DAKOTA COLLEGE AT BOTTINEAU

COURSE SYLLABUS

Course Prefix/Number/Title: UAS 101 – Introduction to UAS Operations

Number of Credits: 3

Course Description: This course explores the history, designs, operations, regulations, and economics of small Unmanned Aircraft Systems (sUAS). Students will explore common uses of sUAS's such as precision agriculture, public safety, communications, aerial filming, resource management, and research. Legal and environmental considerations will be discussed as well as business opportunities and growth areas. The course will also examine future applications of sUAS operations, with an emphasis on commercial and public applications.

Pre-/Co-requisites: None

Course Objectives: Upon successful completion of this course students will be able to:

1. Understand the current applications and uses of sUAS.
2. Describe the differences in the types and designs of various unmanned systems.
3. Understand the regulations and restrictions on sUAS ownerships and operations.
4. Analyze the strategy and economics of incorporating sUAS into various industries.

Instructor: Linda Burbidge, PhD

Office: Molberg 27

Office Hours: MWF 9am - 10am

Phone: 701-228-5442

Email: Linda.Burbidge@dakotacollege.edu

Lecture Schedule: Hybrid

Textbook(s): Material will be provided throughout the semester.

Course Requirements: This is an introductory course. Students are expected to read the materials provided and come to class prepared to listen and discuss during lectures. Points will come from homework, professionalism, four exams, and a course project. The breakdown will be as follows:

Requirement	Percentage
Quizzes	20%
Professionalism	10%
Homework	30%
Course Project/Presentation	20%
Exams	20%
Total	**100%**

Homework: There will be a combination of assigned readings and traditional assignments. Homework must be submitted on time to receive full credit. We will use a flight simulator to practice flight and get comfortable using controllers and concepts in class. These modules will be included in your homework. Late homework will be accepted with a deduction of 20%.

Quizzes: There will be a total of 6 quizzes throughout the semester. This will allow the instructor to identify gaps in lecture coverage and shortcomings in student learning. Quizzes will be administered on Blackboard.

Professionalism: In preparation for the real world, your class grade will be dependent upon professionalism. This means you will be graded on a combination of attendance, engagement in learning, and meeting deadlines.

Course Papers/Presentations: Each student will research a topic in drone use and draft a research paper on the topic. In addition, students will put together a presentation on their paper topic and present in class. More details on blackboard.

Exams: There will be 2 exams over the material covered during the semester, a midterm and a final. Each will be worth 10% of the total grade. Exams will be administered on Blackboard.

*Make up exams are offered only under extenuating circumstances. All make-up exams should be taken within a week of the missed exam.

Grading and Evaluation:

Total Point Percentage	Letter Grade
90% and ↑	A
80% - 89.99%	B
70% - 79.99%	C
60% - 69.99%	D
59.99% and ↓	F

Tentative Course Outline:

Week of:	Section		Topics covered:
Aug 22 - Aug 26	Section 1: Introduction to UAS		Module 1: History
Aug 29 - Sept 2			Module 1: History/Module 2: Applications
Sept 5 - Sept 9			Module 2: Applications
Sept 12 - Sept 16	Section 2: Introduction to Flight and Aircraft		Module 3: Flight Concepts
Sept 19 - Sept 23			Module 4: Design and Types
Sept 26 – Sept 30			Module 5: Drone Characteristics and Elements
Oct 3 - Oct 7			Module 5: Drone Characteristics and Elements
Oct 10 - Oct 14	Section 3: Safety		Module 6: Rules and Regulations
Oct 17 - Oct 21			Module 6: Rules and Regulations
Oct 24 - Oct 28			Module 7: Care and Maintenance
Oct 31 - Nov 4			Module 8: External Factors affecting Flight
Nov 7 - Nov 11			Module 8: External Factors affecting Flight
Nov 14 - Nov 18			Module 9: Human Factors of Safety
Nov 21 - Nov 25	Section 4: Logistical Considerations		Module 10: Flight Logging
Nov 28 - Dec 2		**Papers Due 11/29**	Module 11: Mission Planning
Dec 5 - Dec 9		**Presentations 12/6**	Module 12: Selecting a drone
Dec 12 - Dec 16	**FINALS WEEK**	**Final Exam**	**Final**

General Education Competency/Learning Outcome(s) OR CTE Competency/Department Learning Outcome(s): This course meets the CTE department learning outcome of employing industry-specific skills in preparation for workplace readiness by:

1. Demonstrate problem-solving aptitude.
    a. Identify appropriate application of UAS in various real-world settings
    b. Be aware of the regulations for safe flight.
2. Expand critical thinking competence.
    a. Understand the legal challenges around drone flight and technology.
    b. Compare different UAS designs
    c. Determine appropriate use various UAS designs.

Relationship to Campus Focus: This course addresses the campus theme of Nature, Technology, and Beyond by incorporating the latest procedures, technologies and innovative designs of unmanned aircraft systems and their operations.

Classroom Policies: Be polite and respectful of the instructor, other students, and any guests in our class. We will follow any COVID-19 classroom policies currently in force by the University system.

Student Email Policy: Dakota College at Bottineau is increasingly dependent upon email as an official form of communication. A student's campus-assigned email address will be the only one recognized by the Campus for official mailings. The liability for missing or not acting upon important information conveyed via campus email rests with the student.

Academic Integrity: According to the DCB Student Handbook, students are responsible for submitting their own work. Students who cooperate on oral or written examinations or work without authorization share the responsibility for violation of academic principles, and the students are subject to disciplinary action even when one of the students is not enrolled in the course where the violation occurred. The Code detailed in the Academic Honesty/Dishonesty section of the Student Handbook will serve as the guideline for cases where cheating, plagiarism or other academic improprieties have occurred.

Disabilities or Special Needs: Students with disabilities or special needs (academic or otherwise) are encouraged to contact the instructor and Disability Support Services.

Title IX: Dakota College at Bottineau (DCB) faculty are committed to helping create a safe learning environment for all students and for the College as a whole. Please be aware that all DCB employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers) are required to report information about such discrimination and harassment to the College Title IX Coordinator. This means that if a student tells a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the College's Title IX Coordinator. Students wishing to speak to a confidential employee who does not have this reporting responsibility can find a list of resources on the DCB Title IX webpage.