

## **Seminar Talk**

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**Tuesday, February 28, 2017**  
**3:00 p.m. KH 224**

**Title:** CubeSats at the University of Virginia

**Abstract:**

CubeSats were originally developed to provide university students with experiential learning opportunities related to space science and engineering. The standard has been extensively adopted, and over the last 17 years, many students have participated in valuable design, build and fly opportunities in space flight. CubeSats, however, are no longer limited to academic programs. With the miniaturization of electronics, and the increasing capabilities of processing hardware and software, CubeSats are now able to perform complex science and technology tasks on missions for NASA, the Department of Defense and commercial satellite operators. At the same time that CubeSat capabilities are expanding, there is significant interest within the New Space community in developing new commercial space-based assets. This positions universities at a particularly exciting convergence of a spacecraft technology that has traditionally been within the academic realm but is now seeing significant investment from both commercial and government sectors. Because CubeSats were developed with university capabilities in mind, many new space science, technology and industrial applications are now accessible to university students. This presentation will focus on a new CubeSat program that has been developed at the University of Virginia. The program is currently focused on undergraduate students and has operated over the last five years through NASA, Virginia Space Grant Consortium and University of Virginia funding. Flight missions have included the JefferSat BalloonSat flight, the JefferSat Cosmic Ray Scientific Balloon Mission and the Virginia CubeSat Constellation Mission. The program has also recently partnered with the University of Virginia Amateur Radio Club (W4UVA) to develop a new satellite ground station. This presentation will describe the evolution of the CubeSat program and present a review of the three flight missions. Status and results of design, integration, testing and flight operations will be described, as well as lesson learned from completed missions.

**Bio:**



Dr. Christopher Goyne is an Associate Professor of Mechanical and Aerospace Engineering, and the Director of the Aerospace Research Laboratory at the University of Virginia. Dr. Goyne obtained a Ph.D. and Bachelor of Mechanical Engineering from the University of Queensland in Australia. He has 24 years of research experience in propulsion, aerodynamics, flight-testing and ground-testing of aerospace systems and components. He teaches spacecraft design in addition to other courses focused on aerospace engineering. Dr. Goyne has published and presented his research through 134 international journal articles, conference publications, patents, reports and invited presentations. Dr. Goyne is an Associate Fellow of the American Institute of Aeronautics and Astronautics and within this organization is a former Chair of the Hypersonic Technologies and Aerospace Planes Program Committee. He is currently the Chair of the Virginia Space Grant Consortium Advisory Council and serves on the Small Sat Virginia Initiative Steering Committee. He previously served on the Nanosatellites Advisory Committee for the Commonwealth of Virginia Joint Commission on Technology and Science.