

1116-K1-1789 **Alexander Y Vaninsky** and **Daniel De La Cruz***, 500 Grand Concourse, Room B409, Bronx, NY 10451, and **Stephen Darko**, **Jesus Garcia** and **Cory Tambourine**. *Bridging Mathematics, Physics, and Computer Science in an undergraduate research project "Modeling the Earth – Moon Satellite Orbit"*.

This project was aimed to exploit the synergy of cooperative learning, focused on a topic that is challenging and important practically. Participants in the project investigated a rescue operation designed for an urgent delivery of a crew working on the Moon back to the Earth. A specific goal was to investigate the trajectory of the cosmic vessel. The project included the study of the dynamics of the jet motion in space, devising a system of differential equations for modeling the trajectory of the motion in a fixed and rotated coordinate systems, and using the Maple software for solving differential equations and exploration of the solution. One of the obtained results was the counterintuitive bus-orbit shape of the trajectory in the rotated coordinate system. Another result was finding the escape velocity resulting in leaving the Solar system. We discuss the experience obtained by the participants and the impact of the project on their educational and professional goals and communication and writing skills. This project was funded under Title V Grant Award from the United States Department of Education, aimed at the developing Hispanic-Serving Institutions Program. (Received September 21, 2015)