**Policy Number:** ASSIGN NUMBER

**Policy: Unmanned Aircraft Systems (UAS)**

**Date Adopted:**

**Revision Date:**

**References:** FAR; CFR Title 14; Part 1, 21, 45.23(b), 61.113(a) & (b); 61.133(a), 91.9(b)(2) & (c), 91.103, 91.109(a), 91.119,91.151(a), 91.203(a) & (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), 91.417(a); Public Law 112-95, Title III, Subtitle B ; Title 49 U.S.C. § 40102(a)(41) and § 40125

**Responsible Office: Vice President for Research and Creative Scholarship**

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**Purpose Statement**

The purpose of this policy is to ensure that the university acquires and operates Unmanned Aerial Systems (UAS) efficiently, safely and ethically and in full compliance with all applicable federal and state rules and regulations.

**Policy Statement**

The Vice President for Research and Creative Scholarship (VPRCS) will be responsible for oversight of all acquisitions and operation of UAS by the University of Montana including contracted services.

This policy applies to all university faculty, staff, and students using or proposing to use UASs for official University activities or operations on/over University or non-University property.

Federal regulations require the university, and not individual faculty, staff or students, to obtain approval for operating UASs. The University requires all faculty, staff or students who wish to operate UAS for official University activities, including research, to work closely with the VPRCS to complete the application process.

A UAS Steering Committee provides oversight, guidance and recommendations to the VPRCS regarding UAS acquisitions and operation. The UAS Steering Committee is composed of [deans or faculty], Director of Autonomous Aerial Systems, Director of Environmental Health and Risk Management, and Research Compliance Officer. The committee will be responsible for reviewing and recommending approval of all UAS acquisitions; reviewing and recommending approval of all Certificates of Authorization (COA) to fly UM UAS; and creating and recommending approval of policies, procedures and standards for UAS operation to the VPRCS.

**Definitions**

**Unmanned Aerial System (UAS):** UAS describes an aircraft with no pilot on board. UASs can be remote controlled aircraft or can fly autonomously based on pre-programmed flight plans. UAS is commonly referred to as an Unmanned Aerial Vehicle (UAV) but the preferred designation Unmanned Aerial or Aircraft System (UAS) is used to reflect the fact that these complex systems include ground stations and other elements in addition to the actual air vehicles.

## Policy Procedures

The Vice President for Research and Creative Scholarship (VPRCS) is responsible for providing oversight and guidance for all University UAS activities taking place on or off campus. To reduce the potential legal and risk management issues involved in managing UAS activity, all UAS use for any University of Montana activity must receive prior written approval from the VPRCS. The Office of Vice President for Research and Creative Scholarship works closely with the Office of Autonomous Aerial Systems (aaso@umontana.edu) in the review and approval process. All inquiries regarding the use of UASs shall begin with the VPRCS at 406-243-6670.

**A. Obtaining permission to use a UAS for a University activity:** A two-step approval process is in place for faculty, staff and students wishing to use UASs in research activities. A Pre-application form which briefly describes the anticipated research use of the UAS is submitted to the VPRCS for approval, followed by a more formal application for a Certificate of Authorization from the FAA. The process is described below:

1. Complete the University of Montana COA Pre-Application.

   UM Faculty and/or staff who wish to use a UAS for research or classwork must complete a University of Montana UAS Use Pre-Application, attached as **Exhibit A** and found online at: (https://www.umt.edu/aaso). The applicant should consult with the Autonomous Aerial Systems Office for assistance prior to submitting a COA Pre-Application.

2. Submit the completed UAS Use Pre-Application to the Director of AASO for approval.

   AASO will review the completed UAS Use Pre-Application and communicate with the applicant within 15 working days.

3. If a Certificate of Authorization from the Federal Aviation Administration is required the following items must be considered;
   i. In order for public universities to operate UAS for research purposes, the university must apply for and receive a Certificate of Authorization (COA) from the Federal Aviation Administration (FAA).
   ii. After the Pre-Application has been approved, the responsibility for drafting the FAA COA application falls to the UM faculty and/or staff proposing to fly a UAS. Faculty, staff and students wishing to use UASs in research activities must complete the University of Montana COA Application Requirements Form found in **Exhibit B** and submit the completed form to AASO for approval.
   iii. AASO and UAS Steering Committee will provide advice to strengthen the application, mitigate institutional risk and liabilities, and expedite FAA approval.
   iv. Once the COA request is complete the Director of Autonomous Aerial Systems will submit the application to the FAA on behalf of the University.
   v. The outcome of the FAA decision regarding the COA will be relayed to the applicable faculty and/or staff. **Note that FAA approval must be obtained before use of the UAS and may take from 60 – 120 days.**

B. **Periodic Review.** The VPRCS will maintain oversight for the execution of COAs held by the University. The UAS Steering Committee will periodically review University-held COAs and assist in revising, as necessary, the University's COA policy.

# EXHIBIT A

**University of Montana UAS Use Pre- Application**

Name:
Department/Unit:
Email:
New COA _____ Change to existing COA_____ Request to renew COA_____

Part 107 Operation _____

**Project Summary**: [Briefly {one page total} describe overall project summary including small description of the UAS and concept of operation including sensors being used. In addition to the above information please address why a UAS is the "tool" of choice as opposed to other data collection vehicles (for example satellite data). This section may also include a cost-benefit analysis of manned vs unmanned aerial operations.]

**Operations:**
Departure Point:

Requested Project Start Date:
Requested Project End Date:

Operational Summary: [Describe the launch/recover to/from, altitudes, and details of events during flight. This is a short equivalent of a flight plan]

Class of Airspace: [A,B,C,D,E or G. See attachment, FAA Classification of Airspace]

Launch/Recovery: [Description or specify type/procedure]

Required permits for operations (i.e. wilderness access, right of way access, IACUC, IRB, etc.)

Preliminary operational risk assessment (i.e. identification of protected species in the area, obstructions, etc. and a brief description of how these risks will be mitigated)

Name and Contact Info for Duly Licensed Pilot:
Name and Contact Info for visual observer:

**Aircraft:**
Aircraft Type and Model and weight:

# EXHIBIT B

**University of Montana COA Application Requirements**

Name:
Department/Unit:
Email:
New COA _____ Change to existing COA_____ Request to renew COA_____

Project Summary: [Briefly {4-5 sentences} describe overall project summary including small description of the UAS and concept of operation]

**Operations:**
Departure Point:
Requested Project Start Date:
Requested Project End Date:
Operational Summary: [Describe the launch/recover to/from, altitudes, and details of events during flight. This is a short equivalent of a flight plan]
Will operations be: Lights out? Yes/No Visual Control? Yes/No Instrument Control? Yes/No
During the Day? Yes/No At Night? Yes/No
Class of Airspace: [A,B,C,D,E or G. See attachment, FAA Classification of Airspace]
Launch/Recovery: [Description or specify type/procedure]
Lost Link/Mission Procedures:
Lost Communications Procedures:
Emergency Procedures:
Name and Contact Info for Duly Licensed Pilot:

**Aircraft:**
Aircraft Type and Model and weight:

**NOTE** If you have previously had an approved Pre-Application for this Aircraft and Aircraft and Avionics have not changed OR Aircraft is on this list: [provide list here for Models on FAA pull down list or for which we already have information] THEN skip to Flight Operations Area/Plan below otherwise you must complete all sections below.

Number of Aircraft Control Stations:
Type of Control:
Communication Systems Description:
Certified TSO* Components:
Please note that an image of the aircraft may be required for the FAA COA Application
Climb Rate (ft/min): Descent Rate (ft/min): Turn Rate (deg/s):
Cruise Speed (KIAS*) Minimum: Maximum:
Approach Speed (KTS or Knot):
Operating Altitude (MSL* or FL*): Minimum: Maximum:
Gross Takeoff Weight (Lbs):

Airworthiness: [Either include FAA Type Certificate or If No FAA Certificate a Statement of Airworthiness is required]

**Avionics/Equipment**

Equipment Suffice Type:
GPS? Yes/No Moving Map Indicator? Yes/No Tracking Capabilities? Yes/No
TCA/MCAS (Collision Avoidance)? Yes/No ELT*? Yes/No
Landing Lights? Yes/No Position/Navigation Lights? Yes/No Anti-collision Lights? Yes/No Infrared? Yes/No
Transponder? Yes/No
If Transponder:
Transponder On? Yes/No Transponder Off? Yes/No Transponder Standby? Yes/No
Ident? Yes/No Mode S? Yes/No Mode C? Yes/No Retuneable in Flight? Yes?No

**Spectrum Analysis Approval**

Data Link? Yes/No Control Link? Yes/No
Operations Utilizing Radio [Control R/C frequencies as described in Title 47 CFR 95]? Yes/No
Note: NTIA/FCC Authorization May be Necessary

**ATC Communications**

Transmitter
VHF: Yes/No? Quantity? In Flight Retuneable? Yes/No
UHF: Yes/No? Quantity? In Flight Retuneable? Yes/No
HF: Yes/No? Quantity? In Flight Retuneable? Yes/No

Receiver
VHF: Yes/No? Quantity? In Flight Retuneable? Yes/No
UHF: Yes/No? Quantity? In Flight Retuneable? Yes/No
HF: Yes/No? Quantity? In Flight Retuneable? Yes/No

Guard (Emergency) Frequencies
VHF: Yes/No? Quantity?
UHF: Yes/No? Quantity?

Instantaneous Two-Way Voice Method
Direct-To-Pilot? Yes/No SATCOM? Yes/No Relay-via-Aircraft: Yes/No

**Surveillance/Detection Capability**

On-board Aircraft
EO/IR? Yes/No Terrain DetectionR? Yes/No Weather/Icing Detection? Yes/No
Radar? Yes/No
Other Detection Systems? Yes/No
If Yes, please describe:

Ground Based
Radar Observation (ATC, etc.)? Yes/No
NAS Operational Capability:

Visual Observer(s)
Maximum Distance from UA - Vertical (ft): and Horizontal (specify units)
Airborne base (Chase Aircraft)? Yes/No Ground based? Yes/No
Visual observation from one or more ground sites? Yes/No
Forward or side looking cameras? Yes/No
For all Yes responses, please describe:

**Aircraft Performance Recording**

Flight Data Recording? Yes/No Control Station Recording? Yes/No
Void Recording? Yes/No

**Flight Operations Area/Plan (MUST BE COMPLETED FOR ALL APPLICATIONS)**
[The Flight Operations Area/Plan is a series of way points. Each way point is described by either a Location Id or a Latitude/Longitude Pair, ceiling and floor heights and minimum and maximum speeds. If you do not have experience in developing an FAA flight plan using way points, please consult Director of Autonomous Aerial Systems.] Give a polygon of the area requested for flight operations and include a 5 nautical mile buffer around the perimeter Use a VFR sectional aviation chart for the outline. If you have multiple geographically separate areas, please identify all of them up to five.

**Flight Aircrew Qualifications**

Name and Contact Information for Pilot(s):
Name and Contact Information for Observer(s):

**Special Circumstances**

Please describe any special circumstances:

**Data Management and Security Plan**
**[Data management and security must be considered both during and following the UAS operation. Please provide a detailed description of the type of data you will be recording during UAS operations. Include a listing of all research personnel who will have access to the data during UAS operations. If you will be keeping any research data beyond the UAS operation, please provide an explanation of the data storage and access plan you will be using, including where and how data will be stored, how long data will be stored, who will have access to the data, and how data will be destroyed. Please consider if the data is a trade secret, proprietary, commercial, or financial information, or any other information that you believe is confidential under Montana law including Law enforcement sensitive.]**

By signing below I certify that the above statements are true to the best of my knowledge and that the COA will be used as indicated and only for non-commercial, research purposes. I also certify that any complaint against the COA activity including any accidents or damage will immediately be reported to

the Vice President for Research and Creative Scholarship. I further represent, warrant and certify that at all times all applicable laws shall be complied with:

Signature:_____ Date:_____

*A TSO is a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. When authorized to manufacture a material, part, or appliances to a TSO standard, this is referred to as TSO authorization. Receiving a TSO authorization is both design and production approval.
*KIAS = Knots Indicated Air Speed
*MSL/FL = Mean Sea Level or Flight Level
*TCA/MCAS = Collision Avoidance
*ELT=Emergency Locator Transmitter

**FAA Airspace Classifications**

Please Note: In situations where a COA application is being sought for airspace over land not owned by the University, an MOU between the University and the landowner must be negotiated, or other arrangements made, prior to the submission of the completed Pre-Application. The Office of Legal Counsel must approve such arrangements.

CLASS A. Generally, that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles (NM) of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

CLASS B. Generally, that airspace from the surface to 10,000 feet mean sea level (MSL) surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers, and is designed to contain all published instrument procedures. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is “clear of clouds."

CLASS C. Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 NM radius, an outer circle with a 10 NM radius that extends from no lower than 1,200 feet up to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace.

CLASS D. Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace

and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

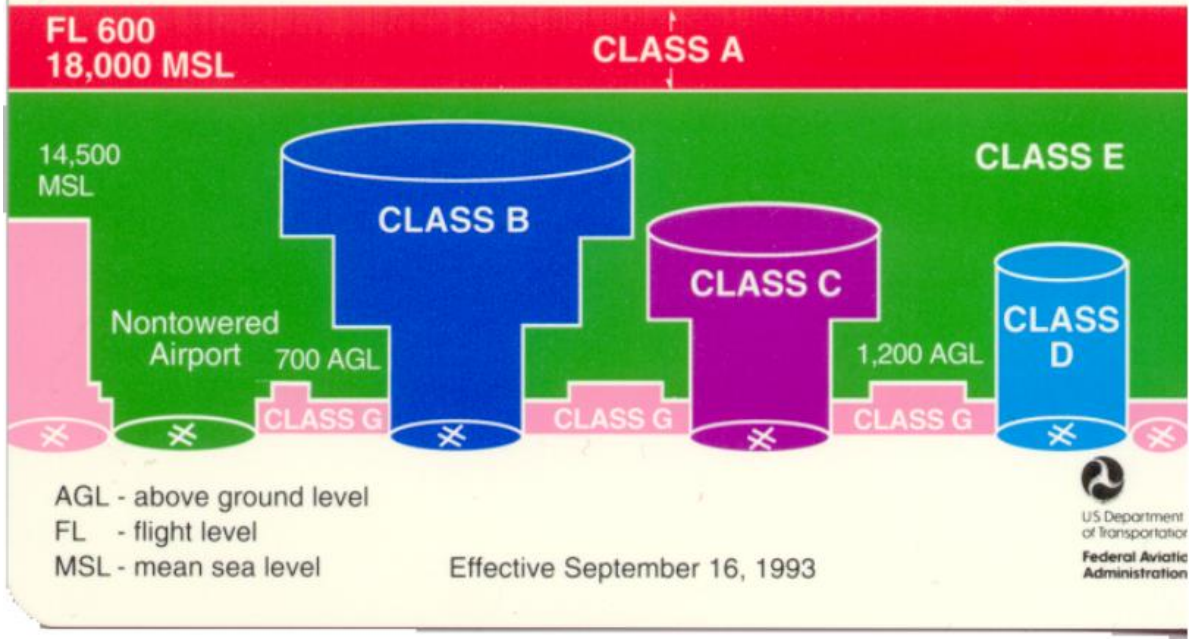
CLASS E. Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. The types of Class E airspace areas are:

1. Surface Area Designated for an Airport - When designated as a surface area for an airport, the airspace will be configured to contain all instrument procedures.
2. Extension to a Surface Area - There are Class E airspace areas that serve as extensions to Class B, Class C, Class D, and Class E surface areas designated for an airport. Such airspace provides controlled airspace to contain standard instrument approach procedures without imposing a communications requirement on pilots operating under VFR.
3. Airspace Used for Transition - There are Class E airspace areas beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment.
4. En Route Domestic Areas - There are Class E airspace areas that extend upward from a specified altitude and are en route domestic airspace areas that provide controlled airspace in those areas where there is a requirement to provide IFR en route ATC services but the Federal airway system is inadequate.
5. Federal Airways - The Federal airways are Class E airspace areas and, unless otherwise specified, extend upward from 1,200 feet to, but not including, 18,000 feet MSL. The colored airways are green, red, amber, and blue. The VOR airways are classified as Domestic, Alaskan, and Hawaiian.
6. Unless designated at a lower altitude, Class E airspace begins at 14,500 feet MSL to, but not including 18,000 feet MSL overlying: the 48 contiguous States including the waters within 12 miles from the coast of the 48 contiguous States; the District of Columbia; Alaska, including the waters within 12 miles from the coast of Alaska, and that airspace above FL 600; excluding the Alaska peninsula west of long. 160°00'00"W., and the airspace below 1,500 feet above the surface of the earth unless specifically so designated.
7. Offshore/Control Airspace Areas. Airspace areas beyond 12 NM from the coast of the United States, wherein ATC services are provided.

CLASS G (Uncontrolled Airspace). Airspace that has not been designated as Class A, Class B, Class C, Class D, or Class E airspace.

https://www.faa.gov/uas/regulations_policies/

# U.S. Airspace Classes at a Glance




AGL - above ground level
FL - flight level
MSL - mean sea level

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U.S. Department
of Transportation
Federal Aviation
Administration