Flight Guide

UMKC Introduction to Aircraft Flight Operations

Participants in the UMKC Introduction to Aircraft Flight Operations course receive 10 hours of classroom instruction and 5 hours of combined flight instruction in an aircraft and an FAA-approved flight simulator. The flights can be chosen from the choices below, or can be a separate arrangement with the flight instructor. Each flight experience lasts about 1 hour, so students can select between four to five types of flights.

Types of flights:

For more information about the course or flight options, contact:

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Flight Training

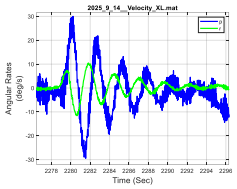
A.1 – Basic Aircraft Control Introductory experience in aircraft, including aircraft controls and instrument interpretation. Students will use ailerons, elevator, rudder, and throttle inputs to track roll angle, pitch, angle, turn rate, heading, airspeed, and altitude.	
A.2 – Intermediate Aircraft Control Build on basic aircraft control to perform climbs, descents, and turns over a range of airspeeds. Includes basic emergency procedure practice, slow flight, stalls, and landings.	
A.3 – Instrument Flying & Approaches Introduction to flying in instrument conditions without relying on seeing outside the cockpit. Students will learn basic attitude control and perform climbs, descents, and turns solely by reference to the instruments. Build on basic instrument flying to perform instrument procedures, including navigation, holds, and instrument approaches.	
A.4 – Intermediate Proficiency Check (61.57) Rated instrument pilots that are not current can request an instrument proficiency check using a combination of the flight simulator and the aircraft. Students will perform attitude flying, navigation, instrument approaches, and emergency procedures of Instrument Rating – Airplane Airman Certification Standards.	
A.5 – Commercial Maneuvers Focus on coordinated aircraft control with maneuvers required for the commercial airplane pilot practical exam. Students will fly steep turns, steep spirals, and eights on pylons, in addition to energy-exchange maneuvers such as chandelles, lazy eights, and 180-deg power off landings.	
A.6 – Multi-Engine Maneuvers Practice flying with the added safety and complexity of a second engine. Students will learn how to perform start up and pre-takeoff operational check of a multi-engine aircraft. Once airborne, practice maneuvers with one engine inoperative, flying at minimum controllable airspeed, and landings. Note: Flying a multi-engine aircraft will require an additional fee.	
A.7 – Introduction to Gliding Learn the basics of aerotow, maneuvering, soaring, and landing in a tandem, 2-seat Schweizer 2-22 glider. Students will practice flying the glider while on tow up to 3000 ft. Once at altitude, the student will release the glider and practice coordinated turns, airspeed control, stalls, and spoiler deployment. Students will then learn to fly the glider traffic pattern on approach to landing.	

Flight Testing

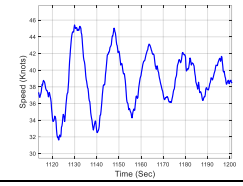
B.1 – Takeoff and Landing Performance
Conduct flight tests to determine the takeoff and landing distances using normal, short-field, and soft-field techniques. Students will use a flight data recorder to analyze the ground roll and obstacle clearance distances required for both takeoff and landing, then compare those measured values to the published performance.

B.2 – Cruise and Climb Performance
Use saw tooth climbs and level accelerations to measure how climb rate changes with power and airspeed. Estimate the power required for level flight using stabilized cruise segments and estimate the maximum range and maximum endurance for the aircraft.

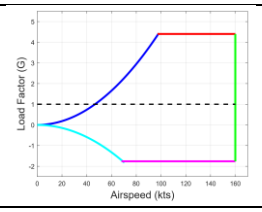
B.3 – Lateral-Directional Stability
Use step inputs and doublets to assess the lateral and directional static-stability and dynamics of the aircraft. Students will demonstrate the lateral stability associated with the dihedral effect, spiral mode, and Dutch roll mode. Flight data measurements can be used to estimate the damping ratio or time-to-double for each mode.



B.4 – Longitudinal Stability
Use step inputs, doublets, and trim perturbation to assess the static and dynamic longitudinal stability of the aircraft. Measure the speed stability and estimate control linkage stiction, then estimate the frequency and damping of the short period and phugoid modes.



B.5 – Flight Envelope Determination
Identify the level and accelerated stall boundary at different flap settings. Explore how to perform structural and airspeed flight envelope expansion tests to develop a V-n diagram specific to the weight and configuration of the aircraft.



B.6 – 20-Minute Flight Test
Fly the UMKC 20-Minute Flight Test card to perform an expedient assessment of the aircraft performance, handling, and stability. The test card includes takeoff, climb, cruise, control, turn, stall, and landing segments. Use energy-method data reduction techniques to identify the specific excess power, showing how climb performance varies with airspeed.

B.7 – EAA Flight Test Guide
Select and fly test cards from the EAA Flight Test Manual, intended for pilots of experimental, amateur-built aircraft characterizing the performance, stability, and handling characteristics of their newly-built aircraft.

Flight Experiences & Endorsements

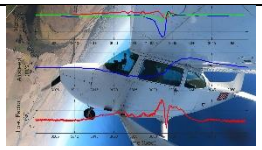
C.1 – Introduction to Aerobatics
Fly in an American Champion Citabria performing loops, roll, spins, hammerheads and other aerobatic maneuvers. Experience Gs and unusual attitudes exercising the aircraft through flight envelope of the two-seat, tandem, tailwheel aircraft.

C.2 – Introduction to Taildraggers
Experience flying a tailwheel American Champion Citabria. Learn the rudder techniques needed to taxi, takeoff, and land with a directionally-unstable landing gear. Experience the difference between 3-point landings and wheel landings, and explore how each type of landing can be used on runways of different lengths and surface types.

C.3– GPS Skywriting
Communicate with the world using the language of aviation by planning and flying a GPS skywriting flight. Choose a phase, symbol, or pattern, then generate a flight path to draw in the sky using the aircraft's GPS flight path. Learn the techniques needed to draw using a 100 MPH pen that can't be stopped or lifted. The resulting pattern will be accessible on flight tracking websites and can be plotted on Google Earth using the onboard GPS.

C.4 – Flight Review (61.56)
Perform the flight portion of the FAA 14 CFR 61.56 flight review for pilots needing to update their currency. This flight follows the FAA guidelines for conducting a flight review and must be performed with ground review.

C.5 – CFI Spin Endorsement (61.183)
For pilots intending to become a certified flight instructor, explore the flight conditions that could lead to a stall-spin departure, including engine-failed glides, slips, and skids. Demonstrate stalls with at different configurations of power, flaps, slips, and skids. Learn spin awareness, entry, and recovery techniques.



C.6 – Complex Endorsement (61.31)
Learn how to safely fly an aircraft equipped with a controllable-pitch propeller, retractable landing gear, and flaps. Students will fly the Piper Arrow and learn about the normal and emergency procedures for complex aircraft during takeoff, climb, cruise, descent, and landing operations.

C.7 – High-Performance Endorsement (61.31)
Learn to operate aircraft with engines greater than 200HP. This flight focuses on the use of checklists during transition into and out of each phase of flight. Students will fly the 600 HP Beechcraft Baron (sim) or 500HP Piper Aztec (flight) and learn about the engine, hydraulic, electrical, and fuel systems. Note: Multi-engine aircraft will require an additional fee.