



Flying a WWII bomber

## For the Science Gyzmos

**Hands, Eyes, and Brain On Aviation STEM:** Check out the numerous demonstrators designed for teaching science and physics. Equipment and videos presented during this session range from a toilet plunger to a wind tunnels that measure lift and drag. The presentation starts with a series of demonstrators that demonstrate properties of the atmosphere. Then a couple of gyzmos will be used to demonstrate that heavy objects may be lifted by placing small pneumatic pressure differentials across a surface area, such as a wing. You'll be able to lift your body using just the power of your lungs – it's amazing what a little pneumatic pressure can do. Both static and dynamic demonstrations will be utilized. Bernoulli Principle will then be demonstrated using floating beach balls on a column of air from a fan and the whirling arm example of flight, and wind tunnel demonstration.

**Bio Info:** Dr. Charley Rodriguez entered aviation in 1974. Over the years, he has acquired an Airframe and Power Plant mechanics license, Private Pilot license, Inspection Authorization, and is an Aviation Safety Counselor for the Springfield Flight Standards District Office (FSDO). He has made numerous presentations at aviation conferences and has hosted scores of aviation science camps for local school children. He is well-known for the assortment of clever aviation “gyzmos” he has designed and constructed for teaching aeronautical principles. Charley has organized, conducted, and air bossed seventeen airshows for the Southern Illinois community. He coached SIU's Collegiate Aerobatic Team from 2001 until 2007. In 2001, 2002, 2004, 2005, 2006, and 2007 this group won the National Intercollegiate Aerobatic Championship offered by the International Aerobatic Club (IAC). In his “spare time,” Charley is a member of two EAA chapters, owns two airplanes, provides Young Eagle Airplane rides, does pyrotechnics at airshows with Rich's Incredible Pyro, performs annual inspections and repairs to privately-owned aircraft, worked with the Commemorative Air Force (CAF), dabbles with aviation photography, studies aviation history, and is in the process of restoring a 1939 Taylorcraft BC-65. He has recently finished writing his 4<sup>th</sup> textbook (one co-authored) for EASA (European Aviation Safety Agency [like our FAA]) aeroplane mechanic students. Over the past decade he has been conducting research with Boeing using the university's 737. The current project involves APUs. For his contributions to aviation and his work to promote aviation and aviation education, Dr. Rodriguez has received many awards including induction into the Illinois Aviation Hall of Fame in 2004. He currently serves as president of the Illinois Aviation Hall of Fame.