



# CIVIL & ENVIRONMENTAL ENGINEERING

## Graduate Programs

### AREAS OF SPECIALIZATION

Coastal and Ecological Engineering, Environmental Engineering, Geotechnical and Geophysical Engineering, Mechanics of Material Behavior, Structural Engineering, Transportation Engineering, and Water Resources Engineering.

### DEGREES OFFERED

**The Master of Science in Civil Engineering** can be earned through two options. The thesis option requires the student to complete a minimum of 25 hours of approved coursework and submit an acceptable thesis worth six hours. The non-thesis option requires the student to complete a minimum of 34 hours of approved coursework and a Master's Report worth three hours.

**The Online Master of Science in Civil Engineering with emphasis in Transportation Engineering** requires students to complete a minimum of 36 hours without a thesis. It is delivered 100 percent online.

**The Master of Science in Coastal and Ecological Engineering** can only be earned through the thesis option, which requires students to complete a minimum of 24 hours of approved coursework and submit an acceptable thesis worth six hours. One half of the coursework must be done at the 7000 level or above, and coursework is divided into two categories—a 12-hour set of core courses and a 12-hour set of approved electives for students wishing to specialize in either coastal or ecological engineering.

**The PhD in Civil Engineering** has two basic requirements for applicants to meet: 1. He or she must exhibit unmistakable evidence of penetrating mastery of a rather broad major field, and 2. He or she must prove an ability to complete a significant program of original research by preparing a dissertation embodying creative scholarship and passing a rigorous final examination.

*Full-time graduate students must register for the one-credit-hour seminar class (i.e., the 7000-level coastal graduate seminar course or if that isn't offered, then CE 7750) every semester. Part-time graduate students are required to register for this seminar only in their graduating semester. Only one hour of CE 7750 may be applied to satisfy the course requirements.*

### GRADUATE ADVISOR

**Aly Mousaad Aly, PhD**  
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### GRADUATE COORDINATOR

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## FACULTY RESEARCH AREAS

### **Murad Abu-Farsakh**

cefars@lsu.edu — geosynthetic reinforcement of soils, subgrades, and base materials; advanced in-situ testing to evaluate soil properties; numerical modeling of geotechnical and pavement engineering problems; analysis, design, instrumentation, testing, and LRFD calibration of deep foundations

### **Aly Aly**

aly@lsu.edu — experimental/computational multiscale/multiphysics assessment of wind, rain, and wave impact on structures; performance and resiliency enhancement of new and existing infrastructure for wind, waves, and earthquakes

### **Steve Cai**

cscai@lsu.edu — bridge engineering, prestressed concrete, wind engineering, structural dynamics, structural performance evaluation and rehabilitation

### **Shengli Chen**

shenglichen@lsu.edu — theoretical and computational geomechanics, pile foundation and soil structure interaction, poromechanics and constitutive modeling of geomaterials, hydraulic fracturing

### **Zhi-Qiang Deng**

zdeng@lsu.edu — environmental fluid mechanics, environmental hydrology, river engineering

### **Mostafa Elseifi**

elseifi@lsu.edu — pavement modeling and design, field and laboratory characterization of asphalt mixtures

### **Scott Hagen**

shagen@lsu.edu — coastal engineering and hydroscience, tide, wind-wave and hurricane storm surge modeling, coastal dynamics of sea level rise, biogeodynamic modeling

### **Navid Jafari**

njafari@lsu.edu — soil mechanics and behavior, coastal and riverine protection infrastructure, erosion control, coastal restoration, subsidence, earth and man-made embankment stability, transient and unsaturated fluid flow, waste containment systems, geosynthetics, transportation and environmental geotechnics

### **Hai Lin**

hailin1@lsu.edu — bio-geotechnical engineering, soil-structure interaction, and geophysics

### **William Moe**

moemwil@lsu.edu — environmental engineering, biological waste treatment, biofilm processes, sequencing batch reactors, bioremediation, air pollution control

### **Louay Mohammad**

louaym@lsu.edu — fundamental characterization of transportation materials, flexible pavement design and analysis, pavement instrumentation, computational and experimental mechanics

### **Ayman Okeil**

aokeil@lsu.edu — bridge engineering, structural reliability, behavior of concrete structures, structural engineering using composite materials, earthquake engineering

### **Celalettin Ozdemir**

cozdemir@lsu.edu — coastal and fluvial sediment transport, multiphase flow modeling, environmental fluid mechanics, turbulent and transitional flows

### **John Pardue**

jpardue@lsu.edu — biological remediation, wetlands, environmental chemistry, fate and transport of contaminants, environmental engineering

### **Samuel Snow**

ssnow@lsu.edu — environmental photochemistry, photodegradation of PAHs, light-mediated disinfection technologies, pathogen inactivation mechanisms, adsorption interactions in aqueous systems, multi-functional adsorbent-photocatalytic materials

### **Chao Sun**

csun@lsu.edu — structural dynamics and vibration control, hydrodynamics, fluid structure interaction, coupled dynamics of offshore floating wind turbines, multi-hazard mitigation for coastal and offshore structures, damage diagnosis and prognosis, energy harvesting

### **Frank Tsai**

ftsai@lsu.edu — groundwater hydrology/hydraulics, contaminant fate and transport in subsurface, inverse problems, aquifer heterogeneity characterization, geostatistics, water resources systems management

### **George Z. Voyiadjis**

cegzv1@lsu.edu — multiscale modeling and simulation of material behavior and structures, microstructural characterization of materials, nanomechanics, inelastic behavior of materials, damage mechanics, dynamic failure of materials, computational mechanics, composite materials, thin films and MEMS, refined theory of plate and shells

### **Clinton Willson**

cwillson@lsu.edu — environmental fluid mechanics, physical and numerical modeling of river hydrodynamics and sediment transport, high-resolution X-ray CT, multiphase flow in porous media

### **Chester Wilmot**

cecgw@lsu.edu — emergency evacuation travel demand estimation, road safety research, travel survey methodology, transferability of travel demand models, prioritization procedures, air quality research

### **Brian Wolshon**

brian@rsip.lsu.edu — geometric highway design and traffic safety, traffic engineering and analysis, major event and emergency transportation management and operations

### **Zhong Wu**

zwu2@lsu.edu — accelerated pavement testing

### **Hongliang Zhang**

hlzhang@lsu.edu — air quality, air pollution simulation and measurement, source apportionment, particulate matter, ozone, aerosol-meteorology-climate interactions

### **Xiuping Zhu**

xzhu@lsu.edu — water/wastewater treatment, environmental remediation, renewable energy generation, environmental electrochemistry