



SOUTHWESTERN COLLEGE COURSE OUTLINE

School of: <u>Mathematics, Science, and Engineering</u>	Origination Date: 04/20/2018
Department: <u>Physical Sciences</u>	
Discipline: <u>Geography</u>	
Course Designator and Number: <u>GEOG 107</u>	Effective Date: 2019 Fall
Title: <u>Small Unmanned Aircraft System (sUAS) Remote Pilot Ground School</u>	Effective Catalog Year: 2019–2020
	Units 1 Lec 1 Lab 0
	Total Contact Hours: 18

Same as other course(s) designator(s),

Grading Basis: Grade or Pass/No Pass option available

Repeatable: 0

Corequisite:

Limitation on Enrollment:

Prerequisite:

Recommended Concurrent Enrollment:

Recommended Preparation:

Course Description & Scope: (50 words or less)

Equips students with knowledge about the regulations and procedures governing the safe and legal operation of small unmanned aircraft systems (sUAS), commonly referred to as "drones." Coincides with the knowledge areas in the Federal Aviation Administration's (FAA's) Part 107 airman knowledge test for a Remote Pilot Certificate with a sUAS rating, and is intended to prepare students for the FAA written examination required for students to become commercial sUAS pilots. [D; CSU]

Measurable Course Objectives and Minimum Standards, as Determined by Standards set by the instructor, at 70% Proficiency for a Grade of "C":

1. Student will describe the component parts of an aircraft and how they operate.
2. Student will explain aerodynamic principles and the forces that act on an airplane in flight.
3. Student will identify the rules and procedures required to fly in the National Air Space.
4. Student will discuss the procedures for communication with air traffic control and the information required for flight operations.
5. Student will discuss and describe weather sources and effects of weather on sUAS performance.

6. Student will describe factors that affect aircraft performance during takeoff, landings, long-range flight, and flight at different altitudes.
7. Student will describe the physiological effects of drug and alcohol on remote pilots.
8. Student will discuss maintenance and preflight inspection procedures.
9. Student will explain the FAA Part 107 certification requirements.

Core Content to be covered in all sections:

1. Approximately 10% of course
 - Federal aviation regulations
 - History of the FAA
 - Rulemaking process
 - Types of operation (public, civil, and recreational)
 - Part 107 certification requirements
 - Registration of sUAS
2. Approximately 10% of course
 - Airspace
 - Flight rules (visual versus instrument)
 - National airspace (Class A, B, C, D, E, and G)
 - Airspace entry requirements
3. Approximately 10% of course
 - Flight restrictions
 - Special use airspace
 - Prohibited airspace
 - Restricted airspace
 - Warning airspace
 - Alert airspace
 - Military operations area airspace
 - Temporary flight restrictions
 - Advisory circular
4. Approximately 10% of course
 - Navigation and maintenance
 - Pre-flight planning
 - Latitude and longitude
 - Time zones
 - Determining altitude
 - Aeronautical sectional charts
 - Pre-flight briefing and inspection
 - Post-flight debriefing and inspection
 - Right of way
 - Maintenance
5. Approximately 10% of course
 - Aviation weather
 - Atmosphere and air pressure
 - Heat and temperature
 - Wind
 - Precipitation
 - Micrometeorology in urban settings
 - Aviation weather services
6. Approximately 10% of course
 - Weight and balance
 - Terminology
 - Weight and balance control

- Calculating weight and balance
 - Components of an aircraft and how they operate
 - Aerodynamics and lift
 - Factors that affect takeoff, landings, and flight
7. Approximately 10% of course
Emergency procedures
- In-flight emergencies
 - Loss of link
 - Flyaways
 - Loss of power
 - Inflight shutdowns
8. Approximately 10% of course
Crew resource management
- Risk management
 - Risk assessment
 - Risk factors
 - Mitigating risk
 - Hazardous attitudes
 - Decision-making process
 - Situational awareness
9. Approximately 10% of course
Airport operations and radio communications
- Airport operations
 - Towered and non-towered airports
 - Unicom and Multicom
 - Communicating with ATC (Air Traffic Control)
 - Collision avoidance
10. Approximately 10% of course
Physiological effects of drug and alcohol
- Medical conditions
 - Medications
 - Alcohol
 - Regulatory citations

NOTE: For specific details, see instructor's syllabus.

Method of evaluation to determine if objectives have been met by students:

1. Class activities
2. Competency-based written and practical tests
3. Homework
4. Individual activity
5. Problem solving
6. Quizzes
7. Written assignments

Other Methods of evaluation:

Example of Assignments:

Reading

Read the chapter on forces of flight and write a one-page summary of the chapter that describes the forces of flight and how these forces affect flight performance.

Writing

Read over existing approved airspace authorization requests and write a two-page similar waiver request.

Other

Develop a flight plan for a sUAS flight from the campus of Southwestern College to the Olympic Training Center in Chula Vista.

Critical Thinking

Develop contingency plans in response to various hypothetical situations you may encounter during sUAS operations (e.g., loss of link, battery malfunction). For example, you are on a cross-country flight. A hazardous weather pattern has developed on route. Describe the limitations of your aircraft and how you should modify your flight plan in a two- to three-page paper.

Instructional Methodology:

Requires a minimum of three (3) hours of work per unit, including class time.

1. Audiovisual
2. Demonstration
3. Discussion
4. Distance education
5. Individual assistance
6. Lecture

Required and major optional reading(s), including textbook(s) and software: (Author: Last name, First name. Title. 2nd ed. (or higher edition) Location: Publisher, Year)

Required:

- Federal Aviation Administration. Remote Pilot: Small Unmanned Aircraft Systems Study Guide. U.S. Department of Transportation, 08-01-2016.

Optional:**Codes**

Is this an approved special class for students with disabilities? No

Is this course a part of a cooperative work experience program? No

Funding Agency Category: Y Not Applicable

Is this a basic skills course? No

Course Offered: Fall, Spring, Summer