

# 7<sup>th</sup> BIENNIAL AAPG MID-CONTINENT SECTION FIELD CONFERENCE

OKLAHOMA STATE UNIVERSITY  
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## Geoscience Integration of Hydrology and Petroleum Geology Along the Seminole -Cushing Ridge and the Arbuckle-Simpson Aquifer, Eastern and Southern Oklahoma

### Course Leadership

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### Background and Significance

For more than a century, the Arbuckle-Simpson (Cambro-Ordovician) and “Vamoosa Group” (Late Carboniferous) bedrock aquifers in Oklahoma have supported regional growth by supplying water to rural residents and larger communities, including Tulsa. Over the same period, the petroleum industry has extracted, stored, transported, and refined billions of barrels of oil and gas equivalent from formations beneath and adjacent to these aquifers. Together, these water and energy systems extend from the East Davis and Fitts “Pool” oil fields in the south northward through the Seminole-Cushing Uplift into Osage County.

### Course Focus and Approach: Surface to Basement Integration

Automated computing workflows have improved understanding of connected pore systems. In this course, participants will examine outcrops and subsurface sites tied to aquifer evaluation and oil field pressure maintenance while discussing geologic scale and reservoir connectivity. Exercises will use remote sensing data from the Arbuckle-Simpson Uplift, borehole cross-sections, 3D frameworks, and a Virgilian aquifer geologic model developed in SLB’s Petrel software.