Embry-Riddle Aeronautical University
Course Syllabus

Course No.: ASCI 634	Title: Aviation/Aerospace Psychology	Cr. Hrs. 3
Term & Term Dates:	Spring B 2004, March 22- May 22, 2004.	
Instructor:	Robert Fels, Psy.D., Adjunct Assistant Professor	
Contact phone number:	(888) 925-2362, option #2 to leave a voice message.	
E-mail address:	drfels@clinicalbiofeedbacktherapy.com,	
Instructor availability:	M-F, 11AM – 7PM	

COURSE DESCRIPTION: A study of the complexities of human factors research in aviation which draws extensively on such diverse areas as human physiology, aviation safety, and pilot training. The course surveys the study of human behavior as it relates to the aviator's adaptation to the flight environment and attempts to design an occupant "friendly" flight deck module.

GOALS: This course is designed to provide graduate students with a comprehensive understanding of the multidisciplinary field of aviation/aerospace psychology. It focuses on organizational, industrial, personnel, and engineering psychology as they individually and collectively pertain to organizational culture, safety climate, individual behavior, human performance, personnel selection, training programs, and system design. Students will demonstrate through examinations, written reports, and presentations the achievement of course objectives.

LEARNING OUTCOMES: Upon course completion the student will be able to:

1. Define the field of Aviation/Aerospace Psychology and contrast it with related fields such as human factors, physiology, etc. Discuss its historical roots and evolution, "highlighting" its inter-disciplinary nature. Provide current information on the field, professional associations, etc.

2. Examine the role of organizational factors on aircrew operations and individual behavior and analyze their impact on operational effectiveness, human performance, and flight safety.

3. Discuss systems theory and from a systems perspective define the occurrence of human error, outline its potential causes, and describe intervention strategy development.

4. Examine learning theory's role in acquiring job skills and behaviors, determine how vicarious learning impacts this process, and evaluate how behavioral analysis can be used.

5. Using human engineering principles and research as a backdrop, analyze how crew station design can impact system function, human performance, and flight/ground safety.

6. Define information processing and illustrate its role in the decision-making process. Explore its impact in determining mental workload, stress level, and situational awareness.

7. Examine the effects of advanced automation, crew resource management, and simulation training on aircrew performance. Compare their impact on workload, stress, and awareness.

8. Compare aircrew selection methods and procedures; assess the process of predicting and subsequently evaluating aircrew performance using validated, reliable, and cost-effective means.

9. Discuss current trends in terms of organizations, technology, and personnel. Contrast/ Compare these trends and establish a perspective for evaluating aviation/aerospace psychology.

REQUIRED TEXT: Tsang, P.S., & Vidulich, M.A. (Eds). (2003). *Principles and Practice of Aviation Psychology*. Mahwah, NJ: Lawrence Earlbaum Associates.

Students are responsible for the content of all assigned readings.

RECOMMENDED READING: American Psychological Association. (2001). *Publication manual of the American Psychological Association (5th ed.). W*ashington, DC: Author.

Jensen, R. (Ed). (1989). *Aviation Psychology.* Brookfield, VT: Gower Publishing Co.

Johnston, N., McDonald, N., Fuller, R. (Eds.). (1997). *Aviation Psychology Practice.* Burlington, VT: Ashgate Publishing Company.

Orlady, H., & Orlady, L. (1999). *Human Factors in Multi-Crew Flight Operations.* Burlington, VT: Ashgate Publishing Company.

Roscoe, S. (1980) *Aviation Psychology.* Ames, IA: Iowa State Press.

Wiggins, M. W., & Stevens, C. (1999) *Aviation social science: Research methods in practice.* Burlington, VT: Ashgate Publishing Company.

CLASS SCHEDULE

Date	Chapter		Topic
03/24/04	1		Introduction to Course/Brief History of Aviation and Human Factors
03/31/04	2, 3	Quiz	Perception and Attention, Spatial Orientation

04/07/04	4, 5		Mental Workload and Situational Awareness, Aviation Displays
04/14/04	6, 7	Quiz	Decision Making, Pilot Actions and Tasks Review for Midterm Exam
04/21/04	8		Midterm Exam, Pilot Control,
04/28/04	9, 10		Automation and Human Performance, Pilot Selection
05/05/04	11, 12	Quiz	Training, Flight Simulation
05/12/04	13, 14		Crew Resource Management, Cognitive Aging
05/19/04			Final Exam

PAPER/PRESENTATION: Students are required to submit a review and critical reading of five peer reviewed research articles that examine an Aviation/Psychology research topic. Examples might be applied in nature and drawn from practical experience (i.e., pilot screening, intervention for the impaired pilot, memory and flight deck checklists). Address theoretical and empirical issues in your paper. The paper should be congruent with the style and format described in the *Publication Manual of the American Psychological Association*. Articles are to be current and within the last five years.

ORGANIZATION OF PAPER: Title page (title, author, course, semester)
Abstract (short summary of the paper)
Body of Paper (introduction, subsections, discussion)
References (References cited in paper are included. Exclude references not cited).

INFORMATION ON PAPER: Choose a topic that interests you. The textbook, recommended readings and references from shared articles are good places to begin. *Aviation, Space and Environmental Medicine* and *The International Journal of Aviation Psychology* contain articles relevant to this course. Read those articles and then those referenced in the article. The library is essential for accessing helpful journal articles (http://amelia.db.erau.edu/).

Submit copies of the articles with your completed paper. It is due on 5/05/04. Present your paper to the class. No paper will be accepted beyond that date. Any paper that has been plagiarized from a published or non-published source will not only receive a grade of zero, but also all University policies will apply. Keep a back up copy of any materials that you present.

GRADING POLICY: Your grade will be determined in the following manner.

Quizzes	45 points each
Paper	90 points
Midterm	90 points
Final	90 points
Class Participation	40 points

A = 360-400 points
B = 320-359 points
C = 280-319 points
F = <280 points

Note: You will be allowed to drop your lowest quiz grade.

Course Policies

ATTENDANCE: Students are expected to attend all scheduled classes and are responsible for all covered class material. It is the responsibility of the student to obtain material if absent and to withdraw from class through the registrar's office.

REQUIRED READING: Students are expected to read assigned chapters as indicated above. Copies of additional articles will be provided as a supplement to the required readings.

EXAMINATIONS: All students are expected to take exams on the day they are scheduled. Students must contact the instructor for a make up exam prior to the exam. Contents of the exam include required reading and lecture material. The format may include multiple choice, fill-in-the-blanks, and essay.

QUIZZES: Each quiz is worth 45 points. Short quizzes will be given at the beginning of class on designated dates. They will cover the material assigned to date in the class. The lowest quiz grade may be dropped. If you are absent for a quiz, that grade will be dropped. There are no make-up quizzes.

STUDY QUESTIONS: Study questions will be provided and are to be handed in prior to the quiz.