

# AERONAUTICAL SCIENCE/ PROFESSIONAL PILOT



## PROGRAM OF STUDY

### Liberal Arts and Sciences (61 credits)

ECO 156 Principles of Econ. (Macro Economics) ....	3
ECO 157 Principles of Econ. (Micro Economics) .....	3
EGL 101 Composition-Rhetoric .....	3
EGL 102 Composition-Literature .....	3
EGL 209 Technical Communications .....	3
HIS 126 The West and the World.....	3
MTH 129 Pre Calculus .....	4
MTH 130 Calculus I with Applications .....	4
MLG Modern Language elective (level II or higher) ..	3
PHY 135 College Physics I .....	4
PHY 136 College Physics II .....	4
PSY 101 Intro to Psychology .....	3
PSY 331 Industrial /Organizational Psychology .....	3
Arts & Science electives .....	18

### Support Courses (3 credits)

BCS 102 Introduction to Computers .....	3
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### Required Courses

#### Aeronautical Science - Lecture (55 credits)

AVN 100 General Aeronautics .....	3
AVN 101 Aviation Industry - Historical.....	3
AVN 102 Meteorology .....	3
AVN 104 Private Pilot Ground .....	3
AVN 208 Instrument Pilot Ground .....	3
AVN 211 Commercial Pilot Ground .....	3
AVN 300 Government in Aviation .....	3
AVN 320 Air Carrier Flight Operations .....	3
AVN 321 Physiology of Flight .....	3
AVN 322 Advanced Aircraft Systems.....	3
AVN 400 Aviation Law .....	3
AVN 421 Gas Turbine Engines.....	3
AVN 422 Aerodynamics and Aircraft Performance....	4
AVN 423 Crew Resource Management. ....	3
AVN 424 Advanced Avionics and Cockpit Auto .....	3
AVN 425 Safety of Flight.....	3
AVN Aviation Electives* .....	6

#### Aeronautical Science - Flight Training (10 credits)

AVN 110 Introduction to Flight I .....	0
AVN 105 Private Pilot – Flight to solo .....	1
AVN 106 Private Pilot – Flight to certificate.....	2
AVN 209 Instrument Pilot - Flight .....	2
AVN 212 Commercial Pilot – Flight .....	2
AVN 310 Flight Instructor – Flight.....	3

**Total Credits: 129**

## WHAT IS THE BACHELOR OF SCIENCE IN AERONAUTICAL SCIENCE/ PROFESSIONAL PILOT?

Since 1903, when two bicycle manufacturers lifted their frail craft at Kitty Hawk, North Carolina, the world of aviation has changed dramatically. The primary elements of the air transportation industry—airplanes, airports, and airways—are essential parts of a prodigious economic engine that contributes to our economy. The air transportation industry also provides employment for many.

This popular Farmingdale State program provides training for entry-level pilot positions within the air transportation industry. The Professional Pilot Program offers the opportunity to earn the flight certificates/ratings that will provide you with necessary skills to obtain entry-level pilot positions within the air transportation industry.

### CURRICULUM SUMMARY

Degree Type: .....B.S.  
Total Required Credits: .....129

#### Admission Requirements:

Mathematics: 2 Units of Defined Math  
Science: 1 Unit of Laboratory Science

#### For additional information

Professor Robert Temme, Acting Chair  
Aviation Department  
631-420-2308

#### School of Engineering Technologies

Dean's Office: .....631-420-2115  
Office of Admissions: .....631-420-2200

**AVN 100 General Aeronautics**

This course provides introductory orientation and practical information essential to the career progression of both pilots and aviation administrators. Topics include: attributes of an aviation professional; aircraft design, components, performance, operation, maintenance and safety with human factors emphasis. Required for flight training.

(3,0) 3 credits Fall, Spring

**AVN 101 Aviation Industry-History**

This course is a basic survey of the aviation industry viewed from a historical perspective. Topics covered will range from the early days of flight to the present. At the conclusion of this course the student will have a comprehensive knowledge of the air transportation/aviation industry and will understand its significant social/economic impact upon the United States and the world.

(3,0) 3 credits Fall, Spring

**AVN 102 Meteorology**

A basic course in Aviation Weather. Weather theory including differential heating, air mass development, wind frontal activity and systems, weather hazards, weather reporting and weather forecasting is covered. Charts which are studied include Surface Analysis and Weather Depiction Charts, Constant Pressure Charts, Composite Moisture Stability Charts.

(3,0) 3 Credits Spring

**AVN 110 Introduction to Flight**

Introduction to Flight offers students with no prior flight time an opportunity to begin training in normal preflight, in-flight and post-flight procedures as provided by the SUNY Flight Line. The student is afforded 5 hours combined flight and simulator time and may then commence flight training for Private pilot.

*Prerequisite: Matriculated Aviation Dept. Student*  
(0,2) 2 ncu (non-credit units) Fall, Spring

**AVN 105/106 Private Pilot Flight**

Private Pilot Flight will enable the student to meet FAA FAR141 requirements for Private Pilot Certification. Selected subject areas will include Aerodynamics, Regulations, Aviation Weather, Aircraft Performance, Safety of Flight, Navigation, Aeronautical Decision Making, Airport Operations Pre and Post flight procedures, Takeoffs and Landings, Stall/Spin Awareness and more. The course must be completed within 10 months from the date of enrollment. AVN 105- Student achieves solo flight, AVN 106-Student achieves Private Pilot Certification.

*Prerequisite: Matriculated Aviation Dept. Student*  
*Corequisite: AVN100*

AVN 105 (0,2) 1 Credit

AVN 106 (0,4) 2 Credit Fall, Spring

**AVN 209/212 Commercial/Instrument Pilot**

This course will enable the student to meet FAA requirements for the Commercial Pilot Certificate with Instrument Rating. Selected subject areas will include Regulations for IFR (Instrument Flight Rules) Flight Resources for information, ATC procedures for IFR, IFR navigation and approaches, aviation weather reports and forecasts. AVN209 - Student achieves Instrument Rating, AVN212 - Student achieves Commercial Certificate.

*Prerequisite: Matriculated Aviation Dept. Student FAA Private Pilot Certificate*

AVN 209 (0,4) 2 Credit

AVN 212 (0,4) 2 Credit Fall, Spring

**AVN 300 Government in Aviation**

This course expands and focuses on many of the regulatory subjects in AVN101 (Aviation History). It is a study of the constitutional, legislative, executive and judicial control of aviation from the local, state, federal and international perspective. This course forms the foundation for AVN400 Aviation Law.

*Prerequisite: AVN101; Junior or Senior Standing*  
(3,0) 3 Credits Fall

**AVN 310 Flight Instructor – Flight**

This course prepares the Commercial Pilot to acquire the initial Flight Instructor Certificate for Airplane. Training will consist of at least 30 hours flight and 40 hours ground training. Emphasis will be placed on successfully passing the FAA Fundamentals of Instruction (FOI) and Flight Instructor – Airplane Knowledge tests for completion of the course.

*Prerequisites: Matriculated Aviation Dept. Student, AVN210, FAA Commercial Certificate with Instrument rating.*

(3,2) 3 Credits Fall, Spring

**AVN 320 Air Carrier Flight Operations**

A study of the operational considerations and procedures of air carrier flight operations. Flight Operations conducted under 14CFR121 (Part121 air carriers) are highlighted. Also included are 14CFR135 (Part135) Air Carriers, supplemental air carriers and Operators of Large Aircraft flight operations.

*Prerequisites: AVN210, AVN220, FAA Private Pilot Certificate*

(3,0) 3 Credits Fall

**AVN 321 Physiology of Flight**

Operational and lifestyle considerations and consequences arising from physiological factors will be introduced, with an emphasis on the atmosphere and high-altitude flight (Hyperbarism). General fundamentals of anatomy and psychology will be reviewed to impart career-prolonging health maintenance and stress reduction techniques. Subtle yet critical aviation issues such as situational awareness and crew resource management will be explored.

*Prerequisite: AVN 100 or Department Chair Approval. Sophomore Advanced Standing*

(3,0) 3 credits Spring

**AVN 322 Advanced Aircraft Systems**

This course exposes the student to the advanced aircraft systems commonly found in air carrier aircraft. Included are Electrical Systems, Hydraulics, Pneumatics, Flight Controls, Landing Gear Systems, Auto-pilots and Cockpit Automation, Master Warning and Caution Annunciation Systems. At the conclusion of this course, the student should have a good level of operational understanding of these systems.

*Prerequisite: AVN210, FAA Commercial Pilot Certificate with Instrument rating.*

(3,0) 3 Credits Spring

**AVN 400 Aviation Law**

Aviation Law develops the student's knowledge to the application level of learning by emphasis on real cases to demonstrate the legal, regulatory and government theory previously discussed in AVN101 and AVN300. Emphasis will be on the FAA's roles in regulating aviation including the rule making process, certification of airmen, medical certification and enforcement are studied.

*Prerequisite: AVN300*  
(3,0) 3 Credits Fall

**AVN 421 Gas Turbine Engines**

An in depth study of gas turbine engines as found in air carrier and high performance aircraft. Topics include the history of turbine development, jet propulsion, theory engine design and construction and control systems.

*Prerequisite: AVN 210, AVN 321; FAA Commercial Pilot Certificate with Instrument Rating.*  
(3,0) 3 credits Fall

**AVN 422 Aerodynamics and Aircraft Performance**

Advanced aerodynamic principles will be introduced following extensive review of fundamentals. Emphasis will be on practical design and performance considerations including mission, cost, and feasibility. Laboratory exercises will primarily utilize software simulations, culminating in actual student project wind-tunnel testing.

*Prerequisites: AVN 100, AVN 210, PHY 136.*  
(3,1) 4 credits Fall

**AVN 423 Crew Resource Management**

This course deals with flight crew decision making. It includes, but is not limited to: optimum decision-making techniques; personality profiling; crew communication; high risk areas of a flight; maintaining situational and spatial awareness; crew discipline; and airline-level standard operating procedures.

*Prerequisite: AVN 210, Jr. Advanced Standing and Completion of an AVN 3000 level course, FAA Commercial Certificate with Instrument Rating*  
(3,0) 3 credits Fall

**AVN 424 Advanced Avionics and Cockpit**

**Automation**  
Introduction to modern cockpit avionics suites as found in Corporate Jets and Transport Category aircraft. Principles, operation and limitations of advanced avionics suites typically found. Topics include: automatic flight control, flight director systems, stability augmentation systems, power management systems, flight management systems, autoland/go around systems. Latest technology navigation systems: INS, IRS, GPS LAAS WAAS.

*Prerequisites: AVN322, FAA Commercial Certificate w/ Instrument rating.*  
(3,0) 3 Credits Spring

**AVN 425 Safety of Flight**

This course undertakes a cross-curricular review of factors influencing aviation safety, such as airport and aircraft design, crew training, and air traffic and navigation facilities. Relevant government regulations will be introduced although the primary emphasis will be on case studies and statistical analysis. Guest speakers and field trips may supplement lecture materials.

*Prerequisite: AVN210, FAA Commercial Certificate with Instrument Rating*  
(3,0) 3 Credits Spring