* UAVs
  + Pilotless aircraft
    - Used by military, police, and civilian communities for
      * Surveilance
      * Reconnaissance
      * Damage assessment
      * Natural disaster surveying
* UAVs categorized into fixed wing and rotorcraft varieties
* Range in size, payload, flight time capabilities
* Controlled remotely
* Fly on pre-planned paths executing maneuvers such as waypoint navigation and loitering
* During flight data can be collected with on-board sensors such as cameras and relayed to the ground
* UAVs are part of an unmanned aerial system
  + Vehicle
  + Autopilot
  + Ground station
  + Radio
* Ground stations
  + Monitoring vehicle status
  + Plan missions
  + Generate obstacle free and flyable paths
* Paths are sent over radio to the autopilot
* Autopilot attempts to get on and follow the path with minimal error using NGC systems
* Control system is responsible for actuating control surfaces to transition the aircrafts attitude (roll, pitch, yaw) and position (attitude, longitude, altitude) to closely match the desired flight path.
  + Done with closed-loop feedback control where the state of the UAV is measured and compared against the desired state
* Autopilot is responsible for maintaining vehicle stability, following mission paths, accepting direct input from a transmitter, and communicating with the ground station
* Accomplishes tasks by implementing navigation, guidance, and feedback control systems
  + Vehicle stability
    - Encounter disturbances
    - Reference input changes
    - Does not experience growing oscillations and states settle over time
  + Feedback control system
  + Roll, pitch, yaw, x,y,z (attitude and position)
  + Maintain vehicle stability
  + Important jobs (maintaining vehicle stability, following the mission path, communicating with the ground station)