

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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DEVELOPING A COLLEGIATE “NEW SPACE BUSINESS SIMULATOR”

Abstract

This paper investigates the impact of a self-funded, extra-curricular, project-based student group at Portland State University (PSU) on aerospace engineering and business education. The Portland State Aerospace Society (PSAS) has built amateur rockets and sophisticated university-class avionics systems since 1998, and in recent years has extended its scope to include liquid fuel engines, a project to build a rocket capable of reaching the von Kármán line (100 km), and now a NASA-select CubeSat mission. Adding the CubeSat project to the existing rocketry program required PSAS to drastically expand its management capacity. We developed a “New Space Business Simulator” model for PSAS to encourage greater interaction between, and new opportunities for, students of diverse majors and backgrounds at PSU and at neighboring colleges. We recognized an opportunity to expand the group’s capacity to work on engineering projects by setting up an administrative model to bring in students from business administration and other majors to carry out project management, accounting, marketing, procurement and safety management activities to support the engineering projects. This model also allows PSAS to align our program with course curriculum, resulting in sponsored senior capstone projects that empower students to tackle engineering problems of greater complexity than other options available at the engineering or business colleges at PSU. The paper will outline the steps taken to establish the administrative model, how it is enabling organizational growth to facilitate PSAS’s capacity to pursue multiple major projects, and how it has become a functional educational simulation of a “new space” company. We will then discuss the costs and benefits of this new model, and how it has empowered the graduating students to pursue their professional careers.