

# STEVE REISSER'S SMALL UNMANNED AIRCRAFT SYSTEMS GROUND SCHOOL SYLLABUS

## Objectives:

- Preparation of students for taking the FAA sUAS Aeronautical Knowledge Written Examination (UAG).
- Reinforce good aeronautical decision making in every aspect of flight and ground operations.
- Provide interactive in-class presentations over a broad scope of remote pilot fundamentals.
- Supplement presentations with real life scenario based training, and professional videos.
- Insure working skills by employing “proficiency based” evaluation for each segment of training.
- Provide continuous updated materials utilizing website at [www.groundschool.weebly.com](http://www.groundschool.weebly.com)























## Method of Instruction:

- Classroom Lecture, Discovery Learning, Website exercises and supplemental learning FAA publications and by Aviation Supplies and Academics, Inc. (ASA).

**Length of Course:** This class can be presented in 4 formats.

- **Intensive:** 4 days (Monday-Friday), 8 hours in class, and self-study daily. Ending on the 10<sup>th</sup> session with final exam and endorsements as earned.
- **Weekend Intensive:** 3 Weekends, 4 hours a day, and self-study during each week between sessions. Final after the last session on the final Sunday.
- **Saturday Only (Preferred):** 6 single days sessions of 4 hours each with self-study during the week.

**Training Materials:** \* Copies provided on Student Flash Drive

-  AC 00-6B\_Aviation Weather
-  AC 00-45H\_Aviation Weather Services
-  AC 60-22-ADM
-  AC 91-57A\_Model Aircraft Operating Standards
-  AC 107-2\_Small Unmanned Aircraft Systems
-  AC 150\_5200\_32b\_Reporting Wildlife Aircraft Strikes
-  Aeronautical Information Manual
-  Airplane Flying Handbook
-  CFR Part 71 Designation of Airspaces
-  chart\_supplement\_SE\_20170622
-  FAA\_Form\_8710-13\_(10-16)
-  FAR 61-91
-  pilot handbook of aeronautical knowledge
-  remote\_pilot\_knowledge test guide
-  remote\_pilot\_study\_guide
-  risk management handbook
-  safo09013
-  safo10015
-  safo10017
-  safo15010
-  uas\_airmen certificate standards
-  unmanned\_aircraft\_sample\_exam

## STEVE REISSER'S SMALL UNMANNED AIRCRAFT SYSTEMS GROUND SCHOOL SYLLABUS

Supplied by Students

- ASA Remote Pilot Test Prep Study and Prepare

**Method of Assessment:** “Proficiency based training” to include demonstration of all skills. Test-retest provided and students are required to pass session multiple-choice and oral examination with a minimum performance on examinations of 70% by method of test-retest. Demonstration of skills in dead reckoning, E6B computation, and navigation logs will be confirmed by inspection during class. The final examination will be same format as actual the FAA Aeronautical Examination to be taken by each student.

**Instructor: Steve Reisser**

Education: BA-Psychology, Hastings College 1970, MA-Behavior Modification, 1973 SIU

Professional: Psychologist, College Instructor. Programmer, Systems Analyst, Senior Systems Analyst, IT Consultant, IT Director, and Network Administrator, Director of Administration (FAA 135 Administration)

Aviation: Private Pilot 1968, #1949122, Basic Ground Instructor, Advanced Ground Instructor, since 2003, Instrument Ground Instructor (since 2015). Consultant and Director of Operations for a FAR Part 135 On Demand Airlines for Transworld Express, LLC., 2011-2014.

## **SECTION SYLLABUS**

### **SECTION 1: CLASS INTRODUCTION**

#### **Hour 1**

Notation of “panels” (#) below indicates individual frames with materials presented in PowerPoint to the class.

Class Instructor and Student Introductions

Class TSA FAA Requirements for Ground School and Logbook Endorsement (3)

Remote pilot eligibility and requirements (1)

sUAS FAA required ground school aeronautical knowledge topics (1)

IACARA Help and Information (7)

Knowledge Resources provided to students (1)

Optional Test Prep Textbook (1)

Expectations (1)

#### **HOURS 2, 3**

Lesson goals and FAA Required Knowledge (1)

Single Pilot Resource Management (2)

Definition and Components (4)

Aeronautical Decision Making (7)

Task Management, Workload, and Automation Management (8)

Problem Solving (4)

PPP Processing Model:

Perception: PAVE concepts, checklist and risk mitigation (10)

    Processing Information utilizing CARE methodology and TEAM techniques (7)

    Common ADM Errors (4)

    Use of Personal Minimums and Self Assessment (2)

    Situation Awareness (2)

    Ethics and Attitudes-Positive and Dangerous (7)

Aviation Physiology

Impairment (5), vision (3) and IMSAFE(1).

Systems

- System Components (7)
- Registration requirements (1)

#### **HOUR 4**

Basic Aerodynamics

Three Axis of Flight (4)

Four Forces of Flight (3)

Lift and Propellers (5)

Stability (1)

Torque Effects (1)

    Parasite vs. induced drag(1)

    Byproducts-Wake Turbulence and avoidance(2)

Total drag components, and  $L/D_{Max}$  (3)  
Ground Effect and video (2)  
Load (1)  
Preflight (4)  
Magnetic Variation (4)

## **HOURS 5-6**

### **SECTION 2: AIRSPACE AND CHARTS**

Lesson goals and FAA Required Knowledge (1)  
Safety Considerations and Caution (1)  
Common Airspace definitions and rules (24)  
Special Airspace definitions and rules (16)

## **HOURS 7-8**

### **SECTION 3: AVIATION WEATHER**

Lesson goals and FAA Required Knowledge (1)  
**Aviation Weather Basics [Theory, Masses, Fronts, TS, Hazards]**  
FAA Requirements for Private-Sport Pilot regarding Meteorology(1)  
Understanding time zones, military format and Zulu time(1)  
Basic Weather Theory  
Atmospheric Pressure, standard pressure and lapse rate(1)  
Density Altitude and effects of pressure, temperature and humidity(1)  
Highs, Ridges, Lows, Troughs, Cols, and Isobars(2)  
Coriolis Effect and frictional effects (2)  
Convection, the planetary boundary layer and turbulences at inversions(2)  
Global and local wind forces(3)  
Mountain, Sea/Land Breezes (3)  
Stability, adiabatic heating/cooling, and inversions, and characteristics(3)  
Moisture, conversion processes, humidity, dewpoint (1)  
Cloud classifications, low [fog, stratoform, cumuloform], middle, and high level clouds(8)  
Mechanics and types of precipitation (2)

Air Masses  
Air mass origins, classifications, and modifications (2)  
Fronts  
Definitions(1)  
Characteristics of cold fronts fast and slow moving and related wind/clouds and precipitation(1)  
Characteristics of warm fronts, wind/clouds and precipitation(1)  
Characteristics of stationary fronts, warm and cold front occlusions(1)  
Station timeline analysis of cold front(1)  
Thunderstorms  
Types: Air mass, single-multi-super cell thunderstorms(1)  
Life-cycle, temperatures, and altitude analysis.(1)  
Air mass verses steady state thunderstorms (1)  
Pictorial representations and hazards (1)

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Avoidance (1)

Lightning: Global frequency, names of types, low-mid-high atmospheric lightning(5)

Weather hazards and turbulence

Low level mechanical effects (1)

Convective effects (1)

Turbulences level classifications and wind shear (2)

Wake turbulence, jet blast, and clear air turbulence (3)

Lenticular and rotor cloud turbulence (1)

Icing: types, mechanics, and environments of formation (2)

Restrictive visibility due to HZ, FU, DU and VA (1)

Printed Reports and Forecasts

Sources of weather reports and forecasts (1)

Aviation Routine Information Reports-METAR: Components, translation, and practice exercises (9)

Radar Weather Reports-SD (1)

Pilot Reports-PIREP: components, definitions, reporting requirements and translations(4)

Terminal Aerodrome Forecasts: components and samples (3)

Area Forecasts-FA: Synopses, effective times, outlooks and practice (4)

Winds Aloft and Temperatures Aloft-FD: Planning and use of FD, and practice (2)

Severe Weather Forecasts: HW, AC, WW, WA-Sierra, Tango, Zulu, WS, and WST.

Standard Briefings: Practice (1)

### **HOUR 9**

Graphic Weather Products

Winds Aloft and comparison to printed reports (1)

Surface Analysis Chart components and sample (3)

Weather Depiction Chart for VFR, MVFR and IFF determination (1)

Radar Summary Charts-elements and sample (2)

Low Level Significant Weather Prognostic Chart (4)

2 Day Convective Outlook (1)

Forecast Winds/Temperature Aloft (1)

Volcano Ash Graphics (1)

Frequency of Weather Reporting (1)

Electronic Flight Displays and Multi-Function Displays of Weather Data (3)

### **HOUR 10**

Sources of Weather

Automated Flight Service Station Briefings (1)

Comparison and use of Standard, Abbreviated, and Outlook Briefings (4)

In-flight Weather Services:

Usage(1), Navigation frequencies, RCO (1), DUATS (1)

Flight Planning tools that incorporate weather services (1)

FSS, EFAS, TWEB, CWA, and HWAS (1)

AWOS, and ASOS(1)

Flight Service Stations Weather Briefings: Outlook, Standard and Update.

## **HOUR 11**

### **SECTION 4: AIRPORTS AND OPERATIONS**

Lesson goals and FAA Required Knowledge (1)

Airport

Definitions (4)

Patterns (4)

Communications (2)

Uncontrolled Airport Best Practices and Communications (1)

Wake Turbulence (2)

Runway Determination (2)

Beacons (1)

Runways, Markings, Lighting and Sources of information (10)

## Hour 12

### **SECTION 5: RADIO COMMUNICATIONS**

Lesson goals and FAA Required Knowledge (1)

Communications

Flight Service Station flight information and services (2)

Very High Frequency distance limitations (1)

Communications Format and Tips for communicating with a Busy Tower (2)

Uncontrolled Tower Communications (CTAF, Multicom, Unicom, GCO (2)

Controlled Airport Communications (1)

Departure / Arrival communication sequence (1)

ATIS (1)

Emergency Communications (1)

Helpful Hints (1)

Phonetic Alphabet (1)

Sources of Information (1)

*Optional: VFR Communications Video – 30 minutes*

## HOUR 13

### **SECTION 6: LOADING AND PERFORMANCE**

Lesson goals and FAA Required Knowledge (1)

Importance of W&B (10)

Principles of W&B (5)

Measuring W&B (2)

Performance (7)

## HOUR 14

### **SECTION 7: EMERGENCY PROCEDURES**

Lesson goals and FAA Required Knowledge (1)

Importance (1)

Safety Mindset (4)

Planning (2)

Site Survey (1)

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- Frequency Interference (2)
- Lithium Batteries (4)
- Maintaining Control (1)
- Emergency Maneuvers (3)
- After the Emergency (3)
- Safety Management System (5)

## HOUR 15

### **SECTION 8: MAINTENANCE AND INSPECTIONS**

Lesson goals and FAA Required Knowledge (1)

Maintenance

- Basic (1)
- Recommended Checklist (4)

Inspections

- Preflight Inspection (3)
- Record Keeping (1)

Toolkit (1)

## HOUR 16-20

### **SECTION 9: FEDERAL AVIATION REGULATION 107**

Lesson goals and FAA Required Knowledge

FAR 107 Chapters 5-7

## HOUR 21-24

### **SECTION 10: FINAL EXAMINATION PREP**

FAA Written Exam Test Taking Tips (2)

Two hour helpful review (YouTube Video [https://www.youtube.com/watch?v=6\\_ucCKFJUCU](https://www.youtube.com/watch?v=6_ucCKFJUCU))

Part 107 Online Course (147)

## HOURS 25-26

The final exam will be administered and scored. Remote Pilot Certificate candidates will receive 60 questions. Only those passing with 70% or greater may take the formal written examination at an FAA Authorized Test Center.

### **GRADUATION and endorsements**

### **CONCLUDING NOTE**

As of February 27, 2016 **NO student completing the course with my endorsement has ever failed the FAA's Written Examination since 2003 so DON'T YOU BE THE FIRST.**