

**ECE 4379, ECE 5379, CS 4331-003, ME 4330-002**  
**Unmanned Aircraft Systems**  
**Spring 2025**

#	Date	Topic	Details	Assessment
1	1/15	Course Introduction Introduction to UAS	Overview of Course Overview of Unmanned Aircraft Systems	Daily Quiz 1
2	1/17	Application: Medical Delivery	Drones in Healthcare	Daily Quiz 2
1/20		<b>MLK Day – No Class</b>		
3	1/22	Safety	Safe operation of UAVs	Daily Quiz 3
4	1/24	Application: UAS Corridor	Guest Speaker: Valkyrie	In Class Quiz A
5	1/27	Flying	Flying Basics	Daily Quiz 4
6	1/29	Flight	Flight basics	Daily Quiz 5
7	1/31	Airframes	Structural parameters of UAV frames	Daily Quiz 6
8	2/3	Propellers	Overview of propeller types and parameters	Daily Quiz 7
9	2/5	Motors	Electric motor types and performance	Daily Quiz 8
<b>Lab 1: Motors &amp; Propellers</b>				
10	2/7	Flight Controller	Electronic UAV brain	Daily Quiz 9
11	2/10	BetaFlight Software	UAV control software	Daily Quiz 10
2/12		<b>Job Fair – No Class</b>		
12	2/14	Power Distribution Board Electronic Speed Controllers	Power distribution to sub-systems Electronic control of motors	Daily Quiz 11
13	2/17	Batteries	Power source parameters and performance	Daily Quiz 12
<b>Lab 2: Tri-Copter Balance w/Perturbations</b>				
14	2/19	VOTLs	Vertical Take-Off & Landing UAVs	Daily Quiz 13
15	2/21	Final Project Discussion: VTOLs	<i>Project expectations and methods</i> CAD VTOL Body	Team Signup
16	2/24	GPS	<i>How GPS works and how it is used</i>	Daily Quiz 14
17	2/26	IMUs	Function and components of IMUs	Daily Quiz 15
18	2/28	Imaging Devices	Camera systems and capabilities	Daily Quiz 16
19	3/3	Imaging Devices Gimbals	Camera systems and capabilities Camera stabilization	Daily Quiz 17
20	3/5	LIDAR Proximity Sensors	4D imaging Crash avoidance and autonomous control	Daily Quiz 18 Daily Quiz 19
21	3/7	Control Methodologies	Turning sensor information into action	Daily Quiz 20
22	3/10	Control	Guest Speaker: Emily Pereira, PhD	In Class Quiz B
23	3/12	RF Communication Remote Station	Overview of communication systems Ground station features	Daily Quiz 21
24	3/14	<b>Midterm Exam</b>	Exams covers material to this point	Midterm Exam
3/16-23		<b>Spring Break – No Class</b>		
25	3/24	Mission Planner Software	UAV control software	Daily Quiz 22
26	3/26	Application: Agriculture	Overview of UAVs in Agriculture	Daily Quiz 23
27	3/28	Application: Agriculture	Guest Speaker: Hyllo	In Class Quiz C
28	3/31	Application: Military	Guest speaker: Kerry Chavez, PhD (USAF)	In Class Quiz D
29	3/27	Application: Military	Overview of military UAVs	
30	4/2	Application: Military	Guest Speaker: Jeff Moulton (USAF)	In Class Quiz E
31	4/4	Drone Demo	Drone Demo	In Class Quiz F

32	4/7	Final Project Update I	Student Presentations	
33	4/9	Final Project Update II	Student Presentations	
34	4/11	Drone Pilot Exam Material	Exam Overview Rules & Regulations	
35	4/14	Drone Pilot Exam Material	Rules & Regulations	
36	4/16	Drone Pilot Exam Material	Loading and Performance	
37	4/18	Drone Pilot Exam Material	Airports & Airspace	
<b>4/21</b>		<b><i>Easter Break – No Class</i></b>		
38	4/23	Drone Pilot Exam Material	Weather	
39	4/25	Drone Pilot Exam Material	Pilot and Crew	
40	4/28	Drone Pilot Exam Material	Radio Communication TTU Rules	
41	4/30	Project Presentations	Student Presentations	
42	5/2	Project Presentations	Student Presentations	
43	5/5	Project Presentations	Student Presentations	
	5/10	Final Exam	8:00 am – 10:00 am	UAV Pilot Exam