The Students for the Exploration and Development of Space (SEDS) is a multi-disciplinary student organization at UNH. The team is currently in the process of fulfilling a three-year plan in order to reach an impressive goal of competing in the Spaceport America Cup competition located in Las Cruces, New Mexico in June 2020. The 2017-2018 school year was dedicated to developing a strong foundation of basic rocket mechanics. Using this knowledge, the members of the team this year (2018-2019) were able to design, manufacture, and test a high-powered hybrid rocket engine. This engine will be passed on to the members of the club for the 2019-2020 school year to optimize and implement into a final rocket design for the competition. The top collegiate rocketry teams will be competing nationally, with points awarded to the team with a fully recoverable rocket launched closest to an altitude of 10,000 feet, and being backed by the strongest design and methodology. Since this team is working on its first ever design of a hybrid rocket engine, UNH SEDS has taken a “first principles” approach towards reaching these goals. Once the fundamental mechanics of a hybrid rocket engine were studied and understood, an engine was designed and manufactured for testing on a custom static test fire rig to obtain experimental thrust and combustion chamber temperature to optimize the engine’s performance. The team has also begun the design and manufacturing of a gimbal system attached to the hybrid engine, which allows thrust vectoring when in flight. This system will enable the rocket’s flight trajectory to stay perpendicular to the ground and provide controlled, in time, stability. The knowledge gained from the trials and tribulations faced this academic year will be used in conjunction with basic rocket mechanics learned last year to design an award winning rocket for next years competition.