



# Broward Community College

## Course Outline

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STATUS:   A  

COMMON COURSE NUMBER:   ASC 1010  

COURSE TITLE:   History of Aviation  

CREDIT HOURS:           3          

CONTACT HOURS BREAKDOWN:

Lecture/Discussion           48          

Lab   

Other   

Contact Hours/Week           3          

CATALOG COURSE DESCRIPTION:

Prerequisite:   None

Corequisite:   None

A survey of Aviation from its beginning with early myths, through gliders, balloon flights and powered flight to the present jet age; Includes effects of wars on the development of civil and military aircraft and discusses significant personnel, flights and aircraft in tracing the advancement of general, commercial and military aircraft. The major emphasis of the course will be directed towards the development of aviation in the United States.

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

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

UNIT TITLES:   (OVER, PLEASE)

**UNIT TITLES:**

1. Prelude - Legends, Kites, Balloons and The Wright Brothers
2. Early Pioneers following the Wright Brothers.
3. The First Air War.
4. The Wings Grow Stronger.
5. Naval Air and Billy Mitchell.
6. Birth of the Air Mail.
7. The Barnstorming Era.
8. The First Airlines.
9. Czar of the Airways.
10. The 1930's.
11. The New Deal and U.S. Airpower.
12. WWII: The Desperate Months.
13. The War in Europe.
14. WWII Victory.
15. Uneasy Peace, and Another War.
16. Vietnam War.
17. General Aviation.
18. The Jet engine and Airline Development.
19. America into Space.

## **I. Course Overview:**

Upon successful completion of this course, the students should be able to discuss the history of aviation.

## **II. Units:**

### **Unit 1. Legends, Kites, Balloons, and the Wright Brothers**

#### General Outcome:

- 1.0 The students should be able to understand the contributions to aviation made by the early pioneers including balloonists and heavier-than-air aircraft designers leading to the Wright Brothers.

#### Specific Learning Outcomes:

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

- 1.1 Identify the contributions to aviation made by the Montgolfier brothers and von Zeppelin.
- 1.2 Describe the major accomplishments made by Cayley, Lilienthal, Pilcher and Mozhaisky.
- 1.3 Explain how Professor Langley almost beat the Wright Brothers in developing a successful heavier-than-air flying machine.
- 1.4 Describe the approach taken by the Wright Brothers in developing their gliders during the period from 1899 to 1902.
- 1.5 Describe the successes experienced by the Wright Brothers during the period from 1902 to 1908.
- 1.6 Summarize the accomplishments of Glenn Curtiss and describe the source of conflict between him and the Wright Brothers.

## Unit 2. Early Pioneers Following the Wright Brothers

### General Outcome:

2.0 The students should be able to discuss the growth and development of aviation in the period following the Wright brothers' successful flight and World War I.

### Specific Learning Outcomes:

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

2.1 Identify several of the early air meets and recognize some of the participants including their accomplishments.

2.2 Discuss some of the daring showmen of the pre-World War I era.

2.3 Describe the epic flight of Calbraith P. Rodgers.

2.4 Identify several of the early women pilots.

### Unit 3. The First Air War

#### General Outcome:

3.0 The students should be able to identify the major developments in aircraft and personalities that played a significant role in aviation during the First World War

#### Specific Learning Outcomes:

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

- 3.1 Discuss the role of the U.S. First Aero Squadron.
- 3.2 Cite the importance of World War I in accelerating aircraft development.
- 3.3 Describe the evolution of fighter aircraft which took place during the war years.
- 3.4 Discuss some of the problems faced by U.A. aircraft manufacturers in gearing up production for the war.
- 3.5 Demonstrate an understanding of the role played by Billy Mitchell in shaping the U.S. Air Service.
- 3.6 Describe the role of the U.S. Naval Air Service during World War I.
- 3.7 Identify some of the leading aces on both sides of the conflict and the aircraft which they flew.

## Unit 4. The Wings Grow Stronger

### General Outcome:

4.0 The students should be able to describe the post-war developments in military and commercial aviation including the barnstorming period.

### Specific Learning Outcomes:

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

4.1 Demonstrate an understanding of the prevailing attitude of the U.S. military in the immediate post-World War I period.

4.2 Recognize the burdens placed on Germany as a result of the Treaty of Versailles which led to political and economic instability.

4.3 Describe the first successful flights across the Atlantic by Lt. Commander read, Alcock and Brown, and Major G.H. Scott.

4.4 Explain why General Mitchell had his army pilots attempt a number of headline flights.

4.5 Describe the first flight around the world by the U.S. Army Air Service.

## Unit 5. Naval Air and Billy Mitchell

### General Outcome:

5.0 The students should be able to describe the contributions to military aviation made by such proponents of aviation as Billy Mitchell and William Moffett.

### Specific Learning Outcomes:

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

- 5.1 Identify some of the early proponents of Naval air power.
- 5.2 Discuss the significance of the sinking of the German battleship Ostfriesland by Mitchell's bombers.
- 5.3 Summarize the development of the Wright Whirlwind and Pratt and Whitney Wasp engines.
- 5.4 Identify several Navy dirigibles and briefly describe their primary function.
- 5.5 Describe the events leading up to the court-martial of Billy Mitchell.
- 5.6 Highlight the purpose and findings of the Morrow Board.

## Unit 6. Birth of the Air Mail

### General Outcome:

- 6.0 The students should be able to discuss the early attempts by the military and Post Office department in carrying the mail.

### Specific Learning Outcome:

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

- 6.1 Describe the first attempt at airmail service in the United States.
- 6.2 Discuss some of the problems encountered by the Post Office Department in inaugurating airmail service.
- 6.3 Identify the type of aircraft flown on the early air mail routes.
- 6.4 Discuss the significance of Jack Knight's epic flight.

## Unit 7. The Barnstorming Era

### General Outcome:

- 7.0 The students should be able to recognize the major contributions to aviation made by the barnstormers and flying circus.

### Specific Learning Outcomes:

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

- 7.1 Identify some of the barnstormers of the early 1920s and recognize their contribution to the growth and development of aviation.
- 7.2 Describe the purpose and significance of the Air Commerce Act of 1926.
- 7.3 Explain why Jake Moellendick is recognized as the father of Wichita's aviation industry.
- 7.4 Describe how Clyde Cessna, Walter Beech, and Lloyd Stearman formed Travel Air Manufacturing Company and their own individual companies.

## Unit 8. The First Airlines

### General Outcome:

- 8.0 The students should be able to discuss the importance of the first airmail act "Kelly Bill" that gave birth to the commercial air carriers.

### Specific Learning Outcomes:

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

- 8.1 Explain the significance of Charles Lindbergh's epic flight to the growth of aviation.
- 8.2 Discuss the importance of the Kelly Bill to the development of airlines in the U.S.
- 8.3 Identify the successful bidders on the first Contract Air Mail (CAM) routes.
- 8.4 Understand how the Ford Motor Company got started in aviation and developed the famous TriMotor.
- 8.5 Describe the formation of the following three aviation empires which monopolized the industry: United Aircraft and Transport Corporation, North American Aviation, and Aviation Corporation (AVCO)

## Unit 9. Czar of the Airways

General Outcome:

- 9.0 The students should be able to describe the role of Post Master Brown in shaping the early airmail routes and bidding process.

Specific Learning Outcomes:

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

- 9.1 Discuss the importance of the McNary-Watres Act in shaping the early airline route structure.
- 9.2 Summarize the purpose and results of the "Spoils Conferences."
- 9.3 Describe how TWA and Delta were formed.
- 9.4 Describe the fate of many smaller carriers such as Reed Airline and Century Air Lines.
- 9.5 Explain how the competition between Ludington Line and Eastern Air Transport led to the air mail scandals of 1934.

## Unit 10. The 1930's

### General Outcome:

10.0 The students should be able to discuss the period of the 1930's in which air racing and long distance flights came into vogue.

### Specific Learning Outcomes:

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

- 10.1 Describe the purpose and political implications of the Black Committee.
- 10.2 Summarize Walter F. Brown's testimony and response to the Ludington-Eastern Air Transport affair.
- 10.3 Explain why the Army was ordered to fly the mail and their experience from February to May 1934.
- 10.4 Define the purpose of the Air Mail Act of 1934 (Black-McKellar Bill) and the Civil Aeronautics Authority Act of 1938.
- 10.5 Describe how Pan Am was formed and how Juan Tripp was able to obtain the Key West to Havana route.
- 10.6 Discuss some of the problems faced by Pan Am in developing service into Central and South America.
- 10.7 Describe the postwar competitive environment for international routes.

## Unit 11. The New Deal and U.S. Airpower

### General Outcome:

11.0 The students should be able to show how the development of aircraft during the 1930's led to the military designs of the 1940's.

### Specific Learning Outcomes:

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

- 11.1 Give your reasons for the prevailing attitude of neutrality during the 1920s and early 1930s.
- 11.2 Explain why the Army had such poor experience in flying the mail during the winter and spring months of 1934.
- 11.3 Discuss the significance of the development of the Pratt & Whitney 400-hp air-cooled Wasp engine.
- 11.4 Give your reasons why the U.S. Naval Air Service placed so much emphasis on rigid airships during the 1930s.
- 11.5 Recognize the position of Congress and the top military leaders regarding airpower in the 1920s, and 1930s.
- 11.6 Describe some of the new generation aircraft which appeared during the late 1930s.

## Unit 13. The Desperate Months

### General Outcome:

12.0 The students should be able to discuss the developments in the Pacific which led to the attack on Pearl Harbor and the U.S. entry into World War I.

### Specific Learning Outcomes:

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

12.1 Describe the damage and discuss the political significance of the Japanese attack on Pearl Harbor.

12.2 Describe the U.S. losses in the Philippines during the months that followed the attack on Pearl Harbor.

12.3 Explain why the battle of Coral Sea was a major strategic victory for the U.S.

12.4 Give reasons for and the implications of the U.S. victory in the battle of Midway.

12.5 Discuss the importance of taking Guadalcanal in the southern Solomon Islands.

## Unit 13. The War in Europe

### General Outcome:

13.0 The students should be able to relate the desperate position of the British in 1941 and how our entry into the War in North Africa turned the tide.

### Specific Learning Outcomes:

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

- 13.1 Summarize the U.S. position on the War in Europe at the time of the fall of France in June 1940.
- 13.2 Highlight the purpose of Operation Torch.
- 13.3 Discuss some of the problems faced by General Eisenhower during the early part of the North African Campaign.
- 13.4 Discuss the importance of the Italian campaign to the allied victory in Europe.
- 13.5 Describe the combined British and American bomber offensive against Germany starting in January 1943.
- 13.6 Describe the preparation of manpower and equipment for the Normandy invasion.
- 13.7 Discuss the importance of tactical and strategic air power during the last year of the War in Europe.

## Unit 14. WWII Victory

### General Outcome:

14.0 The students should be able to discuss the island hopping campaign in the Pacific leading to the ultimate victory over Japan in 1945.

### Specific Learning Outcomes:

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

- 14.1 Identify some of the problems encountered during the Aleutian Campaign.
- 14.2 Describe the role and success of the American Volunteer Group (AVG) known as the Flying Tigers.
- 14.3 Discuss the importance of the Air Transport Command (ATC) in supplying Chinese and American forces fighting the Japanese in China.
- 14.4 Highlight the significance of the retaking of the Philippines and the Battle of Leyte Gulf.
- 14.5 Identify several of the bloody island campaigns leading to the fire bombing and atomic bombing of the Japanese mainland.

## Unit 15. Uneasy Peace and Another War

### General Outcome:

15.0 The students should be able to discuss the immediate post-war period in Europe, the Berlin airlift, and the factors that led to the Korean

### Specific Learning Outcomes:

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

- 15.1 Give reasons for and results of the Berlin airlift.
- 15.2 Explain why the B-52 was developed and how it became such a good investment.
- 15.3 Describe U.S. response to the invasion of South Korea by North Korean and subsequently Chinese troops.
- 15.4 Give President Eisenhower's ultimatum to the Communists in 1953 regarding the continued fighting in Korea.
- 15.5 Describe the type of aircraft and source of manpower for the Korean War.
- 15.6 Give the reason for President Truman recalling General MacArthur in 1951.
- 15.7 Describe some of the results of the Korean war regarding military preparedness.

## Unit 16. The Vietnam War

### General Outcome:

16.0 The students should be able to discuss the factors that led to the Vietnam War and the growing involvement of the U.S. in that war during the turbulent 1960's.

### Specific Learning Outcomes:

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

16.1 Define the theory of flexible response as it pertained to a the military during the 1960's.

16.2 Explain why the U.S. became involved in Vietnam.

16.3 Describe the Geneva Accords.

16.4 Describe the powers given President Johnson under the Gulf of Tonkin resolution.

16.5 Compare and contrast the Vietnam War with WWII and the Korean War.

16.6 Describe the important role played by the helicopter in the Vietnam War.

16.7 Discuss Secretary McNamara's policy of cost effectiveness regarding military procurement.

16.8 Describe some of the aircraft that entered service with the U.S. in the 1980's.

## Unit 17. General Aviation

### General Outcome:

17.0 The students should be able to relate the importance of the general aviation segment including its role in providing transportation for the business community.

### Specific Learning Outcomes:

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

- 17.1 Describe the private flying market in the immediate postwar period.
- 17.2 Summarize the history of air racing in the United States.
- 17.3 Define the purpose of the Experimental Aircraft Association (EAA).
- 17.4 Describe the FAA position regarding Ultra lights.
- 17.5 Describe how Piper Aircraft Corporation was formed and the role of the J-3 Cub in its history.
- 17.6 Identify some of the successful early aircraft developed by Beech Aircraft Corporation and Cessna Aircraft Company.
- 17.7 Discuss some of the uses of general aviation aircraft.
- 17.8 Summarize the brief history of helicopters and describe some of their uses.

## Unit 18. The Jet Engine and Airline Development

### General Outcomes:

18.0 The students should be able to describe the early pioneering efforts in the development of jet engines and how that has transformed the air transportation industry.

### Specific Learning Outcomes:

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

- 18.1 Discuss the development of the jet engine from the 1910 Coanda jet.
- 18.2 Explain why Boeing has held such a dominant position in jet aircraft development.
- 18.3 Summarize the facts leading to the merger of McDonnell and Douglas.
- 18.4 Highlight some of the problems and successes which Lockheed has experienced in recent years.
- 18.5 Discuss some of the causes and effects of the Airline Deregulation of 1978; the Air Controllers strike; the Slot System; Flow Control.
- 18.6 Highlight the extraordinary career of William P. Lear and the development of the Learjet.

## Unit 19. American into Space

### General Outcome:

19.0 The students should be able to understand the important contributions made by our exploration into space starting in the early 1960's and up through the shuttle flights.

### Specific Learning Outcomes:

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

- 19.1 Identify some of the early pioneers in rocketry and discuss their accomplishments.
- 19.2 Describe the U.S. development of rocketry during the immediate postwar period.
- 19.3 Describe the U.S. reaction to the Soviet launching of Sputnik I on October 4, 1957.
- 19.4 Give the purpose of the Mercury and Gemini series of space probes.
- 19.5 Discuss the development of the Apollo program leading to the landing on the moon.
- 19.6 Give the purpose of the Space Shuttle program and the unmanned space probes of recent years.