DAKOTA COLLEGE AT BOTTINEAU

Course Prefix/Number/Title: UAS 102 – Basic Flight Training

Number of Credits: 1

Course Description: This course provides hands-on training in pre-flight, post-flight, pilot in command (PIC) responsibilities, spotter responsibilities, and hazard avoidance. Students will gain an understanding of spatial disorientation and become proficient in basic sUAS operations such as ascent, descent, altitude hold, and directional change. Students will gain experience by demonstrating level flight, horizontal, vertical, circle, and figure-8 patterns. Numerous stage checks will be utilized to ensure student understanding and proficiency in basic operations and maneuvers.

Pre-/Co-requisites: None

Course Objectives: Upon completion of this course students will have reliably demonstrated the ability to fly small Unmanned Aircraft Systems (sUAS) in a controlled environment. Students will become proficient in basic sUAS operations and maneuvers while demonstrating their ability to avoid obstacles in the flight environment.

Instructor: Jo Leader

Office: Molberg 26

Office Hours: T/TH 12:30PM-3PM or by appointment

Phone: 701–228-5419

Email: josephine.leader@dakotacollege.edu

Lab Schedule: T/TH 9:30 – 10:45; 1st 8 weeks

Textbook(s): Instructor developed, various open sources.

Course Requirements: This is an introductory course. Students are expected to attend lab. Points will come from lab assignments, professionalism, skills checks, and at least one "mission". The breakdown will be as follows:

Requirement	Points	Percentage
Lab Assignments	160	40%
Skills Checks - 3 @ 40 points each	120	30%
Professionalism	40	10%
Mission - 1 @ 80 points	80	20%
Total	**400**	**100%**

Lab Practice: Each day in lab we will work on skills and concepts related to flying. Half of the credit for your lab is just showing up for class. The other half will be completing the practice flying. You may make up 2 labs by checking out a drone to practice the skills. Missed labs must be completed within one week. **Missing more than 2 labs will result in a failing grade.**

Lab Assignments: Each student will be required to log 12 hours of flight practice outside of labs. This will give you time to practice the flight skills and improve for the skills checks. You can use your own sUAS if you have one or you may check one out from the instructor. All hours will be logged, signed and turned in. See log sheet in Blackboard.

Skills Checks: Each student will combine the skills we have learned up to that point in the course to demonstrate a level of mastery of flight skills.

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.

Missions: There will be 2 to 3 missions lined up over the course of the semester where we will do a real-world flight that will collect data for a specific purpose. Each student will have the chance to participate in one mission. More details forthcoming.

*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 25 - 29	Introduction to UAS	Intro to UAS/Four Forces of Flight
Sept 1-5		Preflight, Postflight & environment/PIC and spotter responsibilities
Sept 8-12		Spatial Disorientation/Skills Check #1
Sept 15 – 19	Introduction to Flight	Hazard Avoidance/Takeoff/Landing/Altitude Hold
Sept 22 - 26		Directional Change/Horizontal Patterns/Skills Check #2
Sept 29 – Oct 3		Vertical Patterns/Circle Patterns
Oct 6-10		Figure-8 Patterns/Flying around obstacles
Oct 13 -17	Final Week	Catch-up/Skills Check #3

General Education Competency/Learning Outcome(s) <u>OR</u> 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. Determine if conditions are safe for flight.
    b. Identify appropriate landing sites.
2. Expand critical thinking competence.
    a. Conduct a risk/hazard analysis.
    b. Determine appropriate use various UAS designs.
    c. Coordinate the best approach to complete a mission.
3. Develop robust communication skills.
    a. Establish clear pilot-in-command/spotter communication via radio.
    b. Read and understand directions.

Relationship to Campus Focus: This course addresses the campus theme of Nature, Tehnology, 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. 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.

AI Student Policy:
Unless otherwise indicated in the course syllabus, or in individual instructions for course assignments, or in the absence of the express consent of the course instructor, students are not allowed to utilize generative AI to help produce any of their academic work. Any violation of this policy will be considered an act of academic dishonesty as outlined within the Dakota College Code of Student Life.

RESPONSIBILITIES

Students	- Responsible for following the syllabus and assignment instructions regarding use of generative AI for all academic work. - Obtain permission of the instructor prior to the use of generative AI that is outside of the syllabus or assignment instructions. Provide appropriate rationale for how the use of generative AI will enhance the learning experience for the assignment. - In instances where generative AI is permissible, appropriately cite the generative AI program used and indicate where in the assignment it was used, in a brief submission statement.
Faculty	- Determine if the use of generative AI could enhance student learning in any assignment of project. - Clearly indicate in all course syllabi if generative AI is allowable for any academic work. - If allowable, give specific parameters for how and when generative AI may be used. - If a violation of generative AI for the individual course/syllabus is suspected, discuss the concern with the student. If violation is still suspected, inform the appropriate semester coordinator/program director.

- **AI Tools in this Course:** 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:
    o 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.
    o 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.