

 **Broward Community College**
Course Outline

STATUS: A COMMON COURSE NUMBER: ASC 2870 COURSE TITLE: Aviation Safety CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion 48 Lab Other Contact Hours/Week 3

CATALOG COURSE DESCRIPTION:

Prerequisite: ATT 1100 and ASC 1100 or private pilot certificateCorequisite: none

The primary goal of this course is to provide aspiring aviation professionals with a comprehensive understanding and enhanced awareness of aviation safety. Class participation in analyzing the probable cause of selected aviation accidents, field trips, and guest speakers will be featured. Federal agencies which regulate aviation, with emphasis on those concerned with safety, will be studied. Information on how flight affects the human body and actions to minimize adverse effects will be studied.

General Education Requirements - Associate of Arts Degree, meets Area(s):

General Education Requirements - Associate in Science Degree, meets Area(s):

UNIT TITLES:

1. Accident Causes and Prevention
2. Regulation of Aviation Safety
3. Flight Physiology
4. Psychology of Flight
5. Crew Resource Management

I. Course Overview:

Upon successful completion of this course, the students should be able to identify the factors that contribute to safe flight, recognize hazards to aviation safety and develop attitudes and procedures conducive to safe operations.

II. Units:

Unit 1. Accident Causes and Prevention

General Outcome:

1.0 The students should be able to recognize the factors that ensure the safe outcome of any flight.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 Recognize the trends in aviation accident statistics.
- 1.2 Describe the major causes and related factors involving general aviation accidents and fatalities.
- 1.3 Define human factors.
- 1.4 Discuss pilot error.
- 1.5 Explain why takeoffs and landings.
- 1.6 Discuss techniques that improve students' ability to learn effectively.
- 1.7 Explain why flying is primarily a mental pursuit, not a physical one.
- 1.8 Compare and contrast how short-term and long-term memories are used in aviation.
- 1.9 List techniques for improving memory.
- 1.10 Discuss the effectiveness of simulation in flight training.

- 1.11 Describe how cockpit design affects flight crew performance.
- 1.12 Research and write a paper on an aspect of human factors or aviation safety.

Unit 2. Regulations of Aviation Safety

General Outcome:

2.0 The students should be able to discuss the legislation and organizations that contribute to aviation safety.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Describe federal legislation that regulates safety in aviation.
- 2.2 Trace the events that led to the development of the Federal Aviation Administration and caused changes in regulations and requirements.
- 2.3 Discuss and contrast the FAA promotion of aviation safety and its enforcement policies.
- 2.4 Define the purpose of the National Transportation Safety Board and describe how it accomplishes its mission.
- 2.5 Discuss the benefits of the NASA Aviation Safety Reporting System.
- 2.6 Discuss the international regulation of aviation.
- 2.7 List private organizations that promote aviation safety and describe their activities.
- 2.8 Identify the steps involved in a major accident investigation.

Unit 3. Flight Physiology

General Outcome:

3.0 The students should be able to recognize how the body influences their ability to function under the various conditions encountered in flight.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 3.1 Describe the FAA medical certification process.
- 3.2 Explain the functions and limitations of the eyes.
- 3.3 Recognize illusions that may be encountered in-flight and how to counteract them.
- 3.4 Discuss that causes and prevention of mid-air collisions.
- 3.5 Describe the functions and limitations of the ears.
- 3.6 Define hypoxia and describe how it develops and how it can be prevented.
- 3.7 Discuss aspects of the flight environment, such as noise, temperature, and pressure changes, that impact human performance.
- 3.8 Describe and contrast acute and chronic fatigue.
- 3.9 Discuss the benefits of proper eating habits and exercise.
- 3.10 Recognize the effects of substances that are ingested into the body.
- 3.11 Compare and contrast the effects of depressant and stimulant drugs on the central nervous system.
- 3.12 Discuss the special considerations of night flight.
- 3.13 Recognize the dangers of carbon monoxide poisoning.
- 3.14 Define hyperventilation and describe its systems and cures.

Unit 4. Psychology of Flight

General Outcome:

4.0 The students should be able to recognize the factors that ensure the safe outcome of any flight

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 4.1 Name and describe two types of stress.
- 4.2 List and describe the three stages of stress.
- 4.3 Recognize the causes, symptoms and remedies of emotional stress.
- 4.4 Discuss how personalities and attitudes toward risk taking affect decision making.
- 4.5 Contrast perceptual and cognitive judgement.
- 4.6 Discuss the positive and negative aspects of learning from experience.
- 4.7 Recognize psychological traps that have a detrimental effect on judgement.
- 4.8 Participate in assessment of hazardous attitudes.
- 4.9 Make an oral presentation on an aspect of human factors or aviation safety.

Unit 5. Crew Resource Management (CRM)

General Outcome:

5.0 The students should be able to effectively make use of all available resources to achieve safe and efficient flight operations.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 5.1 Determine the ultimate objective of CRM training.
- 5.2 Describe the important factors of good crew communication.
- 5.3 Discuss the role of leadership in aeronautical decision making.
- 5.4 Discuss how advances in technology will affect the role and performance of flight crews.
- 5.5 Recognize the resources available to general aviation pilots.