# Private Pilot Ground School Course No. 40540 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes: Aviation Maintenance and Operations (47.0607) – Flight Operations Strand

Course Description: An **application-level** course that builds upon knowledge previously learned on Aviation Fundamentals. Students will additionally explore rules and regulations, airspace, weather, operations, aerodynamics, aircraft performance, aeronautical decision making, and basic navigation principles, in preparation for the completion of the Federal Aviation Administration (FAA) Private Pilot written test Course covers foundational knowledge vital for many aviation careers.

Course Requirements: Although this course can be taught by any teacher using a variety of available curriculum options, for students to be able to qualify to take the FAA Private Pilot Written Test, this course must be taught by an FAA Basic Ground Instructor (BGI), Advanced Ground Instructor (AGI), or Certified Flight Instructor (CFI). Teachers wishing to obtain an FAA AGI or BGI certification must complete a training course and pass an FAA BGI or AGI certification knowledge examination. Students successfully completing this course (taught by an AGI, BGI, or CFI) can take the FAA Private Pilot Written Test through a third-party vendor for an additional fee paid directly to the vendor.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

**Prerequisite/Corequisite:** Aviation Fundamentals (40410)

## Benchmark 1: CERTIFICATES, RULES, REGULATIONS, AND SAFETY

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Explain the various sections contained within the Federal Aviation Regulations (FAR) and the specific operations they cover. |  |
| 1.2 | Explain the requirements, privileges, and limitations of each airmen certification category and class |  |
| 1.3 | Explain and give examples of aircraft category, class, and type |  |
| 1.4 | Explain the airworthiness requirements for an aircraft, including documents, inspections, including any operations-specific requirements. |  |
| 1.5 | Explain the importance of medical certification including conditions that may require a pilot to obtain a special issuance medical certificate. |  |
| 1.6 | Organize medical certification standards according to medical certificate classifications (e.g. First-Class, Second-Class, Third-Class). |  |
| 1.7 | Distinguish the differences between the four types of publications produced by the FAA and NTSB applicable to general aviation flying such as an Advisory Circular (AC), Airworthiness Directive (AD), Notice to Air Missions (NOTAM), or NTSB Part 830. |  |
| 1.8 | Assess scenarios related to FAR Part 91 (flights for non-commercial operations). |  |
| 1.9 | Identify the types of information contained in the Aeronautical Information Manual (AIM). |  |

## Benchmark 2: UNDERSTANDING AIRPORT OPERATIONS, ATC, AND COMMUNICATIONS

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Recall the phonetic alphabet and light gun signals. |  |
| 2.2 | Describe the various parts of an airfield including the color, function, and location of airport signs, lights, and navigational aids. |  |
| 2.3 | Identify different airport categories. |  |
| 2.4 | Summarize the services ATC can provide to pilots. |  |
| 2.5 | Discuss lost communications during various phases of flight |  |

## Benchmark 3: AERONAUTICAL CHARTS AND AIRSPACE

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Analyze the topography, facilities, and obstacles, in a given region for limitations that may affect a given flight. |  |
| 3.2 | Identify different aeronautical chart symbols and what they mean. |  |
| 3.3 | Identify different categories and types of airspace and the pilot and aircraft requriements to operate within each airspace. |  |
| 3.4 | Calculate local time and Coordinated Universal Time. |  |
| 3.5 | Evaluate a prescribed route of flight to determine appropriate landmarks. |  |
| 3.6 | Identify a landmark on an aeronauticla chart using latitude and longitude |  |

## Benchmark 4: Principles of Navigation

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Apply the concepts of the E6-B to determine wind correction angle, heading, and groundspeed. |  |
| 4.2 | Apply the concepts of wind and magnetic corrections in an explanation of how an aircraft compensates for those effects during flight. |  |
| 4.3 | Calculate compass headings after taking true course, wind correction angle, magnetic variation, and magnetic deviation into account. |  |
| 4.4 | Plot a course for a flight between two airports and calculate the initial heading. |  |
| 4.5 | Construct a wind triangle to model the effect of wind on true course. |  |
| 4.6 | Measure distances and true course on an aeronautical chart using two methods. |  |
| 4.7 | Discuss the difference between pilotage and dead reckoning |  |
| 4.8 | Discuss different navigation systems, their usage and limitations |  |

## Benchmark 5: AIRCRAFT PERFORMANCE

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Calculate density altitude using a variety of tools, including charts and the E6B. |  |
| 5.2 | Predict how different density altitude conditions will affect aircraft performance. |  |
| 5.3 | Calculate aircraft performance including range, endurance, and required fuel; weight and balance; takeoff and landing distances; and time, fuel, and distance to climb, using pilot operating handbook tables and graphs. |  |
| 5.4 | Explain how weight and balance and weather impact aircraft performance during all phases of flight, from takeoff to cruise, to landing. |  |

## Benchmark 6: SLOW FLIGHT AND STALLS

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Explain the various types of stalls and spins. |  |
| 6.2 | Explain maneuvering during slow flight |  |

## Benchmark 7: GROUND REFERENCE AND PERFORMANCE MANeUVERS

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Discuss steep turns, rectangular course, turns, and turns around a point. |  |

## Benchmark 8: EMERGENCY OPERATIONS

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Discuss emergency descent, approach, and landing |  |
| 8.2 | Discuss various s system or equipment malfunction during all phases of flight |  |
| 8.3 | Discuss engine failure during various phases of flight |  |

## Benchmark 9: Understanding Weather and Atmosphere

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Interpret weather symbology and identify aviation weather terms. |  |
| 9.2 | Infer that weather tools are critical to safe and comfortable flight but have limitations. |  |
| 9.3 | Analyze how air masses change as they pass over various land and water surfaces. |  |
| 9.4 | Summarize large scale circulation patterns in the atmosphere. |  |
| 9.5 | Summarize the role of uneven heating on the creation of weather. |  |
| 9.6 | Connect convective currents resulting from uneven heating to the creation of turbulence. |  |
| 9.7 | Assess if the freezing level will affect a flight. |  |
| 9.8 | Name the conditions associated with each stage of thunderstorm development and assess the possible risk(s) with a thunderstorm forecast. |  |
| 9.9 | Explain the four types of lifting actions and their relationship to thunderstorm development. |  |
| 9.10 | Differentiate among different types of precipitation and various components of the atmosphere |  |
| 9.11 | Identify the types of precipitation and clouds that form with different frontal boundaries. |  |
| 9.12 | Categorize different types of clouds and predict weather conditions based on cloud type. |  |
| 9.13 | Predict the height of a cloud base. |  |
| 9.14 | Analyze weather scenarios to determine how fronts affect the flight experience. |  |

## Benchmark 10: Weather Observations and Forecasts

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 | Make observations and analyze current weather, weather forecasts and charts to determine go/no-go of a planned flight. |  |
| 10.2 | Compare the different types of weather briefings and forecasts available and explain when each would be appropriate during flight planning to make a go/no-go decision or for in-flight weather updates for making continue, divert, or terminate flight decisions. |  |
| 10.3 | Decode and interpret Meteorological Aerodrome Reports (METAR), Pilot Reports (PIREP), Terminal Aerodrome Forecasts (TAF), Airman’s Meteorological Information (AIRMET), Significant Meteorological Information (SIGMET), Convective SIGMETS, and winds and temperatures aloft forecasts. |  |
| 10.4 | Summarize the differences between weather reports and weather forecasts. |  |

## Benchmark 11: IMPACTS OF FLIGHT ON HUMAN ANATOMY AND PHYSIOLOGY

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 | Describe the cause and effect of common visual illusions. |  |
| 11.2 | Describe what a pilot should do to treat symptoms of hypoxia, hyperventilation, decompression sickness, carbon monoxide poisoning, or excessive exposure to carbon dioxide. |  |
| 11.3 | Distinguish between the symptoms of hypoxia, hyperventilation, decompression sickness, carbon monoxide poisoning, and excessive exposure to carbon dioxide. |  |
| 11.4 | Identify parts of the human ear associated with balance and orientation. |  |
| 11.5 | Label an anatomical diagram of a human eye. |  |
| 11.6 | List methods pilots can use to prevent spatial disorientation. |  |
| 11.7 | Discuss hazards associated with flying at night, during inclement weather, or during periods of reduced visibility |  |
| 11.8 | Predict sensations a pilot may feel when specific physical motions are encountered. |  |
| 11.9 | Illustrate aircraft positions given specific flight instrument indications. |  |

## Benchmark 12: Aeronautical Decision Making

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 12.1 | Assess the safety of a proposed flight based on scenarios related to hazardous attitudes, weather, airport conditions, aircraft and pilot performance capabilities and certification, recency of experience, amongst other factors. |  |
| 12.2 | List factors that affect a pilot’s ability to fly safely. |  |
| 12.3 | Assess a pilot’s go/no-go decisions in relation to the IMSAFE (Illness, Medication, Stress, Alcohol, Fatigue, Eating/Emotion) checklist. |  |
| 12.4 | Identify the known side effects of some common drugs. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

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