

FLIGHT/APPRENTICE

PRIVATE PILOT — HELICOPTER

Course Syllabus



Log of Revisions

Version	Date	Revisions
Original	12/11/2024	N/A

Private Pilot — Helicopter

Course Description

The Private Pilot — Helicopter course is meticulously crafted to equip aspiring helicopter aviators with the knowledge and skills to become proficient and secure private pilots. This comprehensive curriculum encompasses academic knowledge, critical thinking, practical application, and the mastery of fundamental flying techniques.

Course Objectives

Upon successful completion of this program, students will:

- Learn to prioritize safety and risk management in all aspects of helicopter flying.
- Develop a fundamental understanding of airmanship, enhancing decision-making and judgment in piloting.
- Master the core concepts of aerodynamics, which are essential for effective flying.
- Acquire the knowledge required to excel in the FAA Private Pilot Helicopter Knowledge Test (PRH).
- Attain a deep understanding of core aviation principles and regulations.
- Enhance personal preparation for flight lessons, decreasing training costs.
- Develop critical thinking skills applicable to piloting decisions.

Teaching Philosophy

We know that students learn best when challenged to perform at a high level. We also recognize that our industry needs professionals equipped to carry the fire of aviation safety forward.

Our core philosophies in furthering our education mission are:

1. **Challenge is critical.** Our courses aren't "easy" because students deserve better than that.
2. **Simplicity is safe.** We teach concepts at the simplest level possible—but no simpler. The better pilots' understanding, the more effectively they apply their knowledge in the air.

3. **Fundamentals first.** Airmanship, risk management, and aerodynamics form a foundation atop which everything else builds.
4. **Teach beyond the test.** This course emphasizes genuine learning first. With proper education, the written exam mostly takes care of itself.

Instructor: Jonathan Killea

- FAA Commercial Pilot — Helicopter/Airplane
- FAA Certificated Flight Instructor (CFI/CFII) — Helicopter/Airplane
- B.S. in Commercial Aviation; Minor in Atmospheric Sciences
- Experience in Hughes H-269C, Robinson R-22/R-44, and Bell 206
- Airline Transport Pilot (ATP)
- Type-Rated on the CL-65: Canadair Regional Jet

Jonathan is a helicopter Certified Flight Instructor (CFI/I) with experience in flight instruction, air tours, and commercial surveys, including power line and wind farm surveys, wildlife population censuses, raptor nest location, and photography flights.

In addition to his diverse fixed-wing and helicopter instructing experience, Jonathan served as a sensor operator conducting surveillance flights in the Cessna 210/206, Airbus H125, and MQ-9 UAS.

He is also an active airline pilot, holding an Airline Transport Pilot (ATP) certificate with a type rating on the CL-65 Canadair Regional Jet.

Commitment and Self-Discipline

We value students who are dedicated to becoming skilled pilots. This course is designed to empower those committed to their aviation journey. Pursuing a private pilot certificate requires self-discipline and genuine dedication to aviation safety. Our program is tailored for individuals passionate about flying who recognize this commitment needed to succeed. If you're ready to invest time and effort to excel in this field, you'll find this course a valuable resource for becoming a strong pilot. Your success depends on your determination and genuine desire to "give it your all."

Graduation Requirements

We issue a graduation certificate—which doubles as the written exam endorsement—after students:

- Complete all lessons and topics
- Complete all review quizzes
- Pass both final exams with a score of 90% or better

Course Materials

- Sectional Chart
- Facility Directory
- Plotter
- E-6B Flight Computer
- FAR/AIM (Federal Aviation Regulations/Aeronautical Information Manual)
- Computer with Internet Access
- iPad (Preferred but not required)
- Airman Certification Standards (ACS)

References

The Federal Aviation Administration (FAA) uses the following references to determine completion standards for the Private Pilot-Helicopter Knowledge Test (PRH) and practical test. They are available for free from the FAA's website.

- 14 CFR Part 1: Definitions and Abbreviations
- 14 CFR Part 61: Certification: Pilots, Flight Instructors, and Ground Instructors
- 14 CFR Part 91: General Operating and Flight Rules
- Private Pilot Airman Certification Standards (ACS)
- FAA Pilot's Handbook of Aeronautical Knowledge
- The Helicopter Flying Handbook
- The Weight and Balance Handbook
- The Aeronautical Chart Users Guide
- Advisory Circular 00-45H: Aviation Weather Services
- Advisory Circular 43-9C: Maintenance Records
- Advisory Circular 60-22: Aeronautical Decision Making
- Advisory Circular 61-65H: Certification, Pilots and Flight and Ground Instructors
- Advisory Circular 61-67C: Stall and Spin Awareness Training
- Advisory Circular 61-98D: Currency Requirements and Guidance for the Flight Review and Instrument Proficiency Check

- Advisory Circular 61-134: General Aviation CFIT Awareness
- Advisory Circular 68-1A: Basic Med
- Advisory Circular 90-48E: Pilots' Role in Collision Avoidance
- Advisory Circular 90-66B: Non-Towered Airport Flight Operations
- Advisory Circular 90-109A: Transition to Unfamiliar Aircraft
- Advisory Circular 91-74B: Pilot Guide: Flight in Icing Conditions
- Advisory Circular 120-66C: Aviation Safety Action Program
- Advisory Circular 91-92: Pilot's Guide to a Preflight Briefing

Course Content

You don't have to follow the specified order or the time allocation provided for the course material. However, we recommend the order listed below because it covers essential physical and human elements crucial for all pilots before moving on to regulatory topics that vary depending on specific operational and regulatory contexts. Understanding these fundamental principles first will help you better grasp the regulatory details.

Section 1: Introduction

- Review the FAA requirements for obtaining a Private Pilot Helicopter certificate.
- Understand how flight hours, experience, and knowledge requirements align with your training goals.
- Learn what to expect from the Private Pilot Helicopter Knowledge Test.
- Access key references and materials to support your studies throughout the course.

Section 2: Airmanship

- Develop a foundational understanding of risk management in helicopter operations.
- Examine the importance of stick and rudder skills in maintaining control and precision.
- Explore how situational awareness and decision-making influence safe flight outcomes.
- Discuss external pressures and resource management in the context of real-world scenarios.

Section 3: Basic Aerodynamics

- Study the aerodynamic principles that make helicopter flight possible.
- Analyze how lift, thrust, weight, and drag interact in hover and forward flight.
- Learn about common aerodynamic effects, such as ground effect and
- Understand how aerodynamic principles apply to flight safety and maneuvering.

Section 4: Advanced Aerodynamics

- Explore more complex aerodynamic concepts, including dissymmetry of lift and pendular action.

- Understand how forces like blade coning and the Coriolis effect influence rotor dynamics.
- Study the effects of translating tendency on hovering and forward flight.
- Apply advanced aerodynamic knowledge to enhance control in varied flight conditions.

Section 5: Performance

- Learn to evaluate performance charts to plan safe and efficient operations.
- Explore weight and balance considerations specific to helicopter flight.
- Understand critical airspeed profiles, including the best rate of climb and their applications.
- Study the height/velocity diagram and its role in operational safety.

Section 6: Systems

- Gain a thorough understanding of key helicopter components and their functions.
- Study systems such as rotor systems, transmissions, and powerplants in detail.
- Learn the basics of troubleshooting electrical, fuel, and hydraulic systems.
- Explore how various systems work together to ensure safe and reliable operations.

Section 7: Weather

- Examine atmospheric properties and their influence on helicopter performance.
- Learn to identify hazardous conditions such as turbulence, wind shear, and icing.
- Develop skills to interpret weather data and assess risks effectively.
- Discuss strategies for adapting to changing weather during flight.

Section 8: Weather Products

- Learn how to interpret aviation weather tools, including METARs, TAFs, and PIREPs.
- Study forecast products like winds aloft and prog charts to inform flight planning.
- Understand how to use briefing tools to make well-informed decisions.
- Apply weather products in practical scenarios to enhance operational safety.

Section 9: Airport Operations

- Understand airport environments, including traffic patterns and operational procedures.
- Learn the significance of airport signs, markings, and layout in flight operations.
- Explore helicopter-specific considerations for operating at both towered and non-towered airports.

Section 10: Navigation Systems

- Study navigation aids such as VORs, GPS, and non-directional beacons (NDBs).
- Learn practical methods for radial tracking and route planning.
- Explore backup navigation techniques like dead reckoning and pilotage.
- Build confidence in integrating multiple navigation tools for safe flight.

Section 11: Federal Aviation Regulations (FARs)

- Examine the key regulations applicable to private helicopter pilots.
- Understand the practical implications of Part 61 and Part 91 in everyday operations.
- Discuss how to stay compliant with regulations while prioritizing safe decision-making.

Section 12: Pilot Qualifications

- Review the certifications and documents required for private pilots.
- Discuss fitness for flight and the importance of self-assessment in maintaining safety.
- Study decision-making frameworks like ADM and SRM to handle complex situations.

Section 13: Airworthiness

- Learn how to verify that an aircraft is airworthy before every flight.
- Review required documentation, inspections, and equipment for day and night VFR.
- Study processes for handling inoperative equipment using MELs and CDLs.

Section 14: National Airspace System

- Study airspace classifications and their unique operating requirements.
- Learn how to navigate controlled and special-use airspace safely.
- Discuss procedures for addressing temporary flight restrictions (TFRs) and NOTAMs.

Section 15: ATC and Radio Procedures

- Develop practical communication skills for interacting with ATC and other pilots.
- Study radio procedures for both towered and non-towered airport environments.
- Apply communication techniques to real-world scenarios and in-flight decision-making.

Section 16: Cross Country Planning

- Learn how to plan and execute cross-country flights efficiently and safely.
- Study tools like the E-6B for calculations and route adjustments.
- Explore strategies for handling diversions and adapting plans in flight.

Course Evaluation and Certification:

- Weekly quizzes and assignments must be completed with a score of 100%.
- The FAA Private Pilot Helicopter Knowledge Test must be completed with two scores of at least 90%.

Written Test Endorsement

After all graduation requirements are met, the FAA Private Pilot—Helicopter Written Exam (PRH) endorsement is generated. These requirements include completing all sections and quizzes and passing the two practice exams.