

AVIA 1113
sec. 1 2/3/4/900
INTRO TO AVIATION
UNIVERSITY OF OKLAHOMA

_____, 20____

I, _____, have acquired and have in my possession a copy of the training course outline, training syllabus, and safety procedures and practices for AVIA 1113, Intro to Aviation.

Student Signature

Flight Instructor Signature

Chief Flight Instructor Signature

**UNIVERSITY OF OKLAHOMA
DEPARTMENT OF AVIATION
AVIATION 1113 SYLLABUS
INTRODUCTION TO AVIATION**

January 11, 1999

Instructor: David McClurkin

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact department personnel as soon as possible to discuss accommodations necessary to ensure full participation and facilitate educational opportunities.

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**PRIVATE PILOT
GROUND TRAINING SYLLABUS**

GROUND TRAINING COURSE OBJECTIVES

The student will obtain the necessary aeronautical knowledge and meet the prerequisites specified in Federal Aviation Regulation Part 61 for a private pilot written test. Additionally, the student will be introduced to the concepts of flying safety, professionalism, and decision making required to become a safe, competent private pilot.

GROUND TRAINING COMPLETION STANDARDS

The student has demonstrated through oral discussion, written and oral quizzes, written examinations, and records that the prerequisites specified in Federal Aviation Regulation Part 61 are met and that the knowledge necessary to pass the private pilot written test has been obtained.

Part 141 - A*

STAGE	LESSON	CHAPTER	HOURS		
I	1	1	2.6		
	2	2	2.6		
	3	3	2.6		
	4	4	3.9		
	5	5	2.6		
	6	Review and Exam		1.0	

II	7	8	3.9		
	8	9	3.9		
	9	Private Pilot FARs	2.6		
	10	Review & Exam		1.0	

III	11	6	2.6		
	12	7	2.6		
	13	10	2.6		
	14	11	2.6		
	15	Review	2.6		
	16	Final Exam			2.0
TOTAL			37.7	2.0	2.0

GRAND TOTAL: 41.7 HOURS

Note: The Chapter and Sections referred to in this syllabus are based on the Private Pilot Manual and the Federal Aviation Regulations published by Jeppesen Sanderson, Inc, Inglewood Colorado. The hours designated for each chapter are suggested guidelines only, and may vary at the Instructor's discretion. In no case will the hours of instruction be less than the total number of hours defined in this syllabus.

*This time allocation table to be used for college credit students.

STAGE I

STAGE OBJECTIVE

During this stage, the student will be introduced to airplanes and become familiar with the aerodynamic principles of flight that affect their operation. The student also will obtain a basic knowledge of safety of flight, airports, airspace, aeronautical charts, radio communications and procedures, and air traffic control services, including the use of radar. Additionally, the student will become familiar with the major components and supporting systems of the airplane. Finally, the student will become thoroughly familiar with the Federal Aviation Regulations as they apply to private pilot operations.

STAGE COMPLETION STANDARD

This stage is complete when the student has taken the Stage I written exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to Stage II.

GROUND LESSON 1

TEXT REFERENCE: Private Pilot Manual - Chapter 1, "Fundamentals of Flight"

VIDEO PRESENTATION: Private Pilot Course - Volume 1, "Fundamentals of Flight"

LESSON OBJECTIVE: During this lesson the student is introduced to pilot training, opportunities in aviation, and human factors in aviation.

CONTENT:

Section A - "Pilot Training"

- Getting Started
- Eligibility Requirements
- Types of Training
- Private Pilot Privileges and Limitations

Section B - "Aviation Opportunities"

- Category/Class Ratings
- Additional Pilot Certificates
- Aviation Careers

Section C - "Introduction to Human Factors"

- Aeronautical Decision Making
- Crew Resource Management Training
- Pilot in Command Responsibility
- Communication
- Resource Use
- Workload Management
- Situational Awareness
- Aviation Physiology
- Alcohol, Drugs, and Performance
- Fitness for Flight

COMPLETION STANDARDS:

Through oral quizzing and discussion, the student will demonstrate an understanding of the fundamentals of flight before progressing to Ground Lesson 2.

GROUND LESSON 2

TEXT REFERENCE: Private Pilot Manual - Chapter 2, "Airplane Systems"

VIDEO PRESENTATION: Private Pilot Course - Part I, "Airplane Systems"

LESSON OBJECTIVE: During this lesson the student is introduced to airplanes, the powerplant and related systems, and the flight instruments.

CONTENT:

Section A - "Airplanes"

- Major Components
- Engine and Propeller

Section B - "Powerplant and Related Systems"

- Ignition System
- Induction System
- Carburetor Icing
- Fuel Injection and Turbocharging
- Oil System
- Cooling System
- Propeller/ Propeller Hazards
- Electrical Systems

Section C - "Flight Instruments"

- Pitot-Static Instruments
- Airspeed Indicator
- Altimeter
- Vertical Velocity Indicator
- Gyroscopic Instruments
- Attitude Indicator
- Heading Indicator
- Turn Coordinator
- Magnetic Compass

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 2, Sections A, B, and C. Through oral quizzing and discussion, the student will demonstrate an understanding of airplanes, powerplants, and instruments before progressing to Ground Lesson 3.

GROUND LESSON 3

TEXT REFERENCE: Private Pilot Manual - Chapter 3, "Aerodynamic Principles"

VIDEO PRESENTATION: Private Pilot Course - Part I, "Aerodynamic Principles"

LESSON OBJECTIVE: During this lesson the student learns about the four forces of flight, aerodynamic principles of maneuvering flight, and factors affecting airplane stability. The student will gain an understanding of stall/spin characteristics as they relate to training airplanes and the importance of prompt recognition of stall indications.

CONTENT:

Section A - "The Four Forces Of Flight"

- Lift
- Airfoils
- Pilot Control of Lift
- Weight
- Thrust
- Drag
- Ground Effect

Section B - "Stability"

- Three Axes of Flight
- Center of Gravity
- Longitudinal Stability
- Lateral Stability
- Directional Stability
- Stall awareness, spin entry, spins, and spin recovery techniques

Section C - "Aerodynamics of Maneuvering Flight"

- Forces Acting on a Climbing Airplane
- Forces acting on a Descending Airplane
- Forces Acting on a Turning Airplane
- Left Turning Tendencies
- Load Factor

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 3, Sections A, B, and C. Through oral quizzing and discussion, the student will demonstrate an understanding of the aerodynamics of maneuvering flight, the four forces of flight, and stability before progressing to Ground Lesson 4 .

GROUND LESSON 4

TEXT REFERENCE: Private Pilot Manual - Chapter 4, "The Flight Environment"

VIDEO PRESENTATION: Private Pilot Course - Part II – "The Flight Environment"

LESSON OBJECTIVE: The objective of this lesson is for the student to learn important safety of flight considerations including collision avoidance, scanning techniques, right-of-way regulations, and minimum safe altitudes. The student will also become thoroughly familiar with airports, including markings and lighting aids. In addition, the student will become familiar with the different classes of airspace and aeronautical charts.

CONTENT:

Section A - "Safety of Flight"

- Visual Scanning
- Collision Avoidance
- Blind spots and Aircraft Design
- Airport Operations
- Right-of-Way Rules
- Minimum Safe Altitudes

Section B - "Airports"

- Controlled and Uncontrolled Airports
- Runway and Taxiway Layout and Markings
- Wind Direction Indicators
- Segmented Circle
- Noise Abatement Procedures
- Glide Slope Lighting
- Airport Lighting

Section C - "Aeronautical Charts"

- Latitude and Longitude
- Topographical Information
- Obstructions
- Legend
- Symbolology
- Airspace
- Airspace
- Classification
- Controlled/Uncontrolled Airspace
- Cloud Clearance and Visibility Requirements
- Class A Airspace
- Class B Airspace
- Class C Airspace
- Class D Airspace
- Class E Airspace
- Class G Airspace
- Airport Advisory Area
- Special Use Airspace
- Military Training Routes

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 4, Sections A, B, C, and D. Through oral quizzing and discussion, the student will demonstrate an understanding of the flight environment before progressing to Ground Lesson 5.

GROUND LESSON 5

TEXT REFERENCE: Private Pilot Manual - Chapter 5, “Communication and Flight Information”

VIDEO PRESENTATION: Private Pilot Course - Part II, “Communications and Flight Information”

CONTENT:

Section A – “Radar and ATC Services”

- Radar
- Transponder
- FAA Radar Systems
- VFR Radar Services
- Flight Service Stations

Section B – “Radio Communications”

- VHF Communication Equipment
- Coordinated Universal Time
- Common Traffic Advisory Frequency (CTAF)
- Controlled Airports and ATC Procedures
- Emergency Locator Transmitters (ELT)

Section C – “Sources of Flight Information”

- Federal Aviation Regulations
- Airport/Facility Directory
- Notices to Airmen (NOTAMS)
- Advisory Circulars (ACs)
- Jeppesen Information Services

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 5, Sections A, B, and C. Through oral quizzing and discussion, the student will demonstrate an understanding of communications and flight information before progressing to Ground Lesson 6.

GROUND LESSON 6 STAGE I REVIEW AND EXAM

LESSON OBJECTIVE: The exam administered during this session evaluates the student's comprehension of the material presented in Chapters 1 through 5 of the Private Pilot Manual as they apply to private pilot operations.

CONTENT:

Stage I Review and Exam:

- The Fundamentals of Flight
- Aircraft Systems and Performance
- The Flight Environment
- Communication and Flight Information

COMPLETION STANDARDS:

The lesson and stage are complete when the student has completed the exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to Stage II.

STAGE II

STAGE OBJECTIVE

During this stage, the student will be introduced to meteorology and learn how to obtain and interpret the various weather reports, forecasts and charts. Additionally, the student will become familiar with weather patterns and the weather hazards associated with aviation. Finally, the student will become familiar with the Federal Aviation Regulations as they apply to private pilot operations.

STAGE COMPLETION STANDARD

This stage is complete when the student has taken the Stage II written exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to Stage III.

GROUND LESSON 7

TEXT REFERENCE: Private Pilot Manual - Chapter 8, "Airplane Performance"

VIDEO PRESENTATION: Private Pilot Course - Part IV, "Arplane Performance"

LESSON OBJECTIVE: During this lesson, the student learns to use data supplied by the manufacturer to predict airplane performance and compute and control the weight and balance of the airplane. The student will also become familiar with the basic functions of the mechanical flight computer.

CONTENT:

Section A – "Predicting Performance"

- Aircraft Performance and Design
- Chart Presentations
- Factors Affecting Performance
- Takeoff and Landing Performance
- Climb and Cruise Performance

Section B – "Weight and Balance"

- Importance of Weight and Balance
- Weight and Balance Terms
- Principles of Calculating Weight and Balance
- Methods of Calculating Weight and Balance
- Operating at Maximum Weight

Section C – "Flight Computers"

- Navigation Theory
- Time, Speed, and Distance
- Airspeed Computations
- Density Altitude Computations
- Wind Problems
- Conversations
- Electronic Flight Computers

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 8, Sections A, B, and C. Through oral quizzing and discussion, the student will demonstrate an understanding of airplane performance before progressing to Ground Lesson 8.

GROUND LESSON 8

TEXT REFERENCE: Private Pilot Manual - Chapter 9, “Navigation”

VIDEO PRESENTATION: Private Pilot Course - Part IV, Navigation

LESSON OBJECTIVE: During this lesson, the student learns the basic concepts and principles of VFR navigation using pilotage, dead reckoning, and aircraft navigation systems. He will become familiar with guidelines and recommended procedures relating to flight planning, the use of an FAA flight plan and VFR cruising altitudes.

CONTENT:

Section A – “Piloting and Dead Reckoning”

- Pilotage
- Dead Reckoning
- Navigation Plotter
- Flight Planning
- VFR Cruising Altitudes
- Fuel Requirements

Section B - "VOR Omnidirectional Range"

- Principles of Operation
- VOR Ground and Airborne Equipment
- Basic Procedures and Orientation
- VOR Test Signals
- Distance Measuring Equipment (DME)

Section C – “Automatic Direction Finder (ADF) Navigation”

- ADF Equipment
- Orientation
- Homing and Tracking
- ADF Intercepts
- Movable-Card Indicator
- Radio Magnetic Indicator (RMI)
- Limitations

Section D – “Advanced Navigation”

- VORTAC-Based Area Navigation (RNAV)
- Long Range Navigation (LORAN)
- Inertial Navigation System (INS)
- Advanced Navigation (Continued)
- Global Positioning System (GPS)

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 9, Sections A, B, C, and D. Through oral quizzing and discussion, the student will demonstrate an understanding of navigational concepts and procedures necessary to plan and complete a flight under VFR conditions before progressing to Ground Lesson 9.

GROUND LESSON 9

TEXT REFERENCE: Federal Aviation Regulations

LESSON OBJECTIVE: During this lesson, the student will study the appropriate Federal Aviation Regulations necessary for the presolo written exam, private pilot privileges, and for safe airplane operations within the National Airspace System. Additionally, the student will become familiar with National Transportation Safety Board (NTSB) accident reporting requirements.

CONTENT:

FAR Part 1
FAR Part 61
FAR Part 91
NTSB 830

COMPLETION STANDARDS:

The student will complete assigned questions over the content of the Federal Aviation Regulations. Through oral quizzes and discussion, the student will demonstrate an understanding of the Federal Aviation Regulations as they apply to private pilot operations.

GROUND LESSON 10 STAGE II REVIEW AND EXAM

LESSON OBJECTIVE: The exam administered during this session evaluates the student=s comprehension of the material presented in Chapters 6 and 7 of the Private Pilot Manual and the Federal Aviation Regulations as they apply to private pilot operations.

CONTENT:

Stage II Review and Exam:

- Federal Aviation Regulations
- “Meteorology for Pilots”
- “Interpreting Weather Data”

COMPLETION STANDARDS:

This lesson and stage are complete when the student has completed the exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to Stage III.

STAGE III

STAGE OBJECTIVE

During this stage, the student will learn to predict performance and control the weight and balance of the airplane. In addition, the student will be introduced to the use of flight publications, pilotage, dead reckoning and radio navigation. This includes the basic concepts of how to use aeronautical charts, plotters, and flight computers to successfully plan a cross-country flight. The student will learn to use the VOR, ADF, and advanced navigational systems. The student will be introduced to and gain an understanding of the physiological factors which can affect pilot and passengers in flight. Finally, the student will learn how to accomplish comprehensive preflight planning and gain insight into factors affecting the aeronautical decision-making process.

STAGE COMPLETION STANDARD

This stage is complete when the student has completed the Stage III review and the instructor has reviewed each incorrect response to ensure complete student understanding.

GROUND LESSON 11

TEXT REFERENCE: Private Pilot Manual - Chapter 6, "Meteorology for Pilots"

VIDEO PRESENTATION: Private Pilot Course - Part III, "Meteorology for Pilots"

LESSON OBJECTIVE: Through the study of meteorology, the student will learn the causes of various weather conditions, frontal systems, and hazardous weather phenomena. In addition, the student will learn to recognize critical weather situations from the ground and in flight.

CONTENT:

Section A - "Basic Weather Theory"

- The Atmosphere
- Coriolis Force
- Wind
- Moisture
- Change of State
- Humidity

Section B - "Weather Patterns"

- Atmosphere Stability
- Temperature and Moisture
- Airmasses
- Types of Fronts

Section C - "Weather Hazards"

- Thunderstorms
- Turbulence
- Wind Shear
- Microbursts
- Convective Currents
- Obstructions to Wind Flow
- Clear Air Turbulence
- Wake Turbulence
- Icing
- Restrictions to Visibility

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 6, Sections A, B, and C. Through oral quizzing and discussion, the student will demonstrate an understanding of basic weather theory, patterns, and hazards before progressing to Ground Lesson 12.

GROUND LESSON 12

TEXT REFERENCE: Private Pilot Manual - Chapter 7, "Interpreting Weather Data"

VIDEO PRESENTATION: Private Pilot Course - Volume III, "Interpreting Weather Data"

LESSON OBJECTIVE: During this lesson, the student will learn how to procure and interpret weather reports, forecasts, and charts. In addition, the student will become familiar with the various sources of weather information.

CONTENT:

Section A - AThe Forecasting Process ≅

- Forecasting Methods
- Types of Forecasts
- Forecasting Accuracy and Limitations

Section B - "Printed Reports and Forecasts"

- Aviation Routine Weather Reports (METARs)
- Pilot Reports
- Radar Reports
- Terminal Aerodrome Forecasts (TAFs)
- Area Forecasts
- In-flight Advisories
- Winds and Temperatures Aloft Forecasts
- NOTAMs

Section C - "Graphic Weather Products"

- Surface Analysis Chart
- Weather Depiction Chart
- Radar Summary Chart
- Low-Level Significant Weather Prognostic Chart

Section D - "Sources of Weather Information"

- Preflight Weather Briefings
- Supplemental Weather Sources
- In-Flight Weather Services
- In-Flight Weather Advisories

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 7, Sections A, B, C, and D. Through oral quizzing and discussion, the student will demonstrate an understanding of interpreting weather data before progressing to Ground Lesson 13.

GROUND LESSON 13

TEXT REFERENCE: Private Pilot Manual - Chapter 10, Applying Human Factors Principles ≅

LESSON OBJECTIVE: The student will gain an insight into aviation physiological factors as they relate to private pilot operations. He will become familiar with cockpit resource management procedures, human factors training, and gain a basic understanding of aeronautical decision making and judgement.

CONTENT:

Section A – “Aviation Physiology”

- “Vision in Flight”

- The Eye
- Night Vision and Scanning
- Visual and Landing Illusions
 - Disorientation
 - Spatial Illusions
 - Motion Sickness
 - Respiration
 - Hypoxia
 - Hyperventilation

- “Aeronautical Decision Making”

- The Decision Making Process
- Pilot-in-Command Responsibility
- Workload Management
- Situational Awareness
- Applying Human Factors Training
- Planning for Alternatives if the Planned Flight cannot be completed or Delays are encountered

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 10, Sections A and B. Through oral quizzing and discussion, the student will demonstrate an understanding of aviation decision making and physiology before progressing to Ground Lesson 14.

GROUND LESSON 14

TEXT REFERENCE: Private Pilot Manual - Chapter 11, “Flying Cross-Country”

LESSON OBJECTIVE: The student will develop a basic understanding of the planning process for a cross country flight and will become familiar with the details of flying the typical cross country trip. Weather evaluation techniques and the necessity to plan for diversions will be developed.

CONTENT:

Section A – “The Flight Planning Process”

- Route Selection
- Outlook and Standard Weather Briefings
- Developing the Navigation Log
- The Flight Plan

Section B – “The Flight”

- In-Flight procedures

COMPLETION STANDARDS:

The Student will complete assigned questions from Chapter 11, Sections A and B. Through oral quizzing and discussion, the student will demonstrate an understanding of the flight planning process.

GROUND LESSON 15 STAGE III REVIEW

LESSON OBJECTIVE: This period will be used to review the student's comprehension of Chapters 8 through 11 of the Private Pilot Manual and to review identified problem areas before the final exam. Questions covering this Stage will be included in the final examination.

CONTENT:

Stage III Review

- “Airplane Performance”
- “Navigation”
- “Applying Human Factors Principles”
- “Cross-Country Flying”

COMPLETION STANDARDS:

This lesson and stage are complete when the student has completed the review and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to the course final examinations.

GROUND LESSON 16 FINAL EXAM

LESSON OBJECTIVE: This testing session is designed to evaluate the student's comprehension of the academic material presented in this course and the student's readiness to complete the FAA Private Pilot Written Examination.

CONTENT:

Completion of Private Pilot Final Exam

COMPLETION STANDARDS:

Each student should complete Private Pilot Final Exam with a minimum passing score of 70%.

Part 141 - B**

STAGE	LESSON	CHAPTER	HOURS		
I	1	1	2.6		
	2	2	2.6		
	3	3	2.6		
	4	4	3.9		
	5	5	2.6		
	6	Review and Exam		0.5	

II	7	8	2.6		
	8	9	2.6		
	9	Private Pilot FARs	2.6		
	10	Review & Exam		0.5	

III	11	6	2.6		
	12	7	2.6		
	13	10	2.6		
	14	11	2.6		
	15	Review	2.6		
	16	Final Exam			2.0
TOTAL			33.8	1	2.0

GRAND TOTAL – 36.8 HOURS

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**This time allocation table to be used for non-credit students only.