Among the most difficult challenges to incorporating real research projects in the classroom are (i) finding projects that are tractable but also open-ended without known solutions, (ii) helping students with mathematical or scientific problems well outside of their area of expertise, and (iii) gauging how much to teach and how much to let students learn on their own. Embry-Riddle Aeronautical University (ERAU) and the US Department of Energy’s Nevada National Security Site and Pacific Northwest National Laboratory have partnered to actively collaborate on national security projects in the classroom. ERAU offers a course dedicated to industrial research projects, and the industrial partners are engaged throughout the semester via regular communication with the student teams. In this work, we will describe how the partnership was formed, topics of several of the recent projects and our pedagogical approaches to helping the students make meaningful contributions, the students’ solutions and results, and some of the longer-term impacts on the students who were involved in the projects. We will also provide an industrial partner perspective on the value of undergraduate mathematics programs’ emphasizing students’ gaining relevant research experience in the classroom. (Received September 11, 2019)