



# Introduction to Careers in Unmanned Aircraft Systems (HAV1001B)

## NDCDE Resources

---

**Welcome: Start Here!**

**About This Course**

**Introduction to Careers in Unmanned Aircraft Systems Syllabus**

**Reflection Instructions Guide**

**Unit Reflection Rubric**

## UAS Resources

---

**00-01. UAS Resources**

**00-02. Course Objectives**

**00-03. SkySkopes**

**00-04. UAS Magazine**

**00-05. AOPA Guide to Remote Pilot Certification**

**00-06. North Dakota Aviation Council**

**00-07. North Dakota Aeronautics Commission**

**00-08. Association for Unmanned Vehicle Systems International**

**00-09. Academy of Model Aeronautics**

**00-10. Drone Focus Newsletter**

**00-11. Drone Terminology**

## Unit 1: Introduction to UAS

---

**01-01. Title**

**01-02. Objectives**

**01-03. Welcome!**

**01-05. Introduction to UAS**

**01-06. An Animated History of the Drone**

**01-07. History of the Modern Consumer Drone**

**01-08. What Are Drones Used For?**

**01-09. Future Skies: Drones for Fun and Profit**

**01-10. New Ways to Use Drones**

**01-11. Reflection**

## Unit 2: Fundamental Principles of UAS Flight and Operation

---

**02-01. Title**

**02-02. Objectives**

**Unit 2, Part 1: Fundamental Explanation**

02-03. Fundamental Explanation

02-04. Basic Physics of Drones

02-05. How Do Quadcopters Fly?

**Unit 2, Part 2: Advanced Explanation**

02-06. Advanced Explanation

- 02-07. How Does an Airplane Fly?
- 02-08. How the Shape of a Wing Develops Lift
- 02-09. How Control Surfaces Make a Plane Maneuver?
- 02-10. Weight
- 02-11. Stability
- 02-12. Flight Principles Video
- 02-13. How Does a Multi-rotor Fly Without Wings?
- 02-14. Airport Operations Video
- 02-15. Airspace Part 1 Video
- 02-16. Airspace Part 2 Video

### **Unit 2, Part 3: Flight Operations**

- 02-17. Flight Operations
- 02-18. How to Fly a Drone
- 02-19. Basics of Drone Flight #1 - Takeoff, Controlled Hovering, and Landing
- 02-20. Basics of Drone Flight #2 - Figure 8 Flying
- 02-21. Basics of Drone Flight #3 - Forward Flight
- 02-22. Basics of Drone Flight #4 - Aerobatics
- 02-23. Phonetic Alphabet Flash Cards Link

### **02-24. Phonetic Alphabet Flash Cards**

### **02-25. Pre-flight and Post-flight Operations Checklists**

### **02-26. Reflection**

## Unit 3: Regulations and Safety

---

### **03-01. Title**

### **03-02. Objectives**

### **03-03. ALERT: Congress and President Restore FAA Authority, Require Hobby Drone Users to Register**

### **03-04. What is Commercial UAS Use?**

### **03-05. So, You Bought a Drone, Now What? FROM DRONE FOCUS - Lindsay Breuler**

### **03-06. Drone Safety**

### **03-07. Know Before You Fly**

### **03-08. Requirements to Qualify as a Model Aircraft**

### **03-09. The Full Document of Part 107**

### **03-10. Pilot Handbook**

### **03-11. Before You Buy a Drone...**

### **03-12. Reflection**

## Unit 4: Vocabulary, Maintenance and Tools of UAS

---

### **04-01. Title**

### **04-02. Objectives**

### **04-03. Introduction**

### **04-04. Commercial VS Hobby Grade Multirotor**

### **04-05. Basic UAS Components**

### **04-06. Other UAS Components**

### **04-07. FPV and POV Goggles (First-Person-View for Beginners)**

### **04-08. 3D Printing**

### **04-09. Putting it all together if you build your own**

### **04-10. Mission Planner**

### **04-11. Vocabulary Quiz**

### **04-12. Reflection**

## Unit 5: Introduction to UAS Simulation and Drone Racing

---

### **05-01. Title**

### **05-02. Objectives**

### **05-03. UAS Simulation**

- 05-04. Here Are a Few More Simulators I Really Enjoy
- 05-05. Drone Flight Simulator – Analysis & Comparison
- 05-06. Intro to Drone Racing
- 05-07. Racing Drones – FPV Documentary
- 05-08. MultiGP – Join the drone racing community!
- 05-09. Captainvanover – The MultiGP nationals 2017 winner
- 05-10. DRL–The Big Leagues
- 05-11. Drone Racing Safety
- 05-12. Quadcopter FX
- 05-13. Reflection

## Unit 6: FAA Part 107 Testing

---

- 06-01. Title
- 06-02. Objectives
- 06-03. Part 107
- 06-04. Small UAS Rules Take Effect
- 06-05. Fact Sheet – Small Unmanned Aircraft Regulations (Part 107)
- 06-06. Are You Ready to Fly a Drone?
- 06-07. UAS Airman Certification Standards
- 06-08. Part 107 Practice Exam
- 06-09. FAA Testing Sites
- 06-10. Reflection

## Ask a UAS Professional Pilot

---

Ask a UAS Professional

## Unit 7: UAS in National Security

---

- 07-01. Title
- 07-02. Objectives
- 07-03. The Future Airforce Will Be Unmanned
- 07-04. How Do The Most Advanced Military Drones Work?
- 07-05. The Unmanned Platform had to Start Somewhere - V1 Buzz Bomb
- 07-06. First UAS to be Controlled by Satellite
- 07-07. MQ-9 Reaper
- 07-08. Northrop Grumman RQ-4 Global Hawk
- 07-09. Scan Eagle
- 07-10. RQ-20 Puma
- 07-11. Northrop Grumman X-47B
- 07-12. Perdix Micro UAV
- 07-13. ARGUS-IS
- 07-14. Drone Technology is Becoming Ever-More Sophisticated-But Not Risk Free
- 07-15. Ethical Use Policy
- 07-16. 119th Wing (Based in Fargo, ND)
- 07-17. 69th Reconnaissance Group, Grand Forks, ND
- 07-18. A Day in the Life of a US Air Force Drone Pilot
- 07-19. Reflection

## Unit 8: UAS in Business and Public Safety

---

- 08-01. Title
- 08-02. Objectives
- 08-03. Rise of the Machines
- 08-04. UAS in Business and Public Safety
- 08-05. Common Commercial Sensors
- 08-06. UAS in Agriculture
- 08-07. Drone Photography

- 08-08. Drone Technology for Public Safety
- 08-09. Project First Responders – Welcome to the Drone Revolution!
- 08-10. Drones prove their worth in disaster response
- 08-11. Drones in Service: Oilfield Transformation From Above
- 08-12. Multi-member group proves drone-based security response system
- 08-13. Dronebox - Solar Nesting Platform For Drones
- 08-14. Reflection

## Unit 9: UAS Sensors, Software and Command Data Links, Data Processing

---

- 09-01. Title
- 09-02. Objectives
- 09-03. How Dumb Are Drones?
- 09-04. Types of Sensors You Can Put on UAS
- 09-05. Graphical User Interfaces to Control sUAS
- 09-06. Drones Are Helping Meteorologists Decipher Tropical Cyclones
- 09-07. Imaging With Radar
- 09-08. Image Analysis
- 09-09. Drone Mapping Basics
- 09-10. Archaeology's Tech Revamp
- 09-11. Obstacle avoidance on sUAS
- 09-12. Swarm Robotics
- 09-13. 3D Mapping - Intro to Drone Deploy
- 09-14. NDVI Mapping with DroneDeploy - The Ag Scout Series
- 09-15. The future of flying robots
- 09-16. Reflection

## Unit 10: UAS Education, Research, and Careers

---

- 10-01. Title
- 10-02. Objectives
- 10-03. Interview: Matt Dunlevy - President and CEO for SkySkopes Inc.
- 10-04. Interview: Mike Johnson - Vice President of Operations for SkySkopes Inc. (former USAF)
- 10-05. Interview: Field of View - David Dvorak
- 10-06. Northern Plains UAS Test Site
- 10-07. Research being conducted at Grand Sky
- 10-08. Bachelor of Science in Aeronautics (B.S.A.) with a major in Unmanned Aircraft Systems Operations
- 10-09. Headed for the Border
- 10-10. Northland Community and Technical College
- 10-11. Reflection

## Unit 11: The Future of UAS

---

- 11-01. Title
- 11-02. Objectives
- 11-03. Advances in Autonomy
- 11-04. Advances in Crash Prevention
- 11-05. Future Careers
- 11-06. 10 New Drone Inventions
- 11-07. DJI Introduces New Geofencing System for its Drones
- 11-08. Burgum Forms UAS Detection and Counter-UAS Task Force
- 11-09. Anti-Drone Technology
- 11-10. Counter-UAS: The Road Ahead
- 11-11. The Economic Impact of Unmanned Aircraft Systems Integration
- 11-12. Drones: A Source of Debate—and Economic Impact
- 11-13. No Roads? There's a Drone For That
- 11-14. 10 Amazing Future Drone Uses
- 11-15. 8 NEW Drone Inventions That Will Blow Your Mind

**11-16. Reflection**

Final Reflection

---

**Final Reflection Assignment**

End of Course Survey

---

**End of Course Survey**

Generated on 1/2/2018

NDCDE © 2017