CENTER FOR AIR TRANSPORTATION SYSTEMS RESEARCH

Education, Analysis & Research for the Next Frontier

SYST 460/560 FALL 2010

SYLLABUS

August, 2010

Introduction to Air Transportation Systems is for those who are starting or plan professions in the air transportation industry. This course provides a survey of the entire field, including aircraft performance, navigation, Air Traffic Control, Traffic Flow Management, runway and airspace capacity and delays, aviation environment, and safety. Assignments require the application of fundamental principles of physics and fluid mechanics, in analysis and simulation of real-world problems.

This course is available through Web Conferencing.

Week	Date	Topic	Material	Homework
1	8/30	Introduction/Syllabus Review Aircraft Performance	Syllabus Lecture Slides	
2	9/6	Labor Day (No Class)		
3	9/13	Aircraft Performance		
4	9/20	Navigation	Navigation Workbook (Sensors and Equipment)	
5	9/27	Navigation	Navigation Workbook (Procedures)	
6	10/4	Aeronautic Charts Flightplanning	Airport Diagram Workbook Aero Charts Workbook	
7	10/11	Columbus Day (No Class)		
8	10/18	Air Traffic Control (Surveillance)	Intro to ATC (Surveillance) (Chap 13)	
9	10/25	Air Traffic Control (Procedures)	Intro to ATC (Procedures) (Chap 13) ATC Sim Instructions	
10	11/1	Traffic Flow Management	Intro to TFM	
11	11/8	Airport Diagrams Runway Capacity	Intro to Airports Workbook (Chap 9/10) Runway Capacity Workbook	

		Runway System Capacity	Runway Capacity Spreadsheet Runway System Capacity Workbook Runway System Capacity Coverage Charts	
12	11/15	Flight and Passenger Delays	Stochastic and Deterministic Delays Workbook (Chap 11, 23, 24)	
13	11/22	Aviation Environment (Water/Air)	Aviation Environment (Water/Air) Workbook (Chap 6)	
14	11/29	Aviation Environment (Noise)	Aviation Environment (Noise) Workbook (Chap 6)	
15	12/6	Safety	Safety Workbook NTSB Accident Report	
16	12/13	Final Exam		

Instructor: Dr. Lance Sherry
Contact Info: lsherry@gmu.edu, 703-993-1711
Location: Engineering Building, Room 1204, Mondays 7:20-10:00pm
Office Hours: Wednesdays 4:00-6:00pm or by appointment

Text Books:
1. Airport Systems: Planning, Design and Management – Richard deNeufville, Amadeo Odoni (2003) ISBN 10-0-07-138477-4
(Note: This book is the text-book for the follow-on course OR750/SYST660)

Other Sources:
2. Terminal Chaos (AIAA, Library of Flight) George Donohue and Russel D. Shaver III. ISBN – 978-1-56347-949-6
3. Air Transportation Systems Engineering (Progress in Astronautics and Aeronautics, 193). George L.Donohue and Andres G. Zellweger (Editors), American Institute of Aeronautics and Astronautics, AIAA, 2001.
4. Fundamentals of Air Traffic Control – Michael S.Nolan ISBN 0-534-39388-8
5. How to Become a Pilot – FAA
6. Private Pilot – Jepperson
7. Understanding Mathematics for Aircraft Navigation – James S. Wolper

Student Objective:
Students will learn the necessary basic knowledge in air traffic management of the air

transportation system. This course prepares students for work in the industry and for conduct of graduate studies and research.

Relationship to Other Courses:
This is a required course for graduate students in air transportation systems. This course is prerequisite for Air Transportation System Engineering - OR750/SYST660.

Student Obligations:
* Complete reading assignments and complete workbooks
* Homework/quiz turned in at start of class
* Late penalty 50%
* Mid-term Exams (Closed book)
* Final Exam (Closed-book)
* Field trips

Grading:

* Homework/Quizzes (25%)
* Mid-term Exam 1 (25%)
* Mid-term Exam 2 (25%)
* Final Exam (25%)

A	93%	Exceptional in all respects
A-	90%	Excellent, shows clear understanding of concepts and application of ideas
B+	88%	Very good, shows basic understanding of concepts and application of ideas
B	83%	Good, shows acceptable understanding, baseline for undergraduate work
B-	80%	Adequate, shows acceptable understanding, but with deficiencies
C+	78%	Weak, but minimally meets requirements
C	70%	Very weak, but minimally meets requirements
D	60%	Misses several requirements, but not to the point of being considered failing

All grades are final.

Academic Honesty:
Honor Code strictly enforced.
Suspected violations will be reported