

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

## The CIVE 6111 Graduate Seminar Series

### Improved representation of vegetation dynamics in Earth System Models



**Dr. Chonggang Xu**

Los Alamos National Laboratory (LANL)

**Friday, April 5, 2019**

2:45PM-3:45PM

Classroom Business Building (CBB)

Room 118

#### **Abstract**

A large amount of uncertainty exists in the simulation of terrestrial carbon sinks in current Earth System Models for future climate predictions. A key component of this uncertainty results from the current simple formulations for predictions of both vegetation growth and mortality. In this presentation, I will show our work in four key areas of model improvements including plant hydrodynamics and mortality modeling, insect population modeling, process-based photosynthetic capacity modeling, salinity impact on vegetation growth in the coastal regions. I will also present our work to derive new data for model evaluations and novel methods for a better understanding of model behaviors. These efforts could substantially improve ESM's prediction of future climate.

#### **Bio**

Dr. Chonggang Xu is a vegetation modeler at Los Alamos National Laboratory (LANL). He earned a bachelor degree in Ecology from Northeast Normal University, China, a MS degree in statistics and a PhD degree in Modeling and Quantitative analysis from University of Illinois at Urbana-Champaign, USA. His work at LANL has been focused on building process-based vegetation growth and mortality models to better predict vegetation dynamics and its impact on hydrology under future climate changes in the tropics, arctic, temperate and coastal regions. He is also an expert in model uncertainty and sensitivity analysis.