



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

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. Outline mission procedures, such as safety checks, flight logging, and risk assessment.

Instructor: Linda Burbidge, PhD, and Michelle Cauley

Office: Molberg 27 and Molberg 22

Office Hours: M/T 12:00 – 2:00 or by appointment

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Lecture Schedule: Online

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

Course Requirements: Online courses require the following to build and engage a classroom community of learners:

- ✓ Log in to the course a minimum of three times per week to check for new announcements and course information.
- ✓ Read the assigned texts and papers. It is essential to success in this course.
- ✓ Complete and submit coursework on time.
- ✓ Pace yourself, and make sure that all assignments are completed by the end of the semester.
- ✓ Be an active participant in discussion boards.
- ✓ Communicate with the instructor.

Requirement	Percentage
Quizzes	20%
Homework	30%
Course Project	25%
Exams	25%
Total	100%

Homework: There will be a combination of traditional assignments and flight training in a simulator. 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 10% each week it is late, starting with 24 hours after the deadline.

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.

Course Project: Each student will research a topic in drone use and create a presentation based on sUAS technologies and where they see sUAS being used in the future of industry.

Exams: There will be 2 exams on the material covered during the semester, a midterm and a final. Each will be worth 12.5% 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 26 - 30	Section 1: Introduction to UAS		Module 1: History
Sept 2 – 6			Module 1: History/Module 2: Applications
Sept 9 - 13			Module 2: Applications
Sept 16 - 20	Section 2: Introduction to Flight and Aircraft		Module 3: Flight Concepts
Sept 23 - 27			Module 4: Design and Types
Sept 30 – Oct 4			Module 5: Drone Characteristics and Elements
Oct 7 - 11			Module 5: Drone Characteristics and Elements
Oct 14 - 18	Section 3: Safety		Module 6: Rules and Regulations
Oct 21 - 25			Module 6: Rules and Regulations
Oct 28 – Nov 1			Module 7: Care and Maintenance
Nov 4 - 8			Module 8: External Factors affecting Flight
Nov 11 - 15			Module 8: External Factors affecting Flight
Nov 18 - 22			Module 9: Human Factors of Safety
Nov 25 - 29	Section 4: Logistical Considerations		Module 10: Flight Logging
Dec 2 - 6		Papers Due 12/1	Module 11: Mission Planning
Dec 9 - 13			Module 12: Selecting a drone
Dec 16 - 20	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. When in doubt – communicate! Email and office hours are the easiest ways to let your instructor know of any issues or emergencies that arise. All assignments are due in a timely fashion. All assignments not turned in on time are subject to a minimum of 10% deduction on final score.

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.

AI Tools: Artificial Intelligence tools like ChatGPT and other copilots are not prohibited in the course. In fact, we will explore their uses (and potential issues) throughout the semester. Keep in mind that:

- You must submit original work (not generated by AI) for all assessments in this course. That means citing if you use AI-generated text and how you apply it in your work.
- Large language models (LLM) like ChatGPT have been known to supply inaccurate information and fake citations. Use your information literacy skills to corroborate AI information if you are using it in your research. Failure to cite your use of AI or fabricated information could result in your violation of the Academic Integrity Policy (see above).
- Different assignments will allow different levels of AI use. Read directions and prompts carefully. AI is useful but does not take the place of the human elements of critical thinking and emotion.

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.