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FORUM**WOULD AN ACES ACADEMY BENEFIT YOUR UNIVERSITY?**

David A. Esser and Patricia J. Ryan

In 1989 the Federal Aviation Administration (FAA) entered into a collaborative effort with Embry-Riddle Aeronautical University to design a model Aviation Career Education (ACE) Academy seminar. This collaboration was initially made exclusively with Embry-Riddle with the intent to replicate the program at other institutions after the model was established. The objective of the seminar was to introduce high school juniors and seniors to various aviation careers, allowing them to plan their final semesters in high school and set their higher-education goals. Additional goals of the program included:

1. Guiding high school students in exploring the role of aviation in history.
2. Discussing the airplane as a vehicle and identifying its parts and the principles by which it flies.
3. Taking participants on a flight to give them firsthand experience.
4. Helping students explore careers in aviation and aerospace.
5. Explaining the role of government in aviation and the overall socio-economic benefits of aviation.

The FAA contacted Patricia Ryan, director of the Teacher Resource Center at Embry-Riddle, who developed the program with the assistance of Dave Esser, an associate professor in Embry-Riddle's Aeronautical Science Department. The FAA has since offered the program developed by Ryan and Esser at various locations around the nation. In 1994, Ryan and Esser decided the project could be better tailored to meet individual needs if each student was allowed to select a particular career field to explore. The enhanced program was renamed Aviation Career Education Specialization (ACES) Academy.

APPROACH

ACES Academy students are given an on-campus orientation and an introduction to campus life upon arrival. In some past sessions, get-acquainted activities were presented by motivated Embry-Riddle students who had received one semester of leadership training conducted through the Student Leadership Development Program. Topics of the program included ethics, delegation, service learning, budget management, basic skill-building, career development, and principles of leadership.

ACES Academy participants are offered classes in specialized areas of interest, such as flight, air traffic control, meteorology, engineering technologies, and aircraft maintenance/avionics. Supporting and enhancing the instruction given by the subject-matter experts are field trips to the Daytona Beach International Airport and its Air Traffic Control Tower, Kennedy Space Center and Space Camp, and, on the Embry-Riddle campus, the Airway Science Simulation Laboratory and the Meteorology Center. The Embry-Riddle

Admissions Office answers questions about applying to the university. An awards luncheon concludes the program, with guest speakers from the FAA, and from Embry-Riddle's Career Services Office, Admissions Office, and President's Office. See the Appendix for a typical day-by-day schedule.

RESULTS

Pre- and post-tests combined with participant evaluations indicate an improved knowledge of basic aeronautics, aviation and aerospace careers, government and other agencies, and the Embry-Riddle environment. A particularly successful indicator is the increased desire to pursue post-secondary education in the aviation and aerospace disciplines. After a 1997 seminar, 75% of the participants applied for admission to Embry-Riddle.

The pre-test is administered at the beginning of the seminar. At the completion of all the instructional activities, the same questions are asked on a post-test. The test is designed to evaluate the participants' basic knowledge of aerodynamics, aviation careers, aviation history, and regulatory agencies. The

ACES Academy

results in 1996 were typical, with a pre-test mean score of 46.8% and a standard deviation of 25.1. The post-test mean score was 87.3%, with a standard deviation of 14.9.

Another important measurement is the desire of the applicants to pursue an aviation career. When asked whether the ACES Academy heightened their interest in an aviation career, 95.8% of the participants answered in the affirmative. Because it is felt that word-of-mouth endorsements are the most sincere, participants are asked whether they would recommend the ACES Academy to a friend. Since 1990, 94.5% of ACES participants said they would indeed recommend the program to a friend.

Summarizing the first seven years of the program from 1990 to 1996:

Total ACES Students	240	
Applications to ERAU	112	(47%)
Enrollments to ERAU	66	(28%)
Graduates of ERAU	7	(3%)

The low number of graduates is misleading because many of the participants are still pursuing their degrees and have yet to graduate.

BENEFITS

The following is a summary of the observed benefits of the ACES Academy at Embry-Riddle:

1. ACES students are exposed to curriculum/career options at Embry-Riddle and can make matriculation decisions during their final semesters in high school.
2. The ACES Academy offers the participants a chance to see the practical application of science and mathematics concepts.
3. The ACES Academy is an opportune time for the different departments of the university to recruit and encourage the participants to be future Embry-Riddle students.
4. Embry-Riddle faculty, staff, and students who exhibit a professional and dedicated demeanor serve as role models for the ACES students.
5. The ACES Academy offers Embry-Riddle students the opportunity for summer jobs as resident advisers and lab assistants.
6. The ACES Academy provides an opportunity for Embry-Riddle to be recognized in the community, enhancing good public relations.
7. The ACES Academy participants bring varied cultural

backgrounds to the university.

The Academy is not without challenges, and one of the greatest comes from the youthfulness of the participants. Staff must be prepared for the differences between the college students they are used to and the younger ACES Academy participants. Proper supervision of the students is necessary to keep them on track and attending the scheduled activities.

Another challenge is keeping the tuition low so that the Academy is available to individuals of all economic levels. Because the Academy involves paying for room and board as well as an actual flight, participants need as much grant money as possible. In the past the FAA has assisted in this funding, as have Embry-Riddle's Admissions Office and private institutions.

Overall the program has proven beneficial to the university, and, most importantly, to the ACES Academy participants.

CONCLUSIONS

It is recommended that each institution evaluate the feasibility of offering an ACES Academy based on the following criteria:

1. Can your institution house approximately 30 students for seven days in a summer semester?
2. Does your institution have enough staff to monitor the ACE Academy participants and to coordinate off-campus activities?
3. Does your institution have enough faculty to offer training activities in the various aviation career paths?
4. Can your institution cover the difference between the cost of administering the program and the tuition charged the participants?

If you can answer yes to these questions, it is likely that a program similar to Embry-Riddle's would prove beneficial to your university. Any questions about setting up a program can be directed to Patricia Ryan (phone: 904/226-6499 or e-mail: ryanpa@db.erau.edu) or to Dave Esser (phone: 904/226-6987 or e-mail: esserd@cts.db.erau.edu). □

APPENDIX

The following is a typical day-by-day schedule of the ACES Academy at Embry-Riddle:

DAY 1

Welcome
Introduction/Orientation
Pizza Party
Evening Recreational Activities
Pool
Volleyball
Basketball

DAY 2

General Activities
Aviation Career Path Overview
Aviation History
Introduction to Aeronautics
Rocket Building
Balsa Aircraft Assembly
Rocket Launching
PC-ATD Flight Instruction
Evening Recreation

DAYS 3 AND 4

Career-Specific Activities
Flight
Aerospace Engineering
Air Traffic Control
Meteorology
Aircraft Maintenance/Avionics
Aircraft Design Project
Evening Recreation

DAY 5

Career Blitz
Airlines
Military
Air Traffic Control
Airport Management
National Weather Service
Aircraft Design Project
Off-Campus Activity
Beach
Daytona USA (NASCAR attraction)
Kennedy Space Center
Space Camp
Evening Recreation

DAY 6

Introduction Flight Experience
Tour of ATC Facility
Aircraft Static Display
Wind Tunnel Demonstration
Advanced Simulation Center Tour
Free Time
Evening Recreation

DAY 7

Clean and Pack
Banquet/Closing Ceremonies
Awarding of Certificates
Presentations
Admissions Office
Career Services Office

David A. Esser holds an M.S. in Aeronautical Science, a B.S. in Computer Science and Aeronautical Science, and an A.S. in Aeronautical Studies, Aviation Management, and Aviation Computer Programming, all from Embry-Riddle Aeronautical University. He is an Associate Professor in the Aeronautical Science Department at Embry-Riddle.

Patricia J. Ryan holds an M.A. in Instructional Technology from the University of Central Florida and a B.S. and A.A. in Elementary Education from Ball State University. She is the Director of the FAA Aviation Education Teacher Resource Center at Embry-Riddle Aeronautical University.