

**Soil and Water Sciences Department
Graduate Student Exit Seminar**

- Speaker:** **Yaslin Gonzalez**
M.S. Thesis Degree Candidate
- Advisor:** Dr. Allan Bacon
- Title:** **Pedology of Deep Podzolized Carbon on the Southeastern Coastal Plain**
- Date:** Monday, March 26th
- Time:** 3:00 pm – 4:00 pm
- Location:** McCarty Hall A, Room G186

Earth's soil contains more carbon (C) than atmospheric and biotic pools combined. Although more than half of Earth's soil C is stabilized in subsoil, rarely do investigations of C cycling and storage reach below the surface soil. Consequently, subsoil C storage and cycling is poorly constrained across most of Earth's surface, and our ability to forecast and manage the global C cycle is therefore limited. Soil survey efforts across the southeastern United States Coastal Plain identify the presence of deep podzolized carbon (DPC), and suggest that this soil C pool may be extensive and massive. However, to date, not a single estimate of DPC mass, extent, and cycling exists. The goal of my research is to pedogenically characterize DPC on the southeastern Coastal Plain, with particular focus on providing first order estimates of DPC's origins, mass, and distribution. This presentation begins with a regional, geospatial, meta-analysis which reveals that the regional mass of DPC approaches or exceeds a billion tons (equivalent to C contained in biomass of a temperate forest covering entirely the states of North and South Carolina). Additionally, my analysis demonstrates that DPC exists predictably across the Coastal Plain, in close association with the geomorphic remnants of Pliocene and Pleistocene marine transgressions. This presentation concludes with direct deep soil observations across hydro-topographic gradients in north central Florida where I distinguish DPC from SPC by numerous morphologic and biogeochemical properties that indicate that while SPC is formed from vertical podzolization driven by the frequency and duration of near surface saturation, DPC is likely a product of deep soil hydrology. Further, my work redefines the southeastern United States Coastal Plain as a hotspot for soil C storage, and demonstrates that comprehensive C assessments will require extraordinarily deep assessment of soil across the region.

For our off-campus students, off-campus faculty, and on-campus students who cannot attend, this seminar can be viewed via live or watched at a later date via this link: [Yaslin Gonzalez](#). In addition, all seminars are archived for viewing on our [SWSD Seminar Page](#).