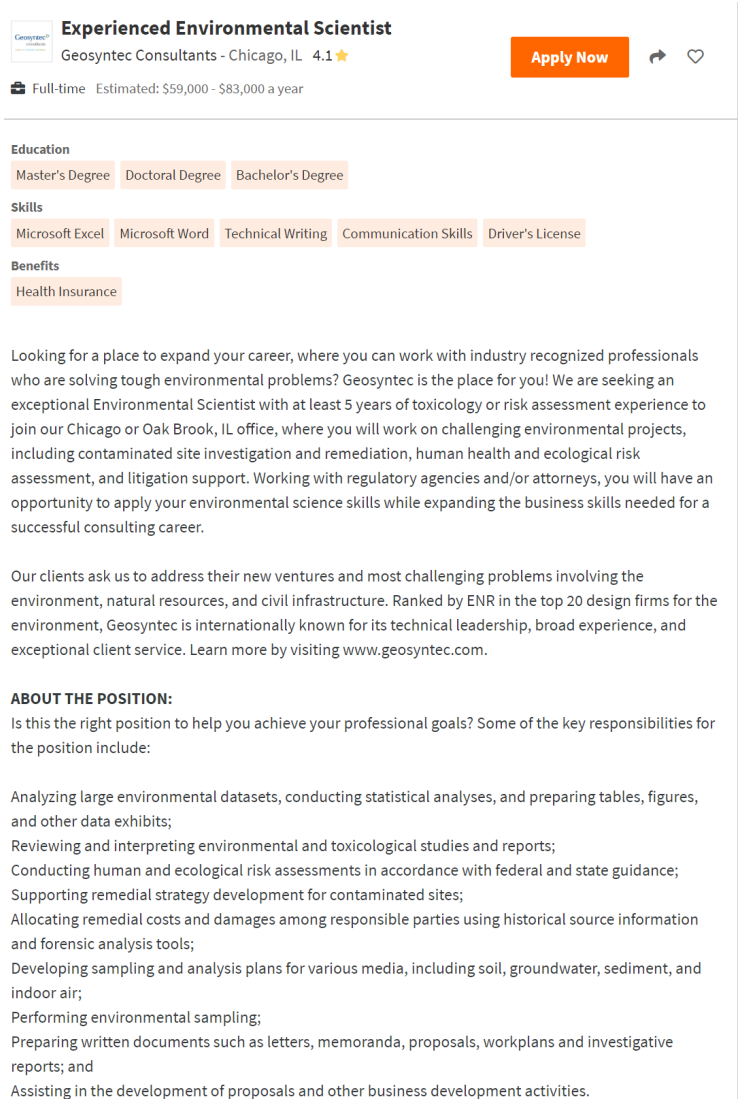
Communication Skills | Research Experience | Computer Skills | Research Laboratory Experience | Leadership Experience

Are you ready to take the next step in your career? Do you want to do meaningful work that improves quality of life? At Tetra Tech, you will work with high-performing teams who are passionate about using their expertise to find solutions to complex problems in water, environment, infrastructure, resource management, energy, and international development. Tetra Tech is a leading provider of high-end consulting and engineering services for projects worldwide. We combine the resources of a global, multibillion dollar company with local, client-focused delivery in more than 400 locations around the world. We are Leading with Science® to provide sustainable and resilient solutions for our clients.

Tetra Tech, Inc. is seeking a Senior Research Environmental Engineer/Scientist to work in their Cincinnati, OH office. The successful candidate will be responsible for overseeing, managing, and providing technical support under contracts with the U.S. EPA related to research and development of sustainable environmental investigation and cleanup technologies, homeland security detection and decontamination technologies, and related issues. Responsibilities include managing a team of scientists and engineers and providing technical direction in carrying out research and development, including technology testing and evaluation projects, technology demonstrations, and related support activities, such as constructing, testing, and setting up data acquisition systems and instrumentation. Projects will include both laboratory-and field-based testing scenarios and require significant coordination with the U.S. EPA, technology vendors, and other possible stakeholders. The successful candidate also may be responsible for performing overall contractual and technical management, including managing customer relationships, managing staff and other resources, schedules and budgets, financial reporting, and ensuring the technical quality of all technical support and deliverables.

A PhD in engineering or sciences is required. Must have a minimum of 7 years of experience leading, managing, or carrying out research and development projects for EPA or other government research agencies that address environmental and/or human health issues. Direct experience managing or supporting EPA ORD research projects is highly desirable. Must have experience working with federal clients and managing federal contracts and/or projects under such contracts. The successful candidate will have demonstrated experience designing and developing research projects involving technology testing and evaluation and familiarity working in a research laboratory setting.

10. Job Title Experienced Environmental Scientist
Qualification MS, PhD
Employer Geosyntec Consultants - Chicago, IL
https://www.simplyhired.com/job/hNVtU5Er0mR7qNhvlYYbM_h5NzXiRRAv72F7qRM5-v9q-8dt8l8KFA?isp=0&q=environmental+engineer+phd



Experienced Environmental Scientist

Geosyntec Consultants - Chicago, IL 4.1

Apply Now

Full-time Estimated: $59,000 - $83,000 a year

Education

Master's Degree | Doctoral Degree | Bachelor's Degree

Skills

Microsoft Excel | Microsoft Word | Technical Writing | Communication Skills | Driver's License

Benefits

Health Insurance

Looking for a place to expand your career, where you can work with industry recognized professionals who are solving tough environmental problems? Geosyntec is the place for you! We are seeking an exceptional Environmental Scientist with at least 5 years of toxicology or risk assessment experience to join our Chicago or Oak Brook, IL office, where you will work on challenging environmental projects, including contaminated site investigation and remediation, human health and ecological risk assessment, and litigation support. Working with regulatory agencies and/or attorneys, you will have an opportunity to apply your environmental science skills while expanding the business skills needed for a successful consulting career.

Our clients ask us to address their new ventures and most challenging problems involving the environment, natural resources, and civil infrastructure. Ranked by ENR in the top 20 design firms for the environment, Geosyntec is internationally known for its technical leadership, broad experience, and exceptional client service. Learn more by visiting www.geosyntec.com.

ABOUT THE POSITION:

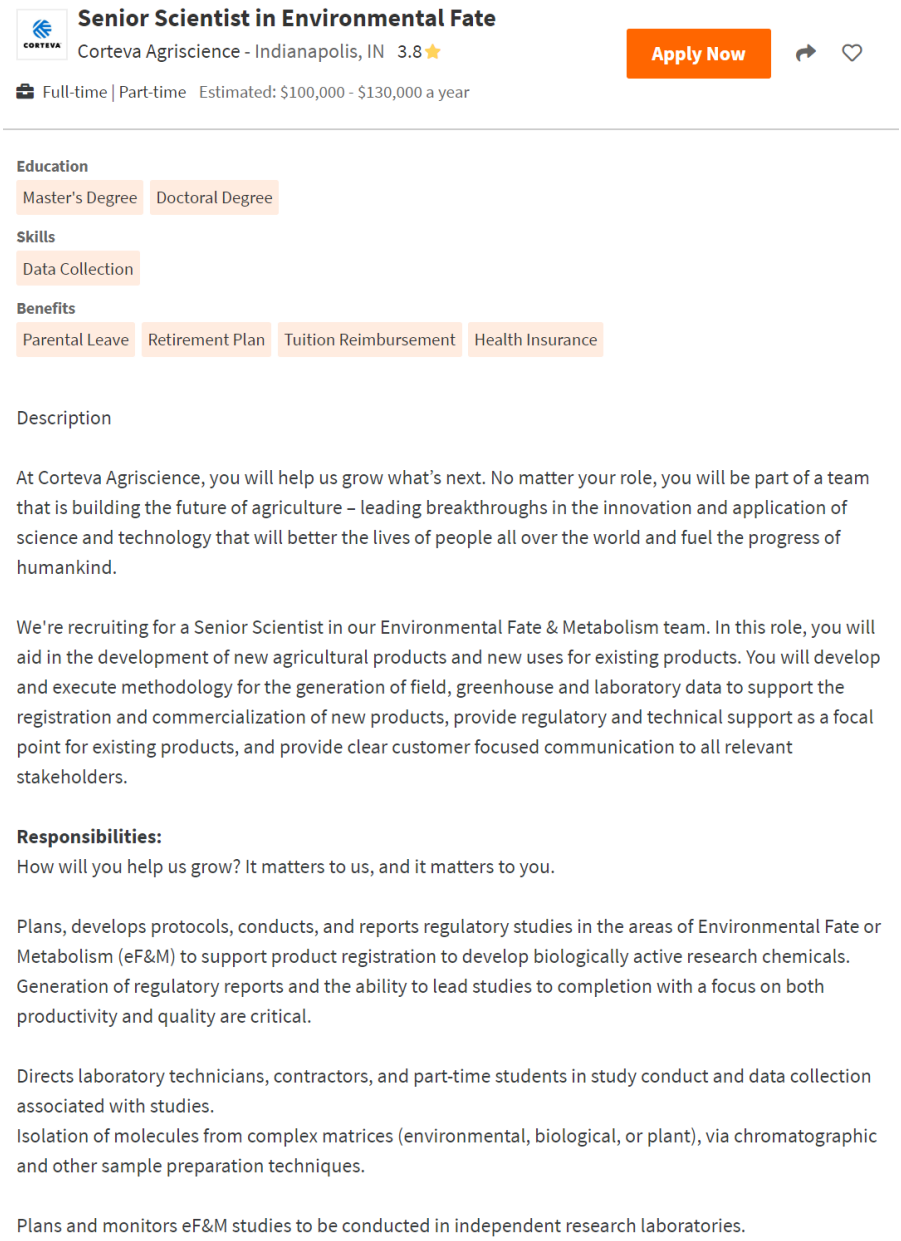
Is this the right position to help you achieve your professional goals? Some of the key responsibilities for the position include:

Analyzing large environmental datasets, conducting statistical analyses, and preparing tables, figures, and other data exhibits;
Reviewing and interpreting environmental and toxicological studies and reports;
Conducting human and ecological risk assessments in accordance with federal and state guidance;
Supporting remedial strategy development for contaminated sites;
Allocating remedial costs and damages among responsible parties using historical source information and forensic analysis tools;
Developing sampling and analysis plans for various media, including soil, groundwater, sediment, and indoor air;
Performing environmental sampling;
Preparing written documents such as letters, memoranda, proposals, workplans and investigative reports; and
Assisting in the development of proposals and other business development activities.

CANDIDATE QUALIFICATIONS:

BS degree in environmental science, toxicology, public health, or related health or environmental science discipline. [required]
Advanced degree (MS, MPH, PhD) in environmental science, toxicology, public health, or related health science discipline. [preferred]
At least 5 years of work experience in an environmental consulting or regulatory environment with a focus on site investigation/remediation, applied toxicology, and/or human health and ecological risk assessment. [required]
Working knowledge of relevant federal regulations, especially CERCLA and RCRA. [preferred]
Experience with implementing EPA's Risk Assessment Guidance for Superfund. [required]
Experience working on legally sensitive projects. [preferred]
Proficiency with Microsoft Word and Excel. [required]
Strong oral and technical writing skills. [required]
Current OSHA 40-hr HAZWOPER training and refreshers. [preferred]
Valid U.S. driver's license and a satisfactory driving record. [required]

11. **Job Title** Senior Scientist in Environmental Fate
    Qualification MS, PhD
    Employer Corteva Agriscience - Indianapolis, IN
    https://www.simplyhired.com/job/tavMUiyOFTLCJqh6svYMK0VlSTJyt0TrnuJ9jd8vQsLQmeNGW29PmA?isp=0&q=environmental+engineer+phd



Senior Scientist in Environmental Fate

Corteva Agriscience - Indianapolis, IN 3.8

Apply Now

Full-time | Part-time Estimated: $100,000 - $130,000 a year

Education

Master's Degree | Doctoral Degree

Skills

Data Collection

Benefits

Parental Leave | Retirement Plan | Tuition Reimbursement | Health Insurance

Description

At Corteva Agriscience, you will help us grow what's next. No matter your role, you will be part of a team that is building the future of agriculture – leading breakthroughs in the innovation and application of science and technology that will better the lives of people all over the world and fuel the progress of humankind.

We're recruiting for a Senior Scientist in our Environmental Fate & Metabolism team. In this role, you will aid in the development of new agricultural products and new uses for existing products. You will develop and execute methodology for the generation of field, greenhouse and laboratory data to support the registration and commercialization of new products, provide regulatory and technical support as a focal point for existing products, and provide clear customer focused communication to all relevant stakeholders.

Responsibilities:
How will you help us grow? It matters to us, and it matters to you.

Plans, develops protocols, conducts, and reports regulatory studies in the areas of Environmental Fate or Metabolism (eF&M) to support product registration to develop biologically active research chemicals. Generation of regulatory reports and the ability to lead studies to completion with a focus on both productivity and quality are critical.

Directs laboratory technicians, contractors, and part-time students in study conduct and data collection associated with studies.
Isolation of molecules from complex matrices (environmental, biological, or plant), via chromatographic and other sample preparation techniques.

Plans and monitors eF&M studies to be conducted in independent research laboratories.

Requirements:
Masters or PhD in chemistry, analytical chemistry, or related field of study paired with at least 10 years of relevant industry experience

Experience with Environmental Fate testing/studies

Experience working directly with regulatory agencies

12. Job Title Environmental Fate Scientist
Qualification PhD
Employer Corteva Agriscience - Indianapolis, IN
https://www.simplyhired.com/job/Lzu21-Q6W2OIddr4jDQRX92Pxixj9KPD1xfYFNdumrucyDiqfzR2FQ?isp=0&q=environmental+engineer+phd

Environmental Fate Scientist

Corteva Agriscience - Indianapolis, IN 3.8

Apply Now

7 days ago Full-time Estimated: $56,000 - $80,000 a year

Education

Doctoral Degree

Skills

Chromatography | Communication Skills | Benefits Administration | Analytical Chemistry | Research Experience

Benefits

Parental Leave | Retirement Plan | Tuition Reimbursement | Health Insurance

Description

Corteva Agriscience™ has an exciting and challenging opportunity in the Predictive Safety Center (PSC) within Crop Protection Regulatory Science for a Senior Environmental Fate Scientist. The scientist will represent the PSC function on multidisciplinary Discovery and Regulatory teams responsible for development and registration of new active ingredients and agricultural products. In addition, the person will guide the development and implementation of environmental fate predictive tools. This position is located in Indianapolis, IN.

Responsibilities:
How will you help us grow? It matters to us, and it matters to you!

The successful candidate will serve as a lead environmental fate scientist in the screening and development of new crop protection products in Discovery Phase; this includes:
Building internal innovative environmental fate testing capabilities to predict and mitigate regulatory road blocks for Discovery phase molecules;
Guiding and conducting environmental fate studies for new active compound screening and characterization in Discovery stages
Overseeing environmental fate studies at external laboratories to assess product safety including protocol preparation, interaction with lab scientists, critical evaluation of data, problem solving, and reporting of results;
Collaborating with internal cross-function teams and external partners to explore and implement new predictive methods and approaches (e.g. in silico and in vitro studies);
Providing mentorship and coaching to junior scientists and research associates;
Providing environmental risk assessments for new active ingredients based upon environmental science data and in accordance with regulatory expectations;
Effectively utilizing organizational networking to influence decision making.

13. **Job Title** Environmental Fate/Environmental Exposure Assessor
Qualification MS, PhD
Employer Exponent - Harrogate, TN
https://www.simplyhired.com/job/IjPvEwfco9Tizx4ikUcRxHCFEWz1aSaYV0dukMxdZDEU-D3VkGrrUQ?isp=0&q=environmental+engineer+phd

Environmental Fate/Environmental Exposure Assessor

Exponent - Harrogate, TN 4.0★

Apply Now

Full-time Estimated: $41,000 - $53,000 a year

Education

Doctoral Degree | Master's Degree

Exponent is a leading multidisciplinary engineering and scientific consulting firm that brings together more than 90 different disciplines to solve complex problems. Our vision is to engage the brightest scientists and engineers to empower clients with solutions for a safe, healthy, sustainable and technologically advanced world. We are well-known for analysing accidents and failures to determine their causes and have also become active in assisting clients with human health, environmental, engineering and regulatory issues associated with new products or processes to help prevent problems.

We employ the best and brightest from top programs at over 500 universities, as well as technical specialists from a variety of industries. We are expanding and are excited about your interest in joining our team!

Key statistics:
1100+ Team members
900+ Consultants
550+ Ph.D.'s
30+ Offices globally

The European Chemical Regulation & Food Safety Centre specialises in timely high-quality, creative, and practical solutions to problems that affect our clients ability to conduct business globally. Our experienced staff include both technical and regulatory consultants who are practiced in dealing with pesticide and non-pesticide products including conventional chemicals, biochemicals, microbials, biocides, cosmetics, consumer products and products of biotechnology and with foods, food ingredients, and nutrition.

We are currently recruiting for an Environmental Fate/Environmental Exposure Assessor in our Harrogate, UK, Derby, UK, London, UK or Basel, Switzerland offices. The successful candidate will join the existing environmental fate team providing high level technical and regulatory consultancy services to internal and external clients.

Responsibilities for this position include:
Summarising and interpreting environmental fate as well as advising on appropriate data generation
Conducting environmental exposure assessments for European regulatory submissions of plant protection products, biocides and other chemicals
Providing strategic scientific advice to clients on defensible Product GAPs for aquatic risk and groundwater exposure
Ensuring that projects are delivered to high standards, on time and within agreed budget

Qualifications for this position include:
MSc or PhD in chemistry, biology or a closely related field together with experience of working in a regulatory environment
A track record of environmental exposure regulatory assessments for pesticides and/or biocides in the EU
Excellent written and communications skills

Exponent International, Ltd. is an Equal Opportunity Employer.

14. Job Title Postdoctoral Research Associate - Environmental Scientist or Engineer
Qualification PhD
Employer Oak Ridge National Laboratory - Oak Ridge, TN
https://www.simplyhired.com/job/q3wuMtH3fAmfRFDIEODa4eXahee5yp2AMUoyYgIYx0EvATqkqy59sg?isp=0&q=environmental+engineer+phd

Postdoctoral Research Associate - Environmental Scientist or Engineer

Oak Ridge National Laboratory - Oak Ridge, TN 4.4

Apply Now

Full-time Estimated: $55,000 - $74,000 a year

Education

Doctoral Degree

Skills

Microbiology | Communication Skills | Research Experience

Requisition Id 2746

Purpose

The Environmental Sciences Division (ESD), http://www.esd.ornl.gov at Oak Ridge National Laboratory (ORNL), http://www.ornl.gov seeks a highly motivated and creative individual skilled in biogeochemistry to work on a project investigating the effects of coupled geochemical, microbiological, and hydrological processes on mercury (Hg) transformations leading to the formation and destruction of methylmercury in sediment-surface water systems. Current research at ORNL in this area spans from the molecular to the field scales although for this position work will be conducted at the laboratory microcosm to field scales.

Major Duties / Responsibilities

The successful candidate will focus their research efforts on understanding, within a watershed context, the geochemical and microbiological processes that control Hg transformation and bioaccumulation in an industrially contaminated creek on the Oak Ridge Reservation. The biogeochemical controls on transformations that sustain methylmercury concentrations in this system are poorly understood. Specific tasks include design and execution of independent experiments, working independently and in a cooperative team setting in the field collecting, processing, and preserving samples, and processing and analyzing the samples upon return to the laboratory. Summarizing research in oral and written format, active participation in internal and external scientific meetings, and publishing research in open peer-reviewed journals is expected.

The successful candidate will have the opportunity to work with microbiologists studying the genetic determinants of Hg transformations. Opportunities exist to collaborate with skilled researchers in hydrology, geochemistry, environmental microbiology, and ecology within ORNL, at collaborating Universities and other National Laboratories.

Qualifications Required

This position requires a Ph.D. in environmental chemistry, (bio)geochemistry, soil science, watershed hydrology, or a related discipline. Experience in Hg research, applying (bio)geochemical models, and the analysis of kinetic data is desired. Strong oral and written communication skills are required. The candidate must have the ability to work in a multidisciplinary team environment.

15. Job Title Environmental Scientist Sr 1 R10
Qualification MS/ 8-10 years, PhD/5-7 years
Employer Versar, Inc. - Germantown, MD
https://www.simplyhired.com/job/xCGm00mwYewD-FlOf97yE7jlRRT7XfJkOpBbDgx5kUflzcv8Pm1M_g?isp=0&q=environmental+engineer+phd

Envi Scientist Sr 1 R10

Versar, Inc. - Germantown, MD

Apply Now

Full-time Estimated: $80,000 - $100,000 a year

Education

Master's Degree | Doctoral Degree

Skills

R | Analysis Skills | Communication Skills | Data Analysis Skills | Microsoft Access

Versar, Inc. is a global project management company based in the Washington, DC metropolitan area, with locations around the world. Since 1969, Versar has provided technical and management support to federal, state, and local government clients as well as to industries worldwide, delivering construction management, environmental sciences and engineering infrastructure solutions. Versar offers tailored and secure solutions in harsh environments providing clients with comprehensive engineering and construction management, environmental and professional services.

Versar is seeking self-motivated, team-oriented, Senior Environmental Scientist/Engineer with strong analytical, organizational, and communication skills to work in our Germantown, MD office.

Primary responsibilities will include serving as a Subject Matter Expert for multimedia related exposure activities. This position will serve as the technical lead for various environmental research programs for Federal regulatory agencies. This position will involve addressing topics related to evaluating exposures and risks associated with toxic chemicals, pesticides, and food safety. Duties will involve developing and refining environmental exposure databases, models and methodology, analyzing environmental and exposure data, and preparing technical documents and findings. The successful candidate will need to have a deep understanding of environmental chemistry, environmental fate and transport modeling of contaminants within and across media, human health exposure pathways, and exposure modeling tools and equations. Occasional travel may be required.

Candidates should have 8-10 years of working experience in the field of environmental engineering/science and/or environmental consulting.

Experience with Federal clients is preferred.

A Master's degree is required in environmental science or chemical engineering or a related field (chemistry, biology, toxicology, environmental engineering, or public health). A PhD in the above categories is desired and can substitute for up to 3 years of working experience.

16. **Job Title** Advanced Transport Phenomena Simulation Engineer
    Qualification PhD
    Employer Leidos - Albany, OR, Morgantown, WV or Pittsburgh, PA
    https://www.simplyhired.com/job/ijtwN7dC6KycO95QA3K0N1CMdZwJIpcjdZiyFplaKLHj3nO5Olloxw?isp=0&q=civil+engineer+phd

Advanced Transport Phenomena Simulations Engineer

Leidos - Albany, OR 3.7

Apply Now

Full-time Estimated: $90,000 - $130,000 a year

Education

Doctoral Degree

Skills

Machine Learning | Fortran | MATLAB | Python | C/C++

Benefits

Health Insurance | Referral Program | Paid Time Off

Description

Job Description:

Leidos is a Fortune 500™ company aimed at embracing and solving some of the world's most pressing challenges. Through science and technology, Leidos makes the world safer, healthier and more efficient.

Our Civil Group offers an array of exciting career opportunities for the best IT, energy, logistics and engineering professionals.

Driven by our talented workforce, the Federal Energy, Environment and Commerce Operation builds trust through an array of energy-related IT, environmental science and engineering solutions to meet our customers' needs.

Key Capabilities:

Large Infrastructure
Mission Support
Digital Modernization
Command & Control
Mission Applications
Environmental Science
Nuclear Security
Engineering Services

Leidos is seeking an Advanced Transport Phenomena Simulations Engineer with experience in Computational Fluid Dynamics and Transport Phenomena Modeling. This position is available in Albany, OR, Morgantown, WV or Pittsburgh, PA.

17. Job Title Engineer 2 - Reliability and Asset Lifecycle Engineer
Qualification BS/4 year, MS/2 year, PhD/0 year
Employer Pinellas County Government - Clearwater, FL
https://www.simplyhired.com/job/-IvDa3cGmQqyO-wfy2BHmpOO1KQ1ZwjqpVlUeC4sB25GAw0tGzYZxQ?isp=0&q=civil+engineer+phd

Engineer 2 - Reliability and Asset Lifecycle Engineer

Pinellas County Government - Clearwater, FL 3.9

Apply Now

Full-time $75,000 - $97,000 a year

Education

Bachelor's Degree | Master's Degree | Doctoral Degree

Skills

5S | Six Sigma | Professional Engineer | Asset Management | Mechanical Knowledge

Working Title: Engineer 2 - Reliability and Asset Lifecycle Engineer

Location: 22211 U.S. Highway 19 North, Building 1, Clearwater, FL 33765

Pinellas County Government is currently seeking two Reliability and Asset Lifecycle Engineers to identify and manage asset reliability risks that could adversely affect business operations. This broad primary role can be divided into three smaller, more manageable roles: Loss Elimination, Risk Management and Life Cycle Asset Management.

This is professional engineering work in a variety of engineering programs and projects. Emphasis of the work is on planning and coordinating the evaluation and assessment of the reliability and maintainability of stormwater or transportation assets. Other functions include the evaluation, planning and prioritization of capital projects, project development, and other asset management support functions. The incumbent exercises a considerable degree of independent judgment, reporting to a Manager, within the Stormwater or Transportation Division.

Position Specific Qualifications

Bachelor's degree in civil engineering or other relevant engineering discipline and professional engineering certification from the State of Florida and 4 years of experience that directly relates to the assigned subject matter area of responsibility, for example, construction, project management, civil engineering, electrical, environmental management functions to include 1 year supervising professional engineering functions.
Master's degree civil engineering or other relevant engineering discipline and professional engineering certification from the State of Florida and 2 years of experience that directly relates to the assigned subject matter area of responsibility, for example, construction, project management, civil engineering, electrical, environmental management functions to include 1 year supervising professional engineering functions.
PhD in civil engineering or other relevant engineering discipline and professional engineering certification from the State of Florida and experience that directly relates to the assigned subject matter area of responsibility, for example, construction, project management, civil engineering, electrical, environmental management functions to include 1 year supervising professional engineering functions.

18. Job Title Interdisciplinary General Engineer / Civil Engineer
Qualification PhD
Employer US General Services Administration - Phoenix, AZ
https://www.simplyhired.com/job/1nR5Of4xtrsDPZx_EOtjCh3PcrsyXTigqDpA2wVk45fjcDtBE-6uvw?isp=0&q=civil+engineer+phd

Interdisciplinary General Engineer / Civil Engineer (Supervisory/Non-Supervisory)

US General Services Administration - Phoenix, AZ 4.1

Apply Now

Full-time | Part-time $64,000 - $140,000 a year

Education

Doctoral Degree

Benefits

Health Insurance | Flexible Spending Account | Flexible Schedule | Life Insurance | Paid Time Off

Duties

Summary

THIS IS A PUBLIC NOTICE: Please review further information below regarding how this posting will be used.

As a General Engineer / Civil Engineer you will be responsible for the performance of all aspects of the project management of Prospectus Level and non-prospectus level projects. Oversees and/or is involved in the business management of building and/or leasing projects from the preliminary identification stage through initiation, planning, execution and project closeout stages.

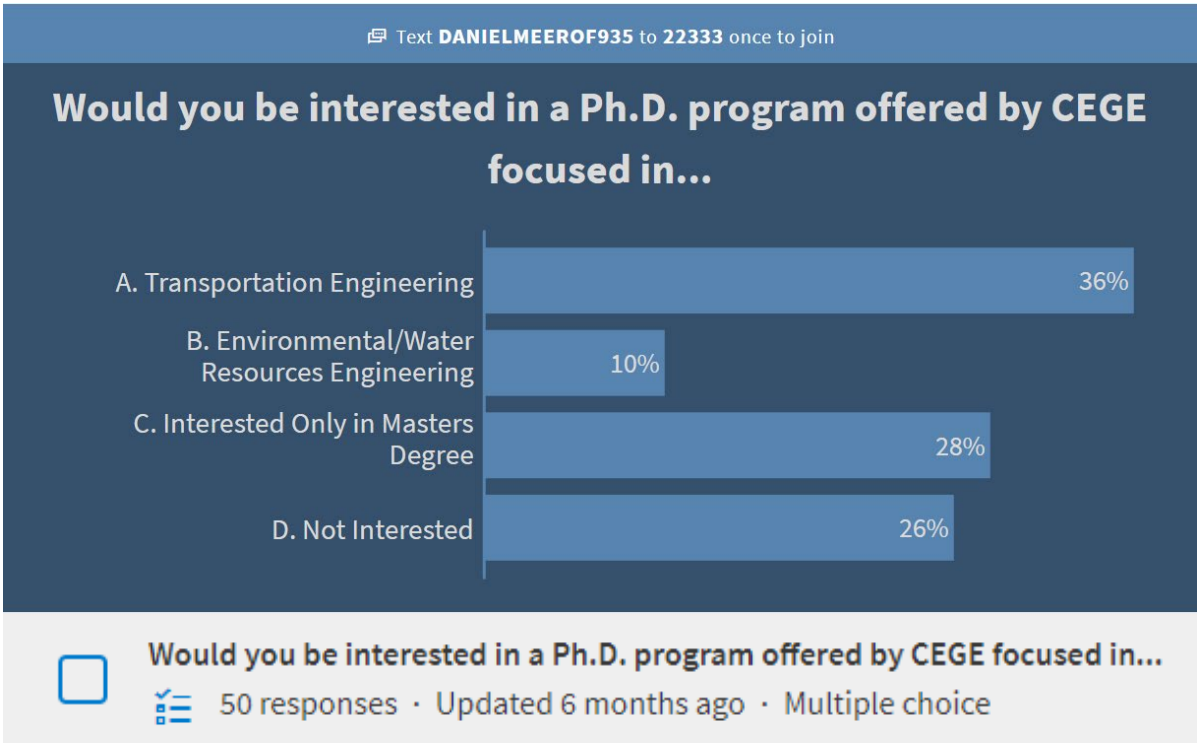
Responsibilities

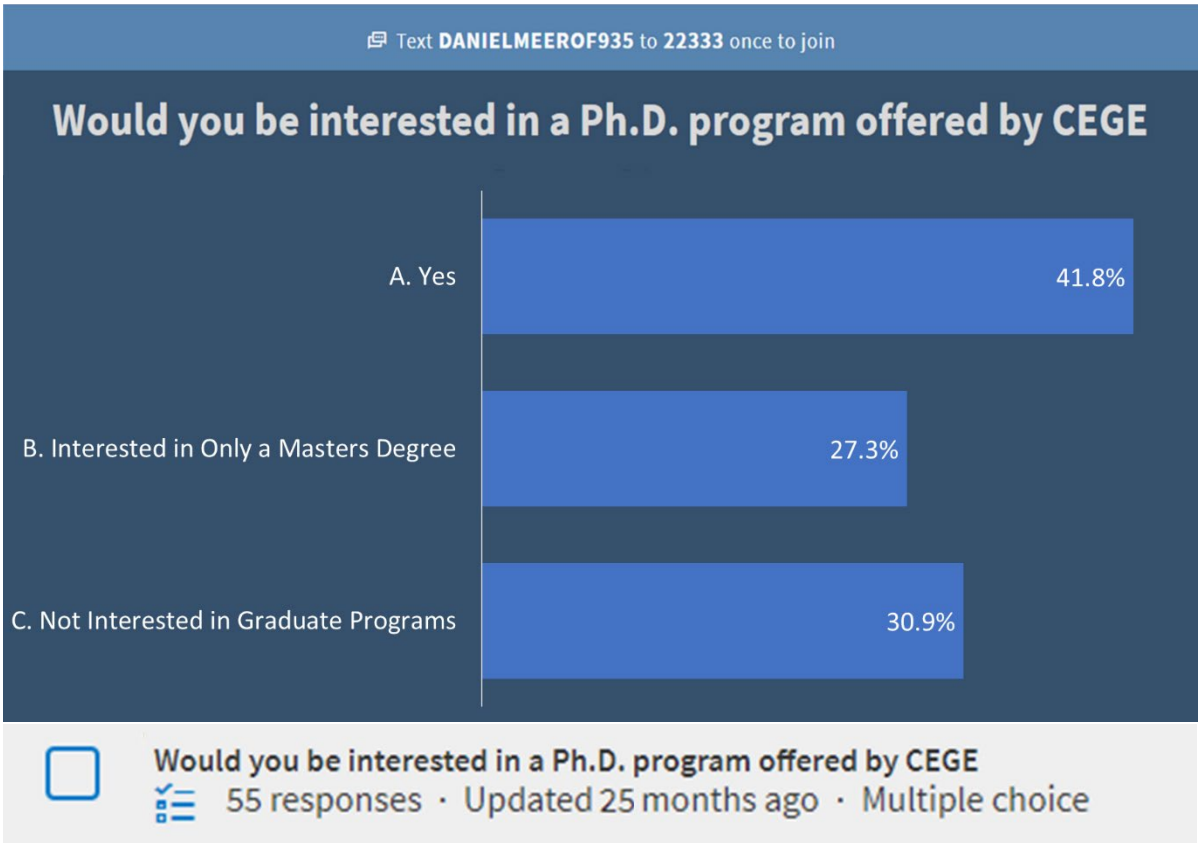
This Notice is issued under direct-hire authority to recruit new talent to occupations for which there is a severe shortage of candidates. We have a severe shortage of qualified applicants for our General Engineer / Civil Engineer positions. To help us fill these jobs, we have been granted “Direct Hire Authority” or DHA. This means that when we have a vacant job, we can hire any qualified candidate, either from this notice or from any source. The benefit of applying to this notice is that your application may be shared with a hiring manager if they request resumes from this notice.

A few key facts about this DHA notice:
Many vacancies may be filled at the GS-11 through GS-13 levels
Jobs have varying opportunities for advancement (promotion potential)
Supervisory and non-supervisory opportunities will vary
Jobs may be located in any of the metropolitan areas listed.
Availability of positions and grade levels vary by location. Promotion potential varies by position.
Current civil service employees will receive new appointments if selected under this Direct Hire Authority.
Current GSA employees on competitive service appointments will not be considered.

APPENDIX L. SURVEY INSTRUMENTS

October 24, 2019

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