# UAS 102 UAS Standards, Regulations, & Law

# Course Master Syllabus

## Course Information

**Catalog Description:** Students will be introduced to the history of aerospace, opportunities in the field of unmanned aircraft systems, fundamentals of flight, navigation, communication, and Federal Aviation Regulations. They will perform a comprehensive examination of the U.S. national air traffic control system and how it affects aviation in general, pilots and safety in particular. This course covers the air traffic control system (enroute, terminal and Flight Service Stations), air traffic control personnel, training, duties, and facilities, and will provide students with an overview of the many constitutional and other legal considerations relevant to the development, manufacture, and use of unmanned aircraft systems (UAS).

**Prerequisite(s):** None

**Corequisite(s):** None

**Credits:** 3

**Hours:** 3

**Required Text(s):**

- Gardner, B., & Ison, D. (2018). *The complete remote pilot*. Aviation Supplies & Academies, Inc. ISBN: 13: 978-1619545625
- Rupprecht, J. (2015). *Drones: Their many civilian uses and the U.S. laws surrounding them*. CreateSpace Independent Publishing Platform ISBN: 13: 978-1502805522

**Supplemental Materials:**

- 14 CFR part 71 -- Designation of Class A, B, C, D and E Airspace Areas; Air Traffic Service Rotes; and Reporting Points
- AIM -- Aeronautical Information Manual
- Current Unmanned Aircraft State Law Landscape
- FAA Testifies To Congress: More UAS Delays

- Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) Roadmap
- Local and State Drone Laws
- Part 107
- Part 107 from Federal Registrar
- Pilots Handbook of Aeronautical Knowledge, US Dept. of Trans., FAA
- Tom Schrimpf and Russ Klingaman, Recreational Drones: Do Homeowners' Insurance Policies Provide Coverage? (August 4, 2015)
- U.S. House of Representatives Committee on Science, Space and Technology, "Unmanned Aircraft Systems (UAS) Research and Development" (January 21, 2015)
- Ultimate Guide to U.S. Drone Regulations (2018)
- US Drone Laws by State
- Voluntary Best Practices for UAS Privacy
- What You Need to Know to Legally Operate Your Drone Under New FAA Regulation

## Instructor Information

**Instructor's Name:**

**Contact Information:**

**Office Hours:**

## Program Goals

1. Equip students with comprehensive knowledge of unmanned systems, including their standards, regulations, and operational frameworks, preparing them for FAA Part 107 certification and other regulatory requirements.
2. Develop proficiency in using geographic information systems (GIS) and remote sensing technologies, enabling students to analyze and interpret spatial data for applications in environmental monitoring, urban planning, and emergency response.
3. Foster a strong understanding of safety protocols, risk management strategies, and security measures in unmanned aviation to ensure compliance with industry standards and promote operational excellence.
4. Provide hands-on training in maintaining, repairing, and optimizing unmanned aircraft systems (UAS) to extend operational life and enhance performance in various industry settings.

5. Introduce students to advanced robotics, programming, and cutting-edge technologies, including infrared thermography and digital photography, to expand their expertise in innovative applications of unmanned systems.
6. Equip students with the skills and knowledge to contribute to the development and operation of innovative unmanned aerial transportation systems, addressing future urban and regional mobility challenges.
7. Utilize research methods and data analysis techniques to examine crime trends, policy effectiveness, and criminal behavior.
8. Analyze contemporary issues in criminal justice and propose evidence-based policy recommendations.

## Class Core Competencies

The following core competencies are embedded in this curriculum:

- Communicate effectively in both speech and writing
- Use social sciences theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens
- Understand ethical issues and situations
- Address and information need by locating, evaluating, and effectively using information.

## Class Learning Assessment

| Student Learning Outcomes | Suggested Means of Assessment |
|---|---|
| Become proficient in the use of the common language of drones and UAS terminology, with particular emphasis on the acronyms used in aerospace communications. | Tests, homework |
| Develop an understanding of NAS & navigation for all aircraft. | Tests, homework, practical activity |
| Develop a mastery of FAA Sectional Chart reading, interpretation, and usage. | Tests, homework, practical activity |
| Develop an understanding of airport operations & signage. | Tests, homework |

| Student Learning Outcomes | Suggested Means of Assessment |
|---|---|
| Develop and learn to communicate airspace terminology and the communication patterns of pilots. | Tests, homework |
| Develop the ability to communicate with Air Traffic Control (ATC). | Oral exam, practical activity |
| Develop an understanding and practical ability to engage emergency procedures, | Tests, homework |
| Develop a comprehension of sUAS FAA regulations & Federal, state and local laws. | Research paper |

## Grading System

| Letter Grade | Percentage Range |
|---|---|
| A | 90 to 100 percent |
| B Plus (B+) | 87 to 89.9 percent |
| B | 80 to 86.9 percent |
| C Plus (C+) | 77 to 79.9 percent |
| C | 70 to 76.9 percent |
| D | 60 to 69.9 percent |
| F | Below 60 percent |

## College Information

**Disability Services**
Disability Services Webpage

**Statement and Policy on Cheating, Plagiarism, and Academic Conduct**
Academic Conduct Policy (Policy 304) [PDF]

Students are required to perform all the work specified by the instructor and are responsible for the content and integrity of all academic work submitted. A violation of academic integrity will occur if a student: (1) knowingly represents work of others as one's own, (2) uses or obtains unauthorized assistance in any academic work, (3) gives

fraudulent assistance to another student, or (4) furnishes false information or other misuse of college documents.

Unauthorized use of Artificial Intelligence (AI) is prohibited unless the instructor explicitly permits it in the syllabus or assignments. If tools such as ChatGPT are permitted by an instructor to be used for an assignment, they should be used with caution and with proper citation. In all such cases, you may only use the specific tools identified as acceptable and you must adhere to the College's standards for attribution, validation, and transparency.

In cases of suspected violation of academic integrity, the incident is to be reported to the Office of Academics. A student found guilty of violating the rule of academic integrity by the Vice President of Academics will be considered to have failed in personal obligation to the College; such failure will be subject to disciplinary action by the College. Unless otherwise notified, the instructor will allow students who are pending disciplinary action to attend class.

**Tutoring and Testing at the Instructional Support Center (ISC)**

- Instructional Support Center (ISC) Webpage

**WCCC Library Services**

- WCCC Library Website

**Citation Styles and Formatting**

Work submitted for any Warren County Community College course must conform to the required formatting and citation style that are specified by the instructor. The Library and Instructional Support Center can assist students with formatting and citations for assignments and papers.

**WCCC Attendance Expectations**

The College expects students to attend and participate in all classes. This involves sharing discussions and lectures in class, as well as interacting with other students. Grades are based on the quality of work students complete in meeting the requirements for a particular course, as stated in the course syllabus and catalog description. Attendance, among other factors, may be an additional criterion for assigning grades. Students should realize that they are responsible for all class meetings and that work missed because of absences may affect their grades. Attendance in online classes is determined by the completion of assignments/ tests. Students who have not completed

any assignments or tests will be considered non-attending and receive an NF grade in online classes.

**Class Attendance Expectations**

## Topical Outline

1. Unmanned aircraft systems: learning the language of drones
2. Federal Aviation Administration (“FAA”) regulation of the use of UAS in the National Airspace System (“NAS”)
3. Overview of the National Airspace System “NAS”
4. Regulations: Remote Pilot Certificate sUAS rating privileges, limitations, and flight operations
5. Introduction to airspace
    a. Controlled airspace
    b. Airspace classifications
    c. IFR
    d. VFR
    e. Flight service stations
    f. TFR’s
    g. NOTAMs
    h. Aircraft identification
    i. MOA
    j. MTR’s
    k. Prohibited areas
    l. Restricted areas
    m. Warning areas
6. Introduction to navigation
    a. Aeronautical charts
    b. Sectional charts
    c. VFR terminal charts
    d. World aeronautical charts
7. Introduction to airport operations
    a. NOTAMS
    b. TFR’s
    c. Airport signs & markings
    d. Air traffic control
8. Radio communications procedures
    a. Radio phraseology
    b. Standard pronunciations

c. Numbers, altitude & time
d. Altimeter settings
e. Air traffic control facilities
f. TACAN
g. VORTAC
h. Global Navigation Satellite Systems
i. Global Positioning Systems
j. Augmentation Systems

9. Overview of AIM Aeronautical Information Manual
10. Emergency procedures
11. Maintenance & pre-flight procedures
12. Administrative Procedures Act and the FAA's implementation of federal aviation law
13. Civil and criminal issues such as invasion of privacy and trespass
14. Freedom of the press
15. State & local laws
16. UAS insurance
17. Ethics of and international laws governing military use of UAS.

## Grading Methods

| Assignment | Points/Percentage |
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## Class Itinerary

| Week / Unit | Topic | Readings/Assignments |
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| Week / Unit | Topic | Readings/Assignments |
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