GEORGE MASON UNIVERSITY | **SEMINAR SERIES**
Department of Systems Engineering and Operations Research

Innovative Uses of Drones for Last Mile Delivery with a Focus on Healthcare

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Friday, April 21, 11:00 AM – 12:00PM
Location: ENGR 2901
Zoom Link | ID: 986 8525 8248| Pass: 444721

Synopsis. This seminar discusses a novel strategy for employing a combination of drones and delivery vehicles, such as trucks, for last mile delivery to homes and businesses. This strategy uses drones to resupply trucks during the day for same day delivery, as orders are made available at a central depot. The trucks deliver the orders to the customers but do not have to return to the depot during the day since they are being supplied by the drones for new orders. A mathematical model is formulated and solved for this strategy. Both deterministic demand and stochastic demand scenarios are considered. We show that this strategy offers benefits in customer service and cost of delivery compared to traditional truck delivery only. We focus our work on healthcare and specifically the delivery of medical supplies and tests in underserved rural environments. We are complementing our algorithmic and computational work with animations and a limited physical field trial. This work has been partly sponsored by the Toyota Company and the Raymond Company.

Bio. ALICE E. SMITH is the Joe W. Forehand/Accenture Distinguished Professor of the Industrial and Systems Engineering Department at Auburn University, where she served as Department Chair from 1999-2011. Dr. Smith's research focus is analysis, modeling, and optimization of complex systems with emphasis on computation inspired by natural systems. She holds one U.S. patent and several international patents and has authored more than 200 publications which have garnered over 17,000 citations and an H Index of 51 (Google Scholar). Dr. Smith has been a principal investigator on over $10 million of sponsored research with funding by NASA, U.S. Department of Defense, Missile Defense Agency, National Security Agency, NIST, U.S. Department of Transportation, Lockheed Martin, Adtranz (now Bombardier Transportation), the Ben Franklin Technology Center of Western Pennsylvania, and U.S. National Science Foundation, from which she has been awarded 18 distinct grants including a CAREER grant and an ADVANCE Leadership grant. Dr. Smith is a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the Institute for Operations Research and Management Science (INFORMS) and the Institute of Industrial and Systems Engineers (IISE), and a senior member of the Society of Women Engineers, a member of Tau Beta Pi, and a Registered Professional Engineer.