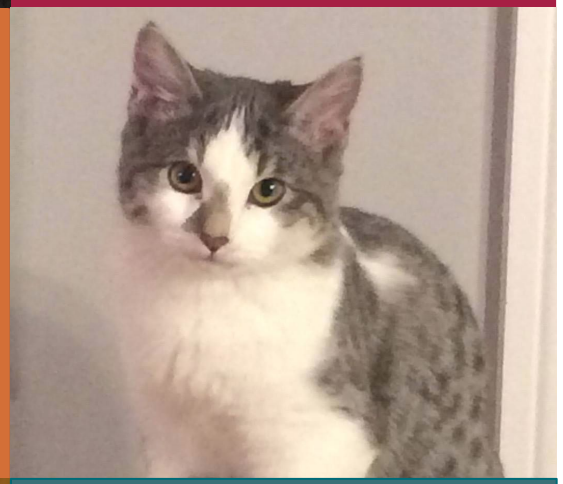

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animal rescue made simple

Aviation training for transport coordinators

Overview of this course:

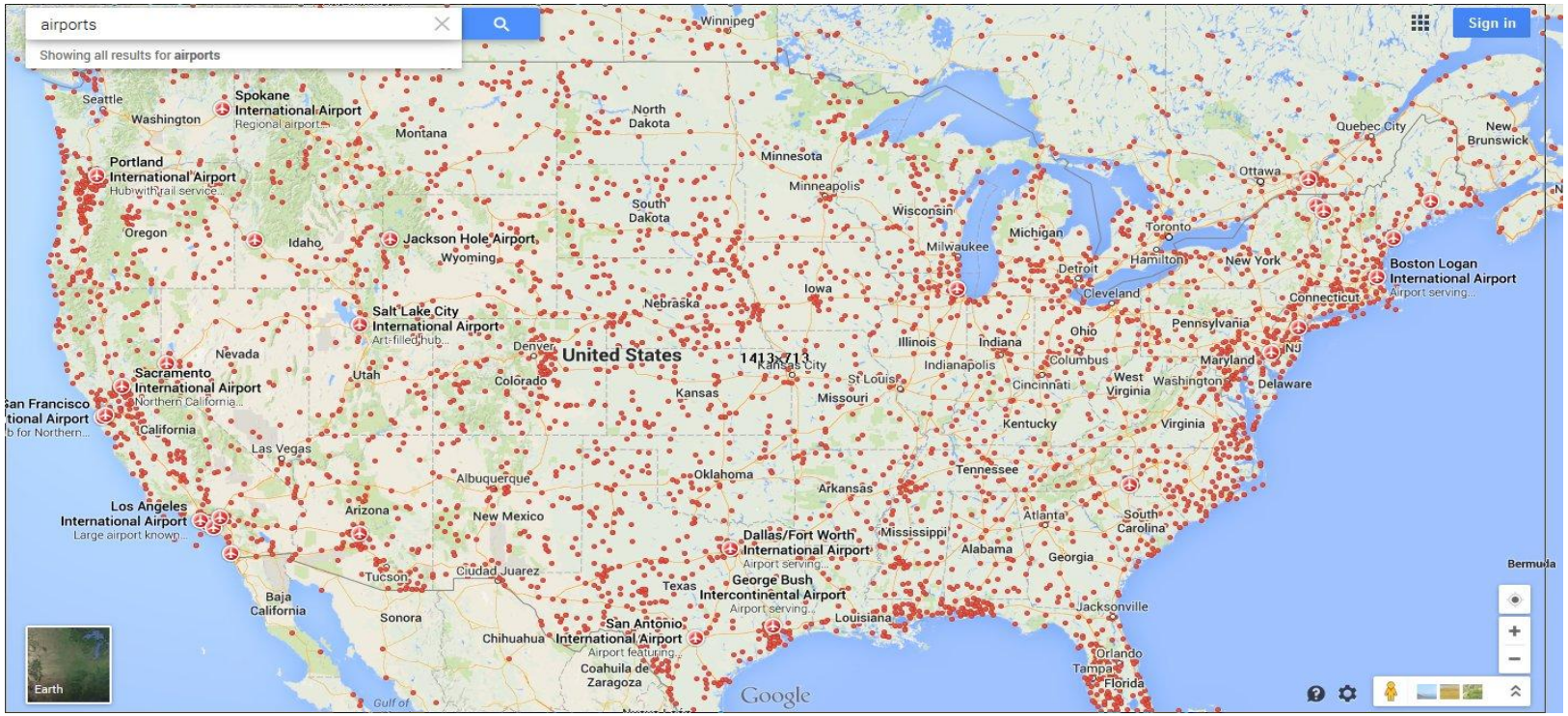
What will you learn?

A. Basics of general aviation and the U.S. airport system
B. Introduction to aviation weather & how it affects pilots
C. Weight & Balance importance to pilots
D. Tips on aviation and animal rescue
E. Coordinating an aviation flight
F. Frequently Asked Questions

Basics of general aviation and the U.S. airport system

Airports & Pilots in the U.S.

- There are ~5,000 public airports in the U.S. and over 14,000 private use airstrips in the U.S.
- As of the end of 2015, in the U.S., there were an estimated 590,039 active certificated pilots.



Types of planes

- There are hundreds of different aircraft considered as “General Aviation” aircraft. These include both single and multi-engine varieties.
- Just like cars, each has different sizes and capabilities to carry passengers and cargo.

Fuel costs

- Every aircraft has different speeds, and amounts of fuel that it can carry.
- Pilots refer to their fuel costs as fuel burn and Gallons per hour burned.
- At ~$4.75/gal currently, this can get expensive very quickly
- Imagine burning through a tank of gas in your car (~10 gal) every hour.

Aircraft Name	Cruise Speed (mph)	Fuel Burn (gph)	Miles Per Gallon* (mpg)	Fuel Cost Per MPH ($/mph)	Aircraft Price	Cost Per MPH At Purchase ($/mph)
1970 V-Bonanza	205	16	12.8	$0.27	$97,000	$473
1980 V-Bonanza	195	16	12.2	$0.29	$153,000	$785
1970 V-Bonanza turbo	230	16	14.4	$0.24	$104,000	$452
1980 Bellanca Viking	202	16	12.6	$0.28	$90,000	$446
1970 C-172	125	8.5	14.7	$0.24	$35,000	$280
1970 C-182	160	12.5	12.8	$0.27	$67,000	$419
1970 C-210	175	15	11.7	$0.30	$82,000	$469
1980 C-210	175	15	11.7	$0.30	$151,000	$863
C-P210 turbo and press.	243	16	15.2	$0.23	$185,000	$761
1980 C-T210 turbo	226	15	15.1	$0.23	$162,000	$717
C-TC182RG turbo	200	14	14.3	$0.25	$121,000	$605
2001 Cirrus SR22	207	16	12.9	$0.27	$240,000	$1,159

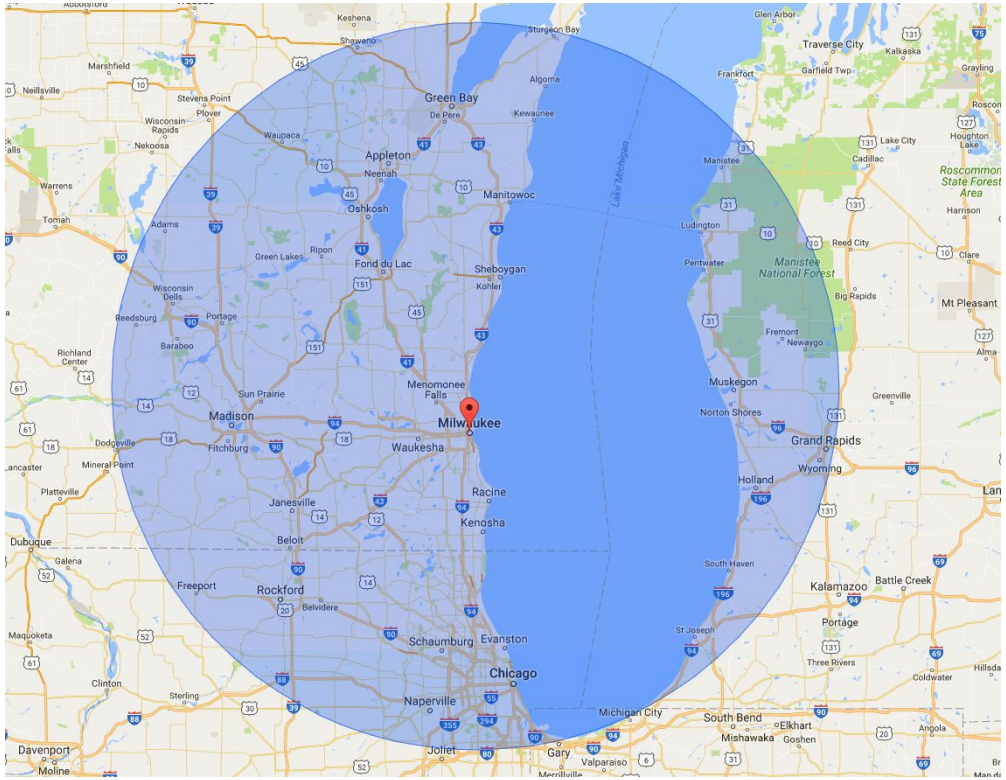
Types of pilots

- Different levels of training are required to fly different aircraft:
  - Sport pilot - can only fly sport aircraft (2 seat)
  - Recreational pilot - limited conditions, passengers & cargo

    Private pilot - most common; cannot fly for hire
  - Commercial pilot - can fly for hire
  - Multi-engine pilot - required to fly multi-engine aircraft
  - Instrument rated pilot - allows single or multi-engine pilots to fly in more weather conditions
  - Airline transport pilot - required to fly for airlines

Pilot flying distance

- Many factors determine how far a pilot can fly like type of plane, & speed.
- To give you an example, the following shows a 100 Nautical Mile radius which is typical for animal rescue general aviation pilots.



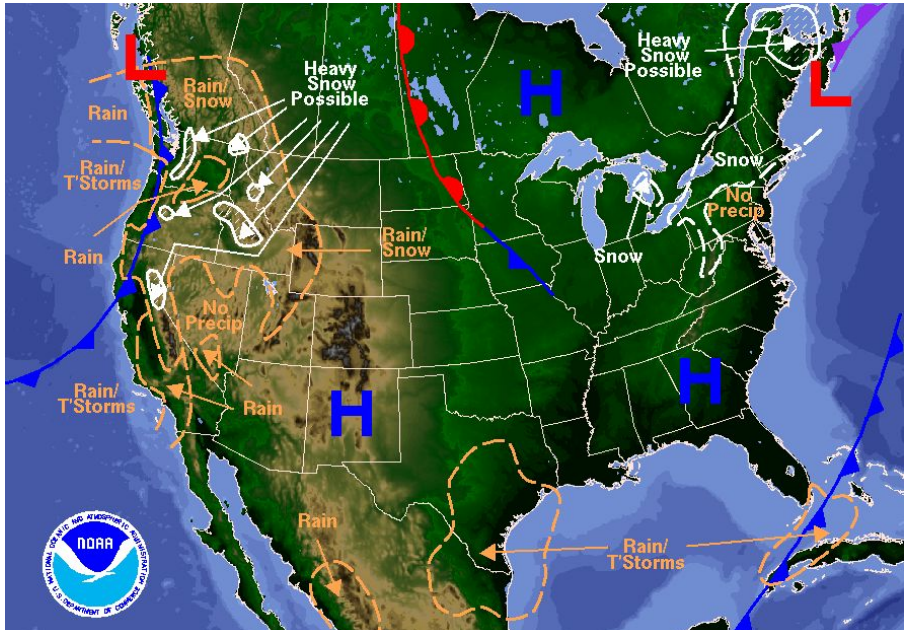
Limited space available

- Every plane is different. Most small, single-engine airplanes have an interior no larger than a 2 door car. These are not cargo planes after all.
- While they sometimes have baggage compartments, the size of the entry door can present a problem if the crates or passengers are too big.
- For most planes, 3-4 crates is maximum that can be fit in the plane and still allow access to the passengers if needed.

Introduction to aviation weather & how it affects pilots

Weather effect on aviation

- In any given day the weather patterns across the country vary from snow to rain to tornados.
- Smaller, general aviation airplanes and their pilots cannot get on top of storms like airlines so they are more affected by weather patterns and conditions.
- Imagine riding your bike through a thunderstorm instead of your car.



Weather effect on aviation

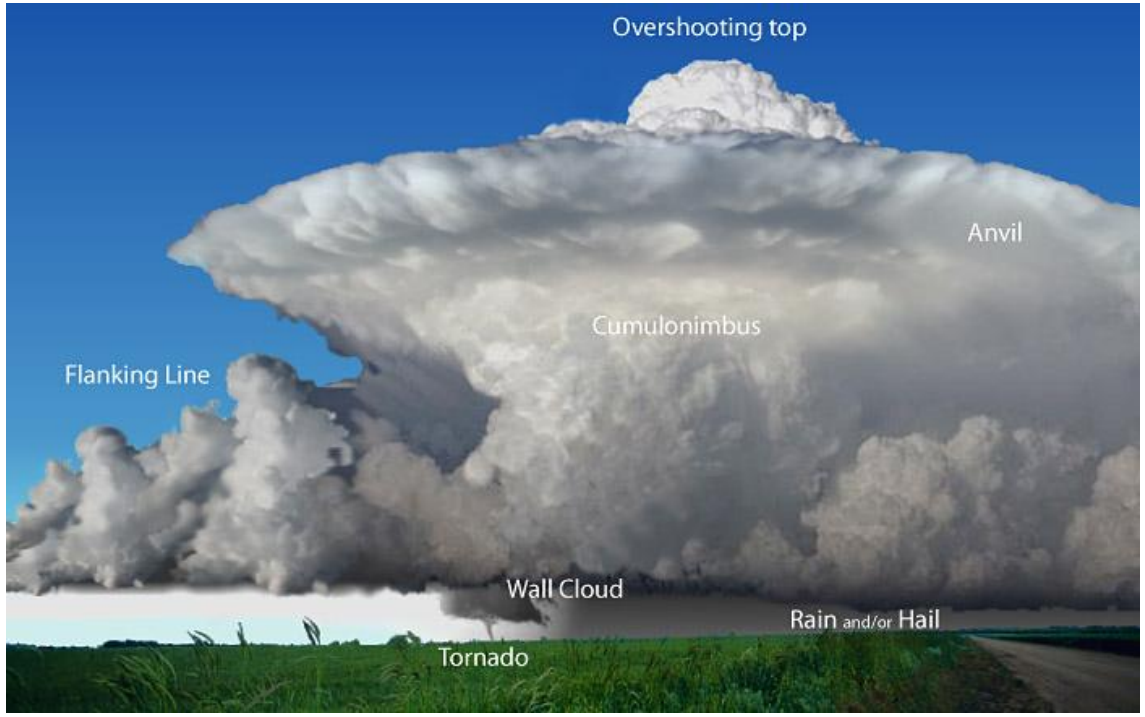
- Even when the sky looks clear from the ground, weather can be hazardous.
- Remember, clouds are moisture and can contain ice and significant updrafts.

Only IFR rated pilots can fly through clouds to get where they are going.

So if there are low clouds, many pilots cannot fly.

Weather effect on aviation

- Weather where you are may look fine but the destination or en route may present hazards to the pilot and the aircraft.
- There's nowhere for a pilot to pull over and wait it out if the weather gets bad
- Trust that the pilot is being safe and trying to ensure the safety of themselves & the passengers.
- **Pilots ALWAYS have the final say over whether it is safe for them to fly or not. Please respect that.**



Weight & Balance importance to pilots

What is the center of gravity

- The center of gravity (CG) of any object, is the point at which weight is evenly dispersed and all sides are in balance.
- Everything has a center of gravity: people, cars, airplanes, etc.
- The center of gravity in an airplane is the point at which the plane would be perfectly balanced, if not in contact with the ground. (remember the ground stops your fall)

Center of gravity

Imagine this was a post and the airplane was balanced on it. Where would the post have to be so the airplane is perfectly balanced?

Center of gravity

- What happens when you overload a car? The back end when overloaded ends up on the ground.

- The same thing happens when you overload an airplane on the ground.

Center of gravity

- But when you *do not have the ground stopping you* from falling further, the tail can keep falling...

Weight and Balance

- Pilots are required by FAA rules to do a weight & balance calculation before *every* flight.

- They need to know the number and size of each animal, as well as the number and size of each crate to do this calculation correctly.

PA28-140 Cherokee	Smithville Departure Airport Weight	Arm	Moment
Basic Empty Weight	1386	84.98	117782.28
Oil	11.25	32.5	365.6
Pilot and Passenger	362	85.5	30951
Aft Passengers		117.0	
Baggage Area #1	50	117.0	5850
Baggage Area #2		133.3	
Zero-Fuel weight/arm	1809		154948.88
Maximum Gross Weight	2150		
Subtract Zero-Fuel Weight	1809		
Available Fuel Weight	341		
Added Fuel Weight	216	95.0	20520
TAKEOFF WEIGHT	2025	86.7	175468.88

Only 36 US g. will be added for the trip. Normally pilot seek to depart on cross-country flights with the maximum amount of fuel on board, given the weight of passengers and baggage.

Tips on aviation and animal rescue

Tips when flying animals

1. Plan for shifting cargo –
   The take-off and landing segments of a flight are the most risky for dealing with dynamic changes in flight conditions. Shifting cargo is especially risky during this phase of the flight and extra care should be taken to recognize the potential and reduce it as much as possible.

   Securing the transport carriers is the first step to ensuring limited movement of the cargo. Like other luggage the crates can be secured with straps or bungee cords to ensure limited movement.

   Additional awareness should be paid that animals will often shift within their transport carriers due to the movement. Your center of gravity could shift quickly if all of the animals run to the back of their cages. Planning ahead and recognizing this possibility is a great step to preventing a problem.

2. Descend carefully –
   Animals do not have the same abilities as humans to equalize changes in pressure. While humans often yawn, plug their nose, or utilize other techniques, animals are not always aware or able to do this.

   Plan your decents accordingly and keep your decent rate <500 fpm to help your animals adjust to the changing pressure. Avoid steep turns or rapid climbs to help keep the animals comfortable.

Tips when flying animals

3. Bring a flight attendant –
   Many GA flights are conducted with a single pilot in command. We recommend bringing along an additional passenger to act as the flight attendant during your flight. Escapes can and do happen despite taking precautions. It's always a good idea to have someone along to care for your passengers in flight and any needs that may arise.

4. Remember the basics –
   Always be sure to do a weight and balance and know where your CG is located. Many times the animals are transported in crates and placed in the baggage area so it is important to ensure the characteristics for flight are considered.

5. Remember the paperwork –
   As with ground transports, appropriate paperwork for transporting animals is required in all 50 U.S. states. Make sure your passengers have their appropriate papers before boarding.

Coordinating an aviation flight

Coordinating an aviation flight

1. Know your volunteers –
   a. Are your pilots IFR rated to fly in cloudy weather?
   b. What type of plane are they flying? Single or multiple engines?
   c. How far of a radius are they able to go?
   d. Do they have their own crates or are you providing?

2. Brief the crew –
   a. Where is the driver meeting the pilot to board the animals? If it's a major airport there are many entrances.
   b. Are the crates collapsible? Will they fit through the plane door or baggage compartment? Have you measured?
   c. Will you provide harnesses and leashes to larger animals?
   d. When was the last time they were fed? It's hard to fly a plane and provide barf bags simultaneously.

3. Have a plan B, C & D –
   a. 72 hours in advance be looking at the weather and communicating with the pilots.
   b. 24 hours in advance confirm weather is safe for flight.
   c. Day-of check in as pilot is preparing to ensure nothing has changed. Planes need unscheduled maintenance sometimes just like cars do.
   d. If the pilot has to cancel due to weather, do you have back-up drivers or a backup foster?

Coordinating an aviation flight

4. Keep in mind best practices –
   a. Transferring from plane to car, plane to plane or car to plane still poses the biggest risk for escape.
   b. ALWAYS harness or double leash dogs to prevent escape.
   c. Transfer cages whenever possible instead of transferring the passengers.
   d. If flying with larger dogs, have a muzzle handy in case it's needed.