# Chapter 5
# Developing a Learning Community of Engineers Through an Honors First-Year Seminar

**Melissa L. Johnson**
*University of Florida, USA*

**Kristy Spear**
*University of Florida, USA*

## ABSTRACT

*First-year engineering majors face a myriad of obstacles as they begin college. Taking challenging foundational coursework, navigating new expectations for performance and experience, and understanding the broader impact of their academic interests are just a few of those obstacles. In addition, female students sometimes face additional barriers to success, particularly as some question their own competence in the field. This chapter focuses on a first-year seminar for honors students that highlights the high impact practices (Kuh, 2008) students should participate in throughout their undergraduate career. These practices include global engagement, undergraduate research, and internships that are essential for early exposure to future career interests. By developing both formal and informal learning communities within the seminar (Johnson, Pasquini, & Rodems, 2013), first-year students are exposed to opportunities, mentoring, and support that help them make informed decisions about their major and career.*

DOI: 10.4018/978-1-5225-2212-6.ch005

## INTRODUCTION

The purpose of this chapter is to highlight a first-year seminar course designed for honors students. With a large proportion of first-year honors students majoring in engineering, the Honors Program has developed outreach opportunities adapted from their first-year professional development seminar. By creating specific course sections for STEM majors in general, as well as for engineers, first-year students are able to develop a learning community with other like-minded, high achieving individuals.

It is important to understand the challenges facing any first-year engineering major – major and career decision making, self-efficacy, and other aspects of career and professional development are all explored. In the case of the Honors Program, additional barriers have been discovered among female engineering majors. Data about first-year retention and persistence among honors first-year engineering majors as compared to the general undergraduate student population, are provided to highlight these barriers to success. Finally, components of the first-year seminar are described in detail, including exposure to relevant opportunities in the field which help students make more informed decisions about their future plans.

## BACKGROUND

### Major and Career Decision Making

The process of choosing a major and career can be difficult for many students. Even after choices are made, decisions have a tendency to waver. This challenging process is often influenced by a number of factors. External factors including familial pressure and the current the job market can impact choices as much as internal factors which may include interest, ability, knowledge of the career options, and self-efficacy. Several studies have tied the career decision-making process back to presumed financial reward, recognition, sense of social purpose, flexibility, and intellectual stimulation (Xu, 2013). Major and career decisions can also be influenced by a student's ability to feel that he or she is achieving a set of desired goals. These goals generally relate to academics or knowledge of the skills needed to be successful in a certain career. With all of these variables in play, major exploration and the uncertainty surrounding the real-world implications for career choices confound many undergraduate students.

Limited knowledge of career options leave many students feeling ambiguous about major choices. Even students who declare majors that seemingly correlate with careers often lack critical knowledge of the range and extensiveness of the career