San Jose State University
Department of Aviation and Technology
AVIA 128—Aviation Safety and Security
COURSE OUTLINE SPRING 2013

General Information:

Instructor:	*Glynn Falcon*
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E Mail:	ProfFalcon@aol.com
Dates/Times:	Jan 24, 2013 to May 13, 2013 on Mondays & Wednesdays from 10:30 to 11:45 a.m.
Room:	Industrial Studies Building, Room 216
Final Exam:	Monday, May 20 0945-1200 in IS-216
Office Hours:	IS-133C Tuesdays 11 to Noon. On Mondays & Wednesdays 11:45 to Noon and 1:15 to 1:30, I may be in IS216. Other times, I am available by email and phone. Phone: Office: 408-924-3203; cell: 650-400-1523

Catalog Description: Aviation 128-01 24112

Safety in aviation design, operation, and maintenance; hazardous materials; airport environment issues; security regulations for aviation. Prerequisite: Aviation 2. Note: This is a 3 unit course, and it is one of the aviation core requirements.

Purpose of Course:

This course is to present an overview of many issues that influence and affect safety in aviation. Topics that will be discussed in this course include: aircraft safety in design, along with operations, and maintenance safety. The subject categories include airworthiness, crash-worthiness, reliability and maintainability quality control and assurance, individual work ethics and legal responsibilities. Aircraft accident reports will be used as examples, along studies of accidents and investigations.

General Course Goals

1. Comprehend aviation safety and security regulatory framework, structure and regulatory process
2. Discuss structure, functions and workings of the National Transportation Safety Board
3. Understand the reporting and recording of safety data including accident reports
4. Review safety statistics and accident causation models
S. Understand the management of human error and human factors in aviation.
6. Review the air traffic control system (ATC).
7. Discuss specific safety issues such as runway incursions, terminal, hangars, shops, ramp, fuel, rescue and deicing.
8. Understand important post 911 aviation security measures
9. Discuss airline carrier prevention and control safety programs
10. Become familiar with location of aviation data references and their usefulness.

Academic integrity statement

 Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the university's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct.

Campus policy in compliance with the Americans with Disabilities Act:

If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their

Instructional Topics:

Aviation 128 is organized as a series of units or instructional topics. Within each unit there are objectives, assigned readings, activities, and evaluation measures. The units are covered in the order they are listed here. Your instructor expects that you will become enthusiastic about the material within the realm of this field, and that you will be willing to share your ideas with your fellow classmates throughout the coming term.

Class Format

Knowledge and skills are acquired and honed by practice, not by listening to lectures or by memorizing information. Consequently, you must assume a high degree of independence and responsibility for your own learning in order to succeed in this course. Although some of your class periods may be in the lecture format, the structure of this course is primarily dynamic and collaborative. That is, most of the periods will be spent in activities such as class discussions, group activities, individual activities and presentations. In order to participate fully, you must be prepared for class. Your teacher expects that you complete all required readings before class.

Textbook

 (1) Wells, Commercial Aviation Safety 5th edition (2011)

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Course Reading Assignment Outline

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Week 1: Wednesday, January 23 - - orientation and class expectations.

Week 2:   Chapter 1: Regulatory Framework
- Text Assignment: Chapter 1
- Federal Aviation Administration (FAA) – overview, background, chronology, organization, rulemaking
- Environmental Protection Agency (EPA) – overview, background, chronology, organization, rulemaking
- Occupational Health and safety Administration (OSHA) – overview, background, chronology, organization, rulemaking

Week 3: Chapter 2: Regulatory Organization and Rulemaking
Text Assignment: Chapter 2
- ICAO, FAA, EPA, OSHA rulemaking

Week 4: Chapter 3: **National Transportation Safety Board** Text Assignment: Chapter 3 –
National Transportation Safety Board (NTSB) - organization, accident investigation process, databases, other functions.

Week 5: Chapter 4: Recording and Reporting of Safety Data
Text Assignment: Chapter 4

- Aviation Incidents and Accidents Recording and Reporting Systems
- EPA Environmental Recording and Reporting Systems
- OSHA Industry Recording and Reporting Systems

Week 6: Chapter 5: Review of Safety Statistics Text
Assignment: Chapter 5 C101-C132
- Aviation Accident Statistics – Manufacturers, Boeing, NTSB
- Occupational Accidents Statistics

Week 7: Chapter 6: Accident Causation Models
Text Assignment: Chapter 6 C133-C155

- Office of Technology and Assessment (OTA)
- Safety Factors (primary, secondary, tertiary)
- 5M Model – Man, Machine, Medium, Mission, Management
- Reason's Model
- Risk Management

Weeks 6 & 7: Chapter 7: Human Factors

Text Assignment: Chapter 7
- Human Factors
- Human Error
- Management of Human Error
- Engineering Control Strategies – cockpit standardization and automation, warning systems, display conspicuity, system recovery, flight management computer and air to ground communication.
- Administrative Control Strategies – airline, regulatory and labor practices

Weeks 7 & 8: Chapter 8: Air Traffic Safety Systems

Text Assignment: Chapter 8
- National Airspace System (NAS) Plan
- NAS Modernization
- Components of the Plan – communications, navigation, satellite based navigation, surveillance, weather automation systems, avionics
- Operational Planning – flight service improvements, airport surface operations, departures and arrivals, en route and oceanic
- Free Flight – phases and implementation schedule
- NAS and ATC Funding

Week 9: Chapter 9: Aircraft Safety Systems

Text Assignment: Chapter 9
Jet Engine Development
- Long Range Commercial Jet Transport Era – high lift and stopping systems, flying qualities, structural integrity and cabin safety
- Safety Design for Atmospheric Conditions – turbulence, wind shear, volcanic ash and ice and precipitation
- Flight Deck Human Machine Interface – crew alerting systems, flight decks, communications addressing and reporting systems, flight management system, multiple flight control computers, central maintenance computer system
- Flight Procedures – Take Off, approach and landing
- Modeling, Design and Testing Tools – computational fluid dynamics, wind tunnel, piloted simulation, structural tests, integrated aircraft system laboratory, flight test, accident and incident
- Flight Aircraft Technologies – weather detection, communication and navigation systems, displays, voice recognition, head up displays and portable computers
- Free Flight

Week 10: Chapter 10: Airport Safety

Text Assignment: Chapter 10
- Airport Certification –Manual, Part 139
- Operational Safety – terminal, hangars, shops, ramp, specialized services and runway incursions

Weeks 11 & 12: Chapter 11: Aviation Security

Text Assignment: Chapter 11
- Attacks on Civil Aviation
- Regulatory Movement –airport security, anti hijacking, standard security program, indirect security, air marshal, security improvement, antiterrorism, commission, security act, TSA
- Role of Intelligence
- International Influences
- Securities Technologies – imaging, trace detection, explosives detection, metal detector, biometrics, aircraft and baggage containers, cockpit doors, computer assisted screening
- Non technological approaches

Weeks 12 & 13: Chapter 12: Airline Safety

Text Assignment: Chapter 12
- Safety Program Elements
- Management Leadership and Commitment
- Employee Involvement
- Responsibility and Accountability
- Trends Analysis and Risk Assessment — safety performance monitoring
- Accident Investigation and Auditing
- Hazard Prevention and Control Programs — internal program and orders
- Communications — safety, maintenance, flight communication, FAA/NTSB, flight crew, BASIS, media, risk reduction
- Training
- Role of ALPA in Air Safety — local, technical, accident investigation, special projects, line input
- Flight Safety
- Safety Infrastructure
- Departmental and Employee Responsibilities — Safety, Occupational and Operational, Environmental Affairs, Emergency Response, Internal Evaluation, Regulatory compliance, Flight Safety

Week 14: Chapter 13: Aviation Safety Management Systems

Weeks 15 & 16: CATCH-UP, REVIEW AND POSSIBLY PROJECT PRESENTATIONS –

A class project may be assigned in the third or fourth week of class.

Weekly Assignments

Before the start of each Monday's class (except when a chapter review extends for 1 and a half weeks or longer, then the next chapter is due before Wednesday's class), each student will file in the "Desire2Learn" drop-box for this course, his/her answers to that Chapter's review questions based on the following criteria: Using the first letter of your last name, answer the following for each Chapter Review Questions.

A - C answer every 4th question starting with #1
D - H answer every 4th question starting with #2
J - P   answer every 4th question starting with #3
R - Z   answer every 4th question starting with #4
   Your answers to Chapter 1's review questions are due before 10:29 a.m. on Monday, January 28, 2013
(by way of example).

Your papers are automatically date and time stamped as they are placed into the D2L Drop-Box. Papers even one-minute late will not be given any credit. You may NOT share, copy or purloin other classmate's answers, as severe sanctions will be imposed upon both students caught doing so. WARNING! The software associated with the Desire2Learn website automatically detects plagiarism.

Desire 2 Learn is found at: https://sjsu.desire2learn.com/ Your ID is your name and initial password is your student ID number. (I hope!).

To test whether you can get access to the Aviation 128 D2L web page, go there and complete the Student Info form that I have uploaded to the site. **YOU MUST ADD A PHOTO OF YOURSELF**. This Green Sheet will also be posted in D2L for your future ease of reference.

Grading and Distribution:

The final grade distribution will be on a curve based on the top score achieved in the evaluation. Grades will be as follows:

A: 89 – 100%
B: 79% - 88%
C: 69% - 78%
D: 59 – 68%
F: below 59%

Projects and Assignments:	15%
Chapter Review Answers timely submitted into D2L Dropbox	25%
Midterm	25%
Final Exam	35%
Total:	100%

To pass this class, you must timely complete at least 10 of the 13 Chapter Review assignments; score well on the final and midterm exams; and timely submit any assignments that you are given.

Grades may be followed by "+" for high scores, extra participation, effort, etc. in relation to standard grade expectation. Grades may be followed by "-" for less participation, engagement or scores in relation to standard grade expectation. Note: There is no "challenging" of the class or exam accepted as most of your grade is based on participating in class projects and weekly assignment and activities throughout the semester.

Cell phone use is not permitted; if you have a phone, please turn the ringer off during class.

Your use of computers during class is limited to class-related activities, such as taking notes on the lecture underway, following the lecture on Web-based PowerPoint slides that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture. Students who use their computers for other activities or who abuse the equipment in any way, at a minimum, will be asked to leave the class and will lose participation points for the day, and, at a maximum, will be referred to the Judicial Affairs Officer of the University for disrupting the course. (Such referral can lead to suspension from the University.)

Dropping and Adding
Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog: Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic calendar web page located at: http://www.sjsu.edu/academic--Programs/calendars/academic_calendar/.
The Late Drop Policy is available at:
 http://www.sjsu.edu/aars/policies/latedrops/policy/.
Students should be aware of the current deadlines and penalties for dropping classes.
Information about the latest changes and news is available at the Advising Hub at
http://www .sjsu.edu/advising/.