



Course Master Syllabus

CATALOG DESCRIPTION: This course is designed for the certification of Unmanned Aircraft Pilots, with in-depth knowledge of flight training, regulations, operational risk management and procedures inherent to the technician, mission manager, and pilot. Each of these topics include first-hand investigation via extensive equipment use, research and inquiry. This course consists of lecture, simulator instruction, and live flight operation specific to numerous unmanned aircraft systems (UAS). Topics in UAS include: UAS aerodynamic theory, operations theories and techniques, platform categories, sensors and payloads, technical documents and processes of automation. Students will design and participate in flight operations on various UAS platforms. During flight operations students will develop knowledge in operator maintenance, composites, battery systems, communication and instrumentation systems, rigging and assembly, and troubleshooting of UAS and their respective components. This course prepares students with the knowledge to determine and identify the technical problems encountered with regular UAS operations.

PREREQUISITE(S): UAS 101 Unmanned Systems; UAS 105 Remote Pilot Operations; UAS 106 Unmanned Aircraft Systems Safety & Security

COREQUISITE(S): UAS 105 Remote Pilot Operations; UAS 204 Introduction to Geographic Information Systems; UAS 209 UAS Remote Sensing & Analysis

CREDITS: 3 **HOURS:** 3

REQUIRED TEXT(S): Flahive, R., & Kishpaugh, T. (2018). Guide to Drone Operations:

ISBN 13: 978-1980305972

Flahive, R., & Kishpaugh, T. (2018). Guide to Drone Maintenance: Complete How-To Book.

ISBN: 13: 978-1980413332

REQUIRED TEXT(S): Leasure, M. (2016). Unmanned Aerial Systems: The Definitive Guide. Tabernash, CO: Aircraft Technical Book Company, LLC.

ISBN: 13: 978-1-941144-43-5

SUPPLEMENTAL MATERIALS (Required):

AIM -- Aeronautical Information Manual, available at:
https://www.faa.gov/air_traffic/publications/media/aim.pdf



FAA-H-8083-25B -- Pilot's Handbook of Aeronautical Knowledge, available at:
https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/pilot_handbook.pdf

<p>INSTRUCTOR INFORMATION:</p> <p>OFFICE HOURS:</p>
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<p>CORE COMPETENCIES: The following core competencies are embedded in this curriculum: Communicate effectively in both speech and writing; Apply appropriate mathematical and statistical concepts and operations to interpret data to solve problems; Use computer systems or other appropriate forms of technology to achieve educational and personal goals; Address an information need by locating, evaluating and effectively using information.</p>	
<p>LEARNING ASSESSMENT</p>	
<p><i>Student Learning Outcomes:</i></p>	<p><i>Suggested Means of Assessment:</i></p>
<p>Analyze and report sensor information pertinent to safety of flight and mission accomplishment.</p>	<p>Tests, Homework, Lab Exercises</p>
<p>Demonstrate fundamental knowledge and experience in flight control logic, aircraft parameters, maps, flight planning and safety.</p>	<p>Tests, Simulations</p>
<p>Plan and execute an Unmanned Aircraft Systems mission from launch to recovery.</p>	<p>Portfolio, Tests & Flight Operations</p>
<p>Demonstrate the ability to identify all parts of an Unmanned Aircraft System are operational and that the Unmanned Aircraft System legal flight is in accordance with FAA regulations.</p>	<p>Tests, Homework</p>
<p>Demonstrate the ability to inspect Unmanned Aircraft System platforms for material and electrical defects. Students will apply technical knowledge to repair electrical sensors, camera systems and composite</p>	<p>Tests, Flight Operations, Lab Exercises</p>



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damage to airframes.	
Analyze and report on UAS Mission, Data, and Analyses.	Final Report
GRADING SYSTEM:	
A = 90 < 100	C+ = 77 < 80
B+ = 87 < 90	C = 70 < 77
B = 80 < 87	D = 60 < 70
	F = Below 60

DISABILITY SERVICES STATEMENT: Warren County Community College is committed to providing all students equal access to learning opportunities. Student Services is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations. Students who have, or think they may have, a disability (e.g. mental health, learning, vision, hearing, physical or systemic), are invited to contact Student Services to arrange a confidential discussion at (908) 835-2300 or by email at StudentServices@Warren.edu as soon as possible. Students registered for Disability Services with Student Services, who have requested accommodations for the current semester will be provided with an electronic letter detailing individual accommodations and are encouraged to contact the instructor early in the semester to discuss accommodations outlined in their letter.

INSTRUCTIONAL SUPPORT CENTER: The Instructional Support Center (ISC), located in Room 105 across from the library, provides academic support at no cost to WCCC students and is available for courses in which they are currently enrolled. The ISC is staffed with trained professional and peer tutors who are ready to help you understand and succeed. For scheduling or further information, visit the ISC in person, online at <http://www.warren.edu/tutoring/> or by telephone at (908)835-2354.

STATEMENT AND POLICY ON CHEATING, PLAGIARISM AND ACADEMIC DISHONESTY: 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.

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.

REQUIRED FORMAT FOR RESEARCH PAPERS: Research papers written for any Warren County Community College class must conform to the required documentation style.



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Papers written for humanities (and some social science) classes will follow the most recent edition of the Modern Language Association (MLA) in-text citation and bibliographic methods. Social science and science papers will require the use of the most recent edition of the American Psychological Association (APA) in-text citation and bibliographic methods. History papers will require the use of the most recent edition of the Chicago Manual of Style (CMS) footnotes, citations and bibliographic methods.

Please consult with your instructor regarding the correct documentation style to use in his/her class.

ATTENDANCE POLICY: Students are expected to attend all class sessions of courses in which they are enrolled and are responsible for all material presented in class and all homework assignments.

Grades are based on the quality of work completed in meeting the requirements for a particular course, as stated in the course syllabus and catalog description.

Excessive absence may be considered sufficient cause for dismissal from class by an instructor or other appropriate college staff member. Any decision to exclude a student from class or the College due to excessive absence shall be subject to review by the President in accordance with established procedures. Students who have not attended class are not entitled to a refund of tuition.

WCCC HAYTAIAN & MAIER LIBRARY: (908) 835-2336 <http://warren.libguides.com>

Library Hours

Monday-Thursday 8am-8pm

Friday 8am-3pm

Check the Academic Calendar for specific holiday dates. Exceptions may apply during breaks and summer sessions. Any changes to the Library's hours are posted on the Library's web page and near the Library doors.

- **Passwords and Log-Ins-**The Library is responsible for resetting passwords for your Network account (email, computers, Wi-Fi, library resources, and printing). This cannot be reset over the phone. Please stop by the Library for help.
- **College IDs-**College IDs are required for all students. The Library is responsible for producing all ID cards. To get an ID card you must bring to the Library a current copy of your class schedule and another form of ID. Your student ID is also your library card and is needed to check materials out of the Library. Your first ID card is free and replacement cards are issued at a cost to the student.
- **Inter-Library Loan (ILL)-**The Library participates in a nation-wide inter-library loan program which is available free to all students and faculty. You can either submit ILL



requests via the Internet (form available on the Library's web page) or in person at the circulation desk.

TOPICAL OUTLINE:

1. Analyze and report sensor operation pertinent to the safety of flight.
2. Experience with UAS command and control
3. Experience with UAS simulators
4. UAS flight operations experience
5. UAS flight logic
6. UAS flight planning
7. UAS parameters
8. Mission execution
9. Flight Log
10. Mission Reporting

GRADING METHODS:

ITINERARY: