

# The Department of Civil and Environmental Engineering at the University of Houston presents...

## CIVE 6111 Graduate Seminar

### The Development and Application of Large-Scale Computational Hurricane Storm Surge Models



#### **Dr. Matthew V. Bilskie**

Research Scientist

Louisiana State University Center for Coastal Resiliency

**Friday, September 27, 2019**

2:45pm-3:45pm

Classroom Business Building (CBB) – Room 118

#### **Abstract**

Natural and man-made hazards present challenges to human society at the coastal land margin. In recent decades, urban land has expanded more rapidly in the coastal zone than any other region. Hurricanes, heavy rainfall, and oil spills can devastate coastal communities, and long-term processes of sea level rise and coastal erosion increase flood risk over time. Computational models of coastal oceanic regions are an important tool to investigate and understand these complex physical processes and their impacts to coastal and ecological communities. This presentation focuses on the development and application of numerical coastal ocean circulation models (ADCIRC) to enhance the resilience of urban communities to coastal hazards for present and future conditions. Such modeling efforts are being applied to develop flood risk assessment maps under climate change projections, for real-time hurricane storm surge guidance, and to better assess compound flooding events from a combination of hurricane storm surge and rainfall runoff.

#### **Bio**

Dr. Matthew V. Bilskie is a research scientist at the Louisiana State University Center for Coastal Resiliency. Dr. Bilskie holds a BS and MS degree in Civil Engineering from the University of Central Florida and a PhD in Civil Engineering from Louisiana State University. His research interests include unstructured finite element mesh development for use in hurricane storm surge models, coastal inundation in a changing climate, real-time storm surge forecasting, and quantifying the combined effects of coastal and rainfall runoff inundation. Dr. Bilskie was awarded the 2017 LSU College of Engineering Distinguished Dissertation Award and has published over 25 peer-reviewed articles.