Aerospace Master of Science Program

Module 1: Fundamentals of Airline Management

October 12 to October 17, 2015

Boeing Sponsor

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SYLLABUS IS SUBJECT TO CHANGE

Course Material

- PDF slides
- References
    - Rigas Doganis “Flying Off Course: the Economics of International Airlines”
    - Rigas Doganis “The Airline Business”
    - Peter S. Morrell “Airline Finance”
    - Peter S. Morrell “Moving Boxes by Air”
    - Pat Hanlon “Global Airlines”
    - Stephen Holloway “Straight and Level: Practical Airline Economics”
    - Journal of Air Transport Management

Course Requirements

The graded course elements and the assigned weights are listed below (100 percent total):

- 20 percent — Individual contribution to case discussion (“participation”)
- 30 percent — Case study report
- 50 percent — Final Examination

Each component of a student’s grade in this course will be assigned as a percentage grade (ranging from 0% to 100%). The final grade for the course will be calculated by multiplying each grade by the weight in the grading system described above.

Course letter grades will be assigned using the plus/minus system. As a guideline, students should target at least a performance level of 90 percent to earn an A- or above, 80 percent to earn a B- or above, and 70 percent to earn a C. The assignment of plus/minus within these general grade categories will be determined based on breaks in the overall distribution of grades and the instructor’s discretion.

The more you put into the course, the more you get out of it.

Upon completion of this module, students will have the ability to:

Sub-Module	Key Takeaways
Current Market Outlook	• **Resilience of the aviation market** - this shows even though there have been/will be downturns going forward, that aviation has continuously proved that it will come back. • **Size of the airline market (units and value) going forward** – this continues to show Boeing's outlook of the market, that we do not see it going away, in fact that we still show it growing. • **Product mix** – I think this helps show that we look at all aspects of the market, from RJ's to A380's and that we don't just look at Boeing products, at that we try to do a fair assessment of the market. • **Diversity of the market** – this helps show that each region, throughout the world is important to Boeing. We see growth in all regions, some might be for the replacement market and some may be for pure growth. • Understanding of **near-term economic outlook** and drivers (key driver of air traffic growth). • **Oil price outlook** (role of oil prices in airline strategy, performance). • Regional perspective on the dynamics of near-term air travel demand - traffic growth - and market supply – airline capacity growth (context for airline market and business strategies).
Airline Strategies and Business Models	• Understand the history of commercial airline regulations and their impact on airline business models and strategies • Understand the process and outcomes we've experienced with the slow relaxation of regulations since the late 1970s • Understand how new aircraft technology has impacted airline business models • Understand the details behind today's aircraft business models and their possible evolution in the next decades
Network and Fleet Planning	• **Effective scheduling can produce significant value for the airline** A properly planned and managed network schedule drives incremental revenue from increased connectivity while maximizing overall unit revenue and traffic. Effective scheduling strategies lower overall unit costs through the increased daily utilization of the fleet. Finally, an effective schedule appropriately matching capacity with demand will give an airline its best chance at attaining profitability. • **Networks must also create value for passengers** Ideally the network offers service at a price people will pay while also offering a unique product or experience. For example, airline hubs create valuable travel options by allowing a single spoke to seamlessly connect to a multitude of possible destinations, allowing that single spoke to participate in enhanced trade and commerce. Hubs allow airlines to reduce prices through more cost effective network; connecting more passengers enables more efficient use of airplanes. • **Fleet plans must be based on a robust network plan, not the other way around** Buying a fleet of airplanes and then adopting a network plan is a very risky way to run an airline! An airline must carefully plan its network, taking into consideration a number of factors such as demand growth and competitive activity. Only after a viable network strategy is established should the airline begin to build a fleet plan. Strong fleet planning should allow the airline some measure of flexibility to respond to dynamic marketplace changes, thus frequent reviews of the plan should be undertaken.

Airplane Economics	• Economic analysis includes a few components - Revenues, Operating Costs, Non-Recurring Costs. Airlines must understand the operating costs as much as possible. Revenues are a bigger driver to profitability, but are volatile and hard to predict. Like in any business, understanding costs and controlling them is very important but in the volatile hyper competitive airline industry, the low cost producer wins in the end. • Absolute airplane costs are important, but it is more important for an airline to understand the relative cost differences between airplanes and what drives the differences. Larger, heavier airplanes have higher operating costs. • Non-Recurring costs play a big role in an airplane evaluation, but does not override choosing an airplane with the best economics. Airplane commonality is always an objective for OEMs to do for their customers, but when commonality drives airplane design, operation efficiency is compromised, leading to higher cost structure and a sub-optimal airplane family.
Airplane Performance	• Emphasize the importance of "rules". This isn't just a performance issue • What an OEW is and the part it plays in determining airplane performance is key information. • Making sure operating weights and thrust are appropriate for a customer is also a very important concept as opposed to "over buying" from both a cost to acquire and operating cost standpoint • The addition of performance to a case study would make it much more complex. We could, however introduce the electronic performance document if there was an inclination to add performance to the case study. This would only apply to Boeing airplanes though.
Airplane Value Analysis	• Understand Financial Analysis components for value analysis (time value of money, NPV, WACC) and why they are important in aircraft evaluation. - Provides background and context to understand value analysis. • Become familiar with the key value elements in a value analysis for aircraft evaluation and its drivers (for example: passenger revenue driven by comparative seat counts, yields, load factor, # of trips, etc.). - This is how we do our value analysis and the more customers we get familiar and comfortable with this analysis the better. - We want this to be industry standard/best practice. - We want customers to be able to discuss and share with us which value drivers are most important to them. • Be able to identify sources of variability in the value drivers and be comfortable with sensitivity analysis to understand the impact of variability. - We want customers to be able to discuss and share with us how variability impacts them so that we can prepare value analysis that is more meaningful to them. - It will help the customer make more informed business decisions.
Financial Analysis	• To provide audience with a high-level understanding of the business cycle and the three basic financial statements: P&L, Balance Sheet and Statement of Cash Flows. - It is important to start with the financial statements as many of the participants are not in a finance field and may not know the difference between the various statements or what they measure. - It is important for them to understand how to look at financial statements or news articles that discuss financial measures so that they can understand how their airline is doing and can help drive improvements.

	• To provide guidance on how to calculate and analyze key margins and financial ratios that can be used to measure the various aspects of the financial health of a company. (Profit Margins, Leverage Ratios, Coverage Ratios, Return on Assets and Return on Equity). - This will provide the audience with basic tools to measure an Airline's current performance against its historical performance, against its competitors, or even against its business plan, against its bank covenants, etc. - The sample airlines shown in the presentation provide the audience a peer reference and the discussion surrounding the examples will help the audience to understand if a particular ratio is strong or weak, improving or deteriorating. • To provide an overall understanding of the industry health; while there are exceptions to the rule, the airline industry is generally a cyclical business with low profit margins, high debt levels, weak coverage ratios and low returns on assets and equity. It is important for the participants to understand the reality they face in this industry while still recognizing that there are successful airlines. Because of the challenges the industry faces, it is important that they understand that in order to be successful they need to carefully monitor the financial health of the airline, focus on profitable growth, cost control and finding the right aircraft for the right market.

Content, Organization & Delivery

The major theme in this course, ***Fundamentals of Airline Management,*** is woven throughout the following eleven half-day modules:

- Current Market Outlook
- Airline Strategies & Business Models
- Airplane Finance
- Airplane Performance
- Airline Economics
- Network & Fleet Planning
- Airplane Value Analysis

Students will apply lecture material to analyze several two real case situations. It is paramount that each and every student be thoroughly prepared for every class session.

Exam

There will be multiple choice exam 3-4 weeks at the conclusion of each class.

Course Schedule

Oct 12	Monday	ITU Conference Room	TEACHER
10:00 AM	12:30 PM	Program Opening Celebration	THY/ ITU/ Boeing
12:30 PM	1:30 PM	Business Environment	Dr. Fariba Alamdari
1:30 PM	2:30 PM	*Lunch*	
2:30 PM	3:30 PM	Introductions & Class Overview	ITU / Dr. Joanna Szydlo-Moore
3:30 PM	3:45 PM	*Break*	
3:45 PM	4:45 PM	Current Market Outlook	Dr. Fariba Alamdari
4:45 PM	5:00 PM	*Break*	
5:00 PM	6:00 PM	Case Study INTRO	Dr. Joanna Szydlo-Moore
6:00 PM		*End of day one*	

Oct 13	Tuesday	ITU Conference Room	
10:00 AM	10:15 AM	Welcome & Opening Remarks	Philip / Tecklenburg
10:15 AM	11:00 AM	Airline Strategies & Business Models part 1	Philip / Tecklenburg
11:00 AM	11:15 AM	*Break*	
11:15 AM	12:15 PM	Airline Strategies & Business Models part 2	Philip / Tecklenburg
12:15 PM	12:30 PM	*Break*	
12:30 PM	1:30 PM	Airline Strategies & Business Models part 3	Philip / Tecklenburg
1:30 PM	2:30 PM	*Lunch*	
2:30 PM	3:30 PM	Finance part 1	Philip / Tecklenburg
3:30 PM	3:45 PM	*Break*	
3:45 PM	4:45 PM	Finance part 2	Alex Philip
4:45 PM	5:00 PM	*Break*	
5:00 PM	6:00 PM	Case Study	Dr. Joanna Szydlo-Moore
6:00 PM		*End of day two*	

Oct 14	Wednesday	ITU Conference Room	
10:00 AM	10:15 AM	Welcome & Opening Remarks	Alex Philip
10:15 AM	11:00 AM	Airline Economics part 1	Alex Philip
11:00 AM	11:15 AM	*Break*	
11:15 AM	12:15 PM	Airline Economics part 2	Alex Philip
12:15 PM	12:30 PM	*Break*	
12:30 PM	1:30 PM	Airline Economics part 3	Alex Philip
1:30 PM	2:30 PM	*Lunch*	
2:30 PM	3:30 PM	Airplane Value Analysis part 1	Alex Philip
3:30 PM	3:45 PM	*Break*	
3:45 PM	4:45 PM	Airplane Value Analysis part 2	Alex Philip
4:45 PM	5:00 PM	*Break*	
5:00 PM	6:00 PM	Case Study	Dr. Joanna Szydlo-Moore
6:00 PM		*End of day three*	

Oct 15	Thursday	ITU Conference Room	
10:00 AM	10:15 AM	Welcome & Opening Remarks	Bruce Tecklenburg
10:15 AM	11:00 AM	Network & Fleet Planning part 1	Bruce Tecklenburg
11:00 AM	11:15 AM	*Break*	
11:15 AM	12:15 PM	Network & Fleet Planning part 2	Bruce Tecklenburg
12:15 PM	12:30 PM	*Break*	
12:30 PM	1:30 PM	Network & Fleet Planning part 3	Bruce Tecklenburg
1:30 PM	2:30 PM	*Lunch*	
2:30 PM	3:30 PM	Network & Fleet Planning part 4	Bruce Tecklenburg
3:30 PM	3:45 PM	*Break*	
3:45 PM	4:45 PM	Case Study	Dr. Joanna Szydlo-Moore
4:45 PM	5:00 PM	*Break*	
5:00 PM	6:00 PM	Case Study	Dr. Joanna Szydlo-Moore
6:00 PM		*End of day four*	

Oct 16	Friday	ITU Conference Room	
10:00 AM	10:15 AM	Welcome & Opening Remarks	Dr. Joanna Szydlo-Moore
10:15 AM	11:00 AM	Performance	Dr. Joanna Szydlo-Moore
11:00 AM	11:15 AM	*Break*	
11:15 AM	12:15 PM	Turkish Airlines - SWOT analysis	Dr. Joanna Szydlo-Moore
12:15 PM	12:30 PM	*Break*	
12:30 PM	1:30 PM	Turkish Airlines - SWOT analysis	Dr. Joanna Szydlo-Moore
1:30 PM	2:30 PM	*Lunch*	
2:30 PM	3:30 PM	Case Study	Dr. Joanna Szydlo-Moore
3:30 PM	3:45 PM	*Break*	
3:45 PM	4:45 PM	Case Study	Dr. Joanna Szydlo-Moore
4:45 PM	5:00 PM	*Break*	
5:00 PM	6:00 PM	Case Study	Dr. Joanna Szydlo-Moore
6:00 PM		*End of day five*	

Oct 17	Saturday	ITU Conference Room	
10:00 AM	11:00 AM	Team 1 Case Study presentation	Dr. Joanna Szydlo-Moore
11:00 AM	11:15 AM	*Break*	
11:15 AM	12:15 PM	Team 2 Case Study presentation	Dr. Joanna Szydlo-Moore
12:15 PM	12:30 PM	*Break*	
12:30 PM	1:30 PM	Team 3 Case Study presentation	Dr. Joanna Szydlo-Moore
1:30 PM	2:30 PM	*Lunch*	
2:30 PM	3:30 PM	Team 4 Case Study presentation	Dr. Joanna Szydlo-Moore
3:30 PM	3:45 PM	*Break*	
3:45 PM	4:45 PM	Team 5 Case Study presentation	Dr. Joanna Szydlo-Moore
4:45 PM	5:00 PM	*Break*	
5:00 PM	6:00 PM	Team 6 Case Study presentation	Dr. Joanna Szydlo-Moore
6:00 PM		*End of class*	

Fleet Case Study

Case preparation and the activities that are antecedent to effective case analysis (including theory and lecture notes studying) will be important. These activities include, but are not limited to, reviewing previous course materials. The basic theoretical underpinnings of the various topics covered are a prerequisite to intelligent analysis and problem solving.

The length of the reports is constrained to a maximum of 20 pages (typed and double-spaced). Students may attach as many exhibits (e.g. clearly labeled and referenced spreadsheets, tables, graphs, and supporting calculations) as they see appropriate.

Much of the case study assignments involve open discussion of the issues. Students should be ready to be challenged to defend their point of view and articulate their position. Students are encouraged to take risks and actively participate in class discussion.

Grade Appeals/Changes

If for some reason an error has been made in grading or recording an assignment, students must submit a written request for review, with explanation and reason for credit, within one week of the date that the assignment score was made available.

Absences

See ITU rules

Other

Students may use computers for note taking or analytical work during class. However, it is expected that students refrain from "surfing" the web, engaging in e-mail traffic, or working on other courses during class.

The Boeing Team:

Dr. Fariba Alamdari
Vice President, Marketing

Dr. Joanna Szydlo-Moore
Regional Director, Airline Financial & Investment Analysis

Alex Philip
Senior Manager, Airline Economics

Bruce Tecklenburg
Senior Manager, Airline Network & Fleet Planning