

Remarks for the Aviation Subcommittee, U. S. House of Representatives

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Dr. Frank Ayers

Chairman of the Flight Training Department

Embry-Riddle Aeronautical University

600 S. Clyde Morris Blvd.

Daytona Beach, FL 32114-3900

Thank you for the opportunity to discuss the merits of the professional aviation program at Embry - Riddle Aeronautical University that produces the finest professional pilots in the industry. As you may be aware, Embry- Riddle was founded as a flight training school in 1926, one year after the U.S. Congress passed the first Airmail Act of 1925, making aviation a business, as well as, a developmental pastime. In the intervening 83 years, Embry-Riddle has remained on the cutting edge of aviation training, education and technology. In 1966, Embry-Riddle became a comprehensive university offering engineering, business, and aviation-related degrees. However, through all of this Embry-Riddle has remained true to its core of producing the best pilots in the aviation industry. Today, as a private not-for-profit university, Embry-Riddle is the largest, most technically advanced, and the best of over 100 institutions nationwide that offer integrated academic and flight training programs.

We appreciate your kind invitation to testify today and we believe that Embry-Riddle can provide useful insights into the issue of quality training for airline pilot candidates. Our experience in applied research in this area also may prove quite useful as we move forward. Our experience and research lead us to believe a successful airline pilot candidate preparation program should exhibit several critical characteristics.

First, a successful program should embrace a candidate selection process, and more importantly, a methodology to weed out unsuccessful candidates prior to their employment by the airlines. A successful program should be subject to professional/ industry peer review to ensure that high academic and professional standards are met, in addition to the required FAA supervision of its flight training operation. A program must be stable financially in order to invest in the technology and human resources required to prepare candidates for airline operations.

For an airline preparation program to be truly a success, it should have a strong academic quotient that goes far beyond the skills and knowledge required to fly general aviation aircraft, and far beyond the requirements of the FAA commercial license standards. These are simply a starting point. The academic program must educate the potential airline pilot candidate in advanced aircraft systems, the latest electronic cockpit technology, Crew Resource Management (CRM) and especially in the areas of pilot decision making and aviation safety culture. From the first day of class, the potential airline pilot candidate must understand that they are entering a rewarding, and yet unforgiving occupation that requires the highest professional standards for performance, self discipline, and safety. Additionally, the flight and simulation training program that accompanies the academic foundation, must reflect the latest technology available as well as the latest FAA, airline and military style training methodologies.

It also is imperative that upon successfully completing a rigorous program of study, candidates should find both pay and stable working conditions that respect the investment they have made in preparation for this critical career field.

We believe this convergence of high academic standards is present at Embry-Riddle Aeronautical University. The combination of a well-rounded four-year degree program, the most advanced flight training in the industry, and the constant peer review and scrutiny by our accrediting authorities and the FAA, is why Embry-Riddle graduates are the best prepared for immediate employment and success in the airline industry, the military and commercial aviation. I have been asked to comment on several specific areas so I will review those questions in the brief time I have today, and I'll be glad to answer your questions.

- 1. Why is the Embry-Riddle Aeronautical University (and generally, flight training in the university environment) quantitatively and qualitatively superior to other methods of producing professional pilots?**

Quantitative Data

A March 2008 study (which is in the process of being prepared for publication) by Embry-Riddle's Professor Antonio Cortes, of 452 new hire regional airline first officer candidates from a variety of sources (university aviation programs, the military, flight schools, others), revealed the following:

In the area of initial training success – defined as the ability to complete the regional airlines training course without additional training – the following groups scored as follows:

72% of university aviation program graduates who had earned the flight instructor certificate and had less than 500 flight hours required zero additional training.

63% of pilots with military flight experience required no additional training.

52% of all university aviation program graduates required zero additional training.

40% of pilots without an aviation higher education degree required zero additional training.

On the other end of the spectrum, those candidates that were least successful in initial regional pilot training and required significant additional training were:

15% of pilots from Commercial Flight Schools or FBOs

13% of pilots with degrees, but not from aviation higher education

11% of pilots without degrees

8% of pilots with degrees from aviation higher education

Qualitative Data

The four-year professional aviation program provides several advantages to future employers, the traveling public, as well as, to our graduates:

First, the non-profit nature of our institution ensures that academic and flight training are less subject to the economic challenges of the aviation industry. At the same time, the students are subjected to very rigorous academic standards. This results in a stable four-year academic and flight training program that starts with a larger number of students who desire employment as professional pilots, and through self selection, failure to meet academic or flight training standards, or for other reasons, results in a lesser number of exceedingly well-prepared graduates. This four year selection process is present in all universities to some degree, and serves the professional aviation community well. As a footnote, this is a difficult time for “for profit” flight training only providers. In the last six months, two different flight schools have ceased operation due to financial insolvency in the greater Daytona Beach area alone. In the last few years that number is even greater. The stability offered by the university environment should not be underrated.

Second, the four year experience goes far beyond the requirements of a flight school environment. At Embry-Riddle, the Aeronautical Science degree is a rigorous Bachelor’s of Science program with strong Math and Physics requirements. The first two years of the program cover these prerequisites, as well as, the basic flying skills required by non-university flight training schools. During the last two years of the program, our graduates receive the same academic content that a senior airline Captain receives over a lifetime. Mentored by senior faculty who have hands-on industry experience, our students are taught subjects such as: aviation safety culture, cockpit resource management, advanced aircraft systems (including autopilots/ anti-icing systems), electronic flight controls, and glass cockpits, to name a few. This produces a young pilot who has a deeper understanding of a professional pilot’s responsibilities and knowledge requirements than those who do not receive an academic education in conjunction with flight training. Actual data shows that university-prepared graduates of flight training programs excel to a higher degree in specific airline training than those prepared in any other way, including those trained by the military.

Third, since Embry-Riddle is a non-profit institution, flight training is strictly a break- even financial unit. We invest in the safest and most efficient training equipment, procedures and people that we can bring together. To this end, the university equipped our entire fleet with the Automatic Dependant Surveillance Broadcast System (ADS-B) in 2003 to increase the safety of our fleet by providing electronic aircraft avoidance information to the pilot. As you are aware, this equipment will not become mandatory in the industry until the year 2020. Embry-Riddle has produced thousands of professional pilots over the last six years who have flown with this advanced equipment and are the most prepared in industry for the ushering in of this new technology. Also, our aircraft fleet consists of all recently manufactured aircraft, and this fall, will be an all glass cockpit fleet--with equipment, in many cases--superior to the equipment that our students will fly after they graduate.

Fourth, the curriculum is focused on training jet pilots. The capstone course is conducted in a Regional Jet Flight Training device (simulator) and brings together all the knowledge gained in the classroom and in the airline-style general aviation flight training we provide, to produce a graduate who can think, decide, and excel at jet speeds and in difficult situations.

2. What is the role of peer review (SACS and AABI) in the university aviation environment?

As a four-year institution, Embry-Riddle is subject to rigorous peer review by the Southern Association of Colleges and Schools (SACS) which ensures general academic quality, as well as, by the Aviation Accreditation Board International (AABI) which accredits the professional aviation programs of 32 colleges and universities. These peer reviews, conducted at five and ten year intervals, examine every aspect of our academic and flight training programs for quality, relevance, and to assure our graduates meet these high standards. The peer reviews also provide opportunities for the cross flow of ideas and best practices among the member institutions, and foster a spirit of collaboration among the member schools, which immediately benefits the students through improved academic and training standards.

3. What regulations is Embry-Riddle governed by and to what extent does the FAA oversee our program?

Embry-Riddle is the only major university, or general aviation flight training program to be certified under Part 142 of the Code of Federal Regulations (CFR). The majority of general aviation training-based airline training programs are guided by the less stringent Part 141 or Part 61 rules. Part 142 training is the same program used by most major airlines and it instills a greater sense of training discipline, allows increased use of flight simulation, and invites even greater FAA participation in our training program.

As such, our flight training program is effectively modeled on the airline policies and procedures that our students will encounter upon graduation. A full 35% of our flight training is accomplished in flight simulators and flight training devices that allow for the introduction of real world flight scenarios designed to increase the student's ability to think, plan, and make sound decisions in real time. These flight training devices, which we call "Level 6 plus", not only meet the requirement levied by the FAA, but exceed them in two critical areas—flight dynamics and visual display.

Under Part 142, our students receive check rides from FAA designated Training Center Evaluators (TCE's) who are trained and approved by the FAA. We welcome this level of direct supervision of our program. It promotes a healthy spirit of "regulatory compliance" among our students and staff and ensures the quality of our graduates remains high.

Our aircraft maintenance facility also is certified as a "Repair Station" under Part 145 of the CFR and, as such, is subject to regular notice and no notice inspection visits by the FAA. Neither the Part 142 nor 145 certifications are required, but they are indicative of the close relationship that Embry-Riddle and our other university aviation programs have with the FAA.

4. What do Embry-Riddle professional pilot students do after they graduate?

The 2008 graduation classes in Aeronautical Science, the professional piloting program, and (most recent data available) were broken down as follows:

On the date of graduation (May 2008)

46.6% had obtained employment*

12.5 % were continuing their education.

Of those employed:

32% were working in flight training.

21% went to the airlines**

18% went into the military

12% went to work for a Fixed Base Operator (most likely as a flight instructor)

17% other

* Note that these results are from a self-reported survey and so many students had not responded.

** Of those reporting, the following airlines were listed: Spirit, Airtran, Atlantic Southeast, Peninsular Airways, PSA, and Com Air

For students one year out from graduation (latest data is for the class of 2006):

As of May 2007:

90% had obtained employment.

Of those employed as professional pilots:

41% went to the airlines***

28% were working in flight training

18% went to the military

13% other

*** This survey did not specify which airline the student was employed by.

The data shows that the typical career pattern for an Embry-Riddle graduate is to move into flight training as an instructor for one to two years and then, after having built up hours and experience, move on to a regional airline. Embry-Riddle employs nearly 75 of these recent graduates as flight instructors, who build valuable experience under the watchful eyes of senior instructor pilots and managers in preparation for their airline career. The value of this flight training instructor experience is that it further enhances and builds excellent skills in Crew Resource Management(CRM), work ethic, safety awareness, discipline, professional responsibilities, judgment and decision-making. It is analogous to a residency for a budding physician. Embry-Riddle considers this flight training experience as the capstone to our graduates' educational experience and key to a successful career.

5. What is the cost of the program?

Embry-Riddle is a not-for-profit private university.

Tuition and room and board is approximately \$120,000 for four years.

The flight training portion costs approximately \$45,000.

6. In summary, why is the Embry-Riddle Professional Pilot Program (and other university collegiate programs) a better way to train airline and military pilots?

The four-year academic and flight training environment provides an excellent “natural” selection process. A combination of high academic standards and normal attrition ensures that only the best graduate from the program and move on to the airlines. The non-profit nature of the university structure, and the stability it provides, promotes a strong emphasis on program quality, technological excellence, and safety culture. In the Northeast Florida area alone we have seen several stand alone flight training providers come and go in the last few years.

The peer review of four-year institutions by SACS for overall academic quality, and by AABI for specific areas of professional pilot preparation, ensure the highest academic and flight standards are maintained. This process produces the best qualified pilots in the industry, a claim which is backed up by empirical data.

The strong academic foundation in modern high altitude airline-oriented jet academics creates Embry-Riddle graduates who fully understand the implications of jet aircraft systems failures; such as aircraft icing, use of autopilots and automation, advanced weather study, glass cockpits, ADS-B, and other knowledge items critical to aviation safety.

The airline-based CFR Part 142 flight training program provides for active FAA supervision and instills flight discipline, good judgment and excellent flying skills. This is accomplished through the use of advanced flight training devices (simulators) and state-of-the-art aircraft with the latest in modern glass cockpit technology.

The combination of the academic program (also Part 142 supervised) and the flight training program in an integrated four-year process of mentoring and growing young people into fully qualified airline pilot candidates, and a means to guard against potential airline disasters.

7. What are the challenges our graduates face going into the workforce?

Our pilots were in very high demand for their skills until the recent economic downturn, and they will be again. However, our students who come to the university, and remain with us as flight instructors after graduation, often find that the leap to a regional airline may often involve a significant cut in pay, as well as, a requirement to commute to their job weekly. Some take second jobs while working as line pilots. Others rely on living with families or friends until the first year has been completed. All of this increases the stress and fatigue on these fine young professionals. In view of our graduates’ excellent technical skills, safety responsibilities, and service to the industry, we believe that the pay and working conditions that they encounter could be improved.

Thank you for the opportunity to discuss university flight education and specifically the contribution that Embry-Riddle Aeronautical University brings to this field.

Embry-Riddle Aeronautical University, the world’s largest, fully accredited university specializing in aviation and aerospace, offers more than 30 degree programs in its colleges of Arts and Sciences, Aviation, Business, and Engineering. The university educates more than 34,000 students annually in undergraduate and graduate programs, with accreditation pending for Embry-Riddle’s first doctoral programs, in Aviation and in Engineering Physics. Embry-Riddle educates students at residential campuses in Prescott, Ariz., and Daytona Beach, Fla., through the

Worldwide Campus at more than 130 campus centers in the United States, Europe, Canada, and the Middle East, and through online learning. For more information, visit www.embryriddle.edu.