AVI 1200
Unmanned Aerial Systems Basic Operations
Course Syllabus
Term: Spring

Rhodes State College   3 Credit Hours
Division of Health Sciences and Public Service   3 Contact Hours
Agriculture Technology Program
Instructor: Jim Uphaus   Adam Wehrman
Office: JJC 179 M   JJC 179 N   TAG: N
Phone: 419-995-8207   419-905-8427   OTM:N
Email: Email: OAN: N
Uphaus.J@Rhodesstate.edu   Wehrman.A@Rhodesstate.edu

 Office Hours: as scheduled

Angela Heaton   Dean, Health Sciences and Public Service
Phone: 419-995-8813
E-mail: Heaton.A@rhodesstate.edu

Dr. James Uphaus   Chair, Agriculture Technology
Phone: 419-995-8207
E-mail: Uphaus.S@RhodesState.edu

Lori Dyer   Project Director, USDA NIFA Grant
 Phone: 419-995-8072
 E-mail: Dyer.L@RhodesState.edu

Mission Statement: Rhodes State College changes lives, builds futures, and improves
                    Communities through life-long learning.

Program Mission Statement:
The Agriculture Technology program is designed to provide students with practical education in an increasing demand field of agriculture business, agronomy, prescription mapping, and/or robotics and artificial intelligence.

Program Learning Outcomes
- Communicate effectively in both written and oral form with coworkers, customers, and others in and about prescription mapping in agriculture.
- Locate and use information and numerical data in solving problems related to technology, equipment, software, and sensors in agriculture.
- Use equipment, technology, software, and sensors safely and efficiently to collect data.
- Produce prescription agriculture maps and make an action plan from the given data set.
- Demonstrate initiative, leadership, and planning in building professional relationships in the workplace.

OVERVIEW

Catalog Description Introduces students to the use of drone technology, including basic setup, operation, sensor addition, and safety in agriculture settings. Sensor selection and use are demonstrated. Troubleshooting drone agricultural mapping errors is also reviewed.

Prerequisites/Co-requisites:

AVI 1000 Unmanned Aerial Systems, AGR 1000 Introduction to Agriculture

Meeting Dates and Times:
Mondays and Wednesdays 3:30-4:45 pm

Course Delivery:
In Person

TEXT AND MATERIALS/SUPPLIES:
Selected reading and text

STUDENT LEARNING OUTCOMES:
- Utilize drone hardware and software to appropriately map a given agriculture field.)
- Install the appropriate sensors for agriculture field mapping given a specific situation.
- Describe how to fly a drone using the industry's best practices for agricultural applications.
- Describe all required safety practices associated with drone flight.
- Apply equipment/software manual information to troubleshoot problems in the field with drone operation.
- Transfer drone sensor information to software mapping systems
- Evaluate drone maps to determine if any mapping errors are the result of drone data collection error.

SCHEDULE OF INSTRUCTIONAL ACTIVITIES:

Traditional lecture with included laboratory exercises

Week	Topics
1	Intro to Agriculture Drones
2	Remote Sensing Technology
3	Flight Simulator, Indoor Flight using Mavic Mini
4	Review of Regulations Charts
5	Drone Deploy Mission Planning
6	Using and Exporting Drone maps for Agriculture Decisions
7	Intro to Sentera mapping software, mission planning
8	Outdoor Flight with NDVI, uploading and processing Drone Deploy
9	Exam and check for understanding, flight with obstacles
10	Outdoor Flight with NDVI, uploading and processing with Sentera
11	Looking for errors in Drone Sensing maps
12	Ground Control Points Setup and Use
13	Troubleshooting Drone Issues using manuals and resources
14	Other Sensors, Drone Sprayer use
15	Industry Expert Visits
16	Final Exam and flights

*Schedule subject to change, especially due to weather.

LABORATORIES, CLINICALS, FIELDWORK/ SPECIAL REQUIREMENTS:

TESTING AND EVALUATION:

Assignments
Demonstrations
Problems
Attendance

Quizzes
Exams

Grading Scale: Percentage grade to letter grade conversion will generally be:

A   93-100
A-   90-92.9
B+   87-89.9
B   83-86.9
B-   80-82.9
C+   77-79.9
C   73-76.9
C-   70-72.9
D+   67-69.9
D   60-66.9
E   0-59

Course Scoring

Quizzes	30%
Homework/Assignments	30%
Exams	35%
Attendance	5%
Total	100%

INSTRUCTOR EXPECTATIONS:

Attendance/Participation:
This class is an in-person class, requiring lectures and significant hands-on activities. Attendance is expected and accounts for 5% of the total grade for this class. In the interest of maximizing our time, please be on time and ready to learn and/or fly. If a circumstance arises that you are unable to make it to class, please alert the instructor as soon as possible.

Makeup Policy:
It is understood that various circumstances may arise, causing one's absence. The instructors will do everything in their power to catch a student up. However, it is the responsibility of the student to alert the instructors of expected absences, and to contact the instructors about making up activities. Excused absences will not result in grade penalty. Unexcused absences will not receive attendance points. Missed quizzes, late assignments, etc. due to unexcused absences will be deducted 20% per week until they are turned in.

PARTICIPATION

Attendance:
Regular attendance is important to understand course content and perform required competencies. Absences, late arrivals, and early departures will negatively impact your grade and may result in a grade of "E" which may harm your Financial Aid eligibility. Please ensure that you understand the attendance policy for each course and follow the instructor's guidelines for communicating about unavoidable absences and making up course work, if permissible.

E-mail:
You are responsible for checking your College email frequently for college and course-related communications. RSC recommends checking email daily in recognition that certain communications may be time-sensitive. Please use proper etiquette when submitting emails to College personnel: a positive tone, correct spelling and grammar, and verify the intended recipient's title and address before sending the email. These details will expedite communication.

Incomplete:
The grade of incomplete ("I") in a course is a temporary grade, reflecting that while your work in the course is qualitatively satisfactory, but for some extenuating circumstances, a small fraction cannot be completed by the scheduled end date. Before an "I" can be awarded, there must be a plan in place, verified by signatures or emails by both you and your instructor, outlining exactly what work must be accomplished and a schedule for doing so. The student must complete and submit the coursework no later than the sixth Friday following the start of the semester or term subsequent to the one in which the "I" was received. Failure to adhere to this plan will result in calculating the course grade with 0s for all remaining assignments. Until the "I" is resolved, the credit hours will not be counted or considered for any purpose. Your financial aid and academic standing may be negatively impacted. For more information see the College Catalog "Grading System" and "Registration."

In short, taking an incomplete should be avoided. However, if it becomes impossible for you to complete a course, please contact your instructor and Financial Aid advisor immediately.

Withdrawal:
You are responsible to officially drop/withdrawal from a course when you decide to no longer attend class. Without an official drop/withdrawal from the Office of Advising and Counseling, the institution has the right to identify a date of drop/withdraw. This may result in receiving an "E" in all classes and being required to pay all assessed fees and tuition, even though you have actually left the College. Any/all of these may have a negative impact upon future Financial Aid eligibility. Please contact your Academic and Financial Aid Advisors for assistance.

STUDENT CODE OF CONDUCT

Academic Integrity:
Attempting to deceive, defraud, or use dishonesty for one's own gain will not be tolerated. Dishonesty in any form may result in a grade of "zero" for the activity, whether in providing or utilizing materials inappropriately. Additionally, individual programs may impose greater sanctions. This includes – but is not limited to – plagiarism, attempting to pass off someone else's work as one's own; submitting substantially the same work, using materials created for one course in another without the instructor's knowledge and permission; securing/providing answers to a test apart from the instructor's directions, etc. Students are encouraged to review the Student Code of Student Conduct on the college website (http://www.rhodesstate.edu/currentstudents) for additional information.

Student Support:

Resources	Location	Phone	Email/Website
Accommodative Services	TL 132	419-995-8476	TestCenter@rhodesstate.edu
Advising	PS 218	419-995-8400	Advising@rhodesstate.edu
Campus Security	TL 140	419-995-8499 (Non-emergency)	mathews.m@rhodesstate.edu
Career Development	JJC 179J	419-995-8352	CareerDevelopment@rhodesstate.edu
Computer Help Desk		419-995-8069	HelpDesk@rhodesstate.edu
Counseling Services	Email, Text, or Call	Call: 855-695-2817 Text: "Hello" to 61295	StudentLifeServices.com (password: rhodes)
Financial Aid	PS 148	419-995-8802	Finaid@rhodesstate.edu
Internships & Experiential Learning	JJC 179H	419-995-8053	Internships@RhodesState.edu
Library	CK150	419-995-8401	https://osu.libguides.com/?group_id=1788
OSU Police	GA 134	567-242-7400 (Non-emergency)	https://lima.osu.edu/faculty-and-staff/administration/security/
Testing Center	TL132	419-995-8476	TestCenter@rhodesstate.edu
Tutoring	SCI 240	419-995-8039	academicsuccesscenter@rhodesstate.edu

ADA Reasonable Accommodations:
Accommodative Services supports all students with documented disabilities who are enrolled for credit. Students needing accommodations at Rhodes State should contact Accommodative Services in person in the Technical Education Laboratory building, Room 132 (TL 132), via email at AccommodativeService@RhodesState.edu, or via telephone at 419-995-8009. Students must meet with Accommodative Services, receive an Accommodations Letter, and present the letter to the instructor **before accommodations take effect. Accommodations are not retroactive.**

Comprehensive Early Alert Program (CEAP):
Rhodes State employs a Comprehensive Early Alert Program (CEAP) to identify and provide just-in-time support for students who are having academic difficulties. It is a process by which your instructor will "alert" you and an advisor or success coach when you are absent, frequently late or leaving early, have missed assignments, or earned low test scores. CEAP enhances existing services, such as advising, coaching, and tutoring, which increase student

success.

Please contact your instructor, advisor, or success coach to learn about what assistance might be available.

CAMPUS COMMUNICATION

College Closures:

Please sign up for **Rhodes Alert** which can be found on the RSC website. Rhodes Alert was created to provide students with Emergency Notifications in the event of Weather Emergencies, Weather Closures, and Campus Security Threats. These notifications will be delivered via phone, email, and text message. The local TV and radio stations also post information about College closures. When referring to a media outlet, please remember to look specifically for RSC as other institutions may follow different protocols for weather cancellations.

Weather Delays and Cancellations:

In the event that weather forces a delay to the start of the academic day, the College will announce when classes will begin. Classes starting and ending prior to the announced start time are canceled. If the class starts before the announced start time but still has more than 30 minutes of class remaining after the start time, that class will begin at the announced specific time and end at its normal time. This same 30-minute rule will be used in the event of an early closure of the College. The portion of the class which was scheduled prior to the announced closure time would be canceled

Because travel to clinical/practicum experiences may begin at an early hour, program leadership may delay the start to enable the College to assess weather conditions and allow for the College's communication process to occur. Always, please exercise your best judgment in determining whether to attend classes or activities sanctioned by RSC. Remember that you are accountable for any material missed during an absence without an official delay or announced cancellation.

Emergency Procedures:

Students are responsible for following appropriate campus emergency procedures.

Students are encouraged to review the Building Emergency Action Plan on the college website: (http://www.rhodesstate.edu/About%20Rhodes/College%20Offices%20and%20Departments/Security-Safety/Emergency%20Information.aspx)

Rhodes State College is a tobacco-free campus.
This includes all smoked, chewed, vaporized, and electronic forms.