Academic and Industry Collaborative Approach to Integration of Engineering with Geoscience

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As a teaching administrator at the Brookhaven College Geotechnology Institute (BCGI), I not only maintain associations with numerous geoscience professionals and organizations but also teach geoscience courses. The mission of the BCGI is threefold, promoting Earth Systems Science Education:

- for professional geoscientists through seminars and industry events;
- for teachers at all grade levels by providing instruction and classroom-ready tools; and
- for children of every age by personal interaction with geoscientists and exposure to career opportunities.

Additionally, the BCGI houses the Geographic Information Systems department. Brookhaven college is one of seven sister colleges that form the Dallas County Community College District (DCCCD), which serves a large metroplex area. Over a year's time, our small geology department typically offers courses in Earth Science I and II, Physical and Historical Geology, Environmental Geology, Oceanography, and Meteorology. The great majority of students taking these classes are non-majors enrolled in Earth Science I. Successfully engaging students to enroll in an additional geoscience course beyond our introductory Earth Science is challenging. The task becomes what sometimes seems like a competitive sport when posed against the attraction from other disciplines. The underlying reason is that, unfortunately, many students' academic interest in our discipline is simply to satisfy core science requirements.

Several universities within our region, where many of our students ultimately transfer, maintain thriving engineering programs. However, engineering courses are currently taught at only one campus within the DCCCD. Following a national trend to conscientiously address Science, Technology, Engineering, and Mathematics (STEM) education, our college has concentrated on developing vibrant programs for science, technology, and mathematics – while momentarily lacking engineering. However, an interest in engineering professions persists among our student body and I believe this gap in programming offerings can be partially filled by rigorous geoscience courses that embed introductory engineering foundations. With the collaboration of industry professionals linked through the BCGI, these courses would introduce students to laboratory and field experiences that are currently unavailable. This type of early, pertinent exposure to engineering practices could harvest additional students into a field they had not previously considered. For students with their sights already set on engineering, these experiences would help maintain their interest to pursue further studies at the university level. Potential for building a relationship that may provide internship opportunities and future full-time employment also exists with such collaboration.