Term Information

Effective Term	Autumn 2026

General Information

Course Bulletin Listing/Subject Area	Geography
Fiscal Unit/Academic Org	Geography - D0733
College/Academic Group	Arts and Sciences
Level/Career	Graduate, Undergraduate
Course Number/Catalog	5230
Course Title	Drone Mapping
Transcript Abbreviation	Drone Mapping
Course Description	This course provides an overview of drone-based mapping techniques and their geographic applications. Students will examine the technical foundations of data collection using uncrewed aerial systems. Through lectures and field demonstrations, students will gain both theoretical understanding and practical experience in collecting, processing, and interpreting drone-derived geospatial data.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 12 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	No
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	None.
Exclusions	None.
Electronically Enforced	Yes

Cross-Listings

Cross-Listings	None.

Subject/CIP Code

Subject/CIP Code	45.0701
Subsidy Level	Baccalaureate Course
Intended Rank	Sophomore, Junior, Senior

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Explain the physical principles and geographic significance of drone-based remote sensing techniques
- Distinguish the capabilities, limitations, and applications of LiDAR, photogrammetry, multispectral and hyperspectral sensors, and ground-penetrating radar
- Operate drones to collect and analyze imagery and related geospatial data

Content Topic List

- Drone Regulations and Operational Safety
- UAS Imagery and Data
- Remote Sensing and Photogrammetry
- Sensor for Imagery Collection
- Aerial Cinematography and Visual Communication with UAS
- UAS Mission Planning
- UAS-Based Data Collection, Visualization, and Analytics
- Emerging Applications and Future Trends in Small UAS

Sought Concurrence

Yes

Attachments

- Air Transportation_Curriculum Map_Pre-Major_Revised 11.17.2025.pdf: AIRTAN-BA_Curriculum Map

  (Other Supporting Documentation. Owner: Godfrey,Ryan B)
- GEOG 5230_Concurrence_Request_Form_Approved_11.17.2025_CAS.pdf: CAS_Concurrence Approval_11.17.2025

  (Concurrence. Owner: Godfrey,Ryan B)
- GEOG 5230_Concurrence_Request_Form_Approved_11.17.2025_SENR.pdf: SENR_Concurrence No Reply_11.17.2025

  (Concurrence. Owner: Godfrey,Ryan B)
- GEOG 5230_Syllabus_Drone Mapping_11.17.2025.pdf: GEOG 5230_Syllabus

  (Syllabus. Owner: Godfrey,Ryan B)

Comments

- Syllabus now attached. *(by Godfrey,Ryan B on 12/01/2025 06:24 PM)*
- Please attach syllabus; curriculum map attached twice. *(by Steele,Rachel Lea on 11/26/2025 04:48 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Godfrey,Ryan B	11/17/2025 07:34 PM	Submitted for Approval
Approved	Houser,Jana Bryn	11/18/2025 12:10 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	11/24/2025 09:23 PM	College Approval
Revision Requested	Steele,Rachel Lea	11/26/2025 04:48 PM	ASCCAO Approval
Submitted	Godfrey,Ryan B	12/01/2025 06:24 PM	Submitted for Approval
Approved	Houser,Jana Bryn	12/01/2025 07:07 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	01/14/2026 10:42 AM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Neff,Jennifer Vankeerbergen,Bernadette Chantal Wade,Macy Joy Steele,Rachel Lea	01/14/2026 10:42 AM	ASCCAO Approval

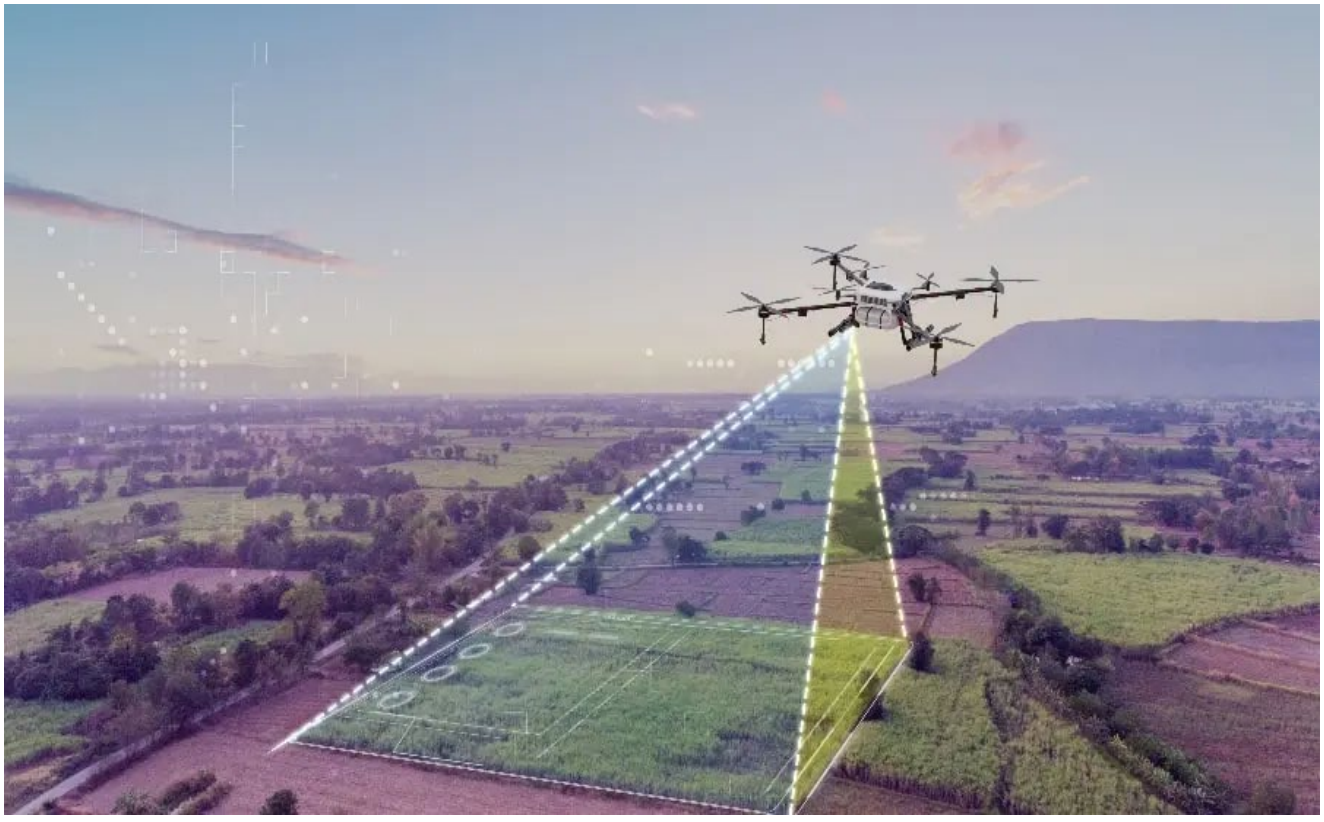
THE OHIO STATE UNIVERSITY

College of Arts & Sciences
Department of Geography

SYLLABUS
GEOG 5230
DRONE MAPPING

Autumn 2026 (full term)
3 credit hours
In person, no remote option

Day: T/TR
Time: TBD
Location: TBD



COURSE OVERVIEW

Instructor

Name: Sen Wang, PhD

Email: wang.18872@osu.edu

Office location: Derby Hall 1105

Office hours: 10-11 pm Monday/Wednesday, 3-5 Friday

Preferred means of communication:

- My preferred method of communication for questions is during office hours. I can also answer questions by email, but please don't send me essay-like questions over email. Come to office hours with the longer, more difficult questions.
- My class-wide communications will be sent via email. I will also post announcements on Carmen Canvas.

Teaching Assistant

Name: TBD

Email: TBD

Office location: TBD

Office hours: TBD

Prerequisite

- N/A

Course Description

This course provides a comprehensive overview of drone-based mapping techniques and their geographic applications. Students will examine the technical foundations of data collection using uncrewed aerial systems/unmanned aircraft systems (UAS), with emphasis on core approaches such as visible-spectrum photogrammetry and LiDAR. Through lectures and selected field demonstrations, students will gain both theoretical understanding and practical experience in collecting, processing, and interpreting drone-derived geospatial data. While not all sensor types will include hands-on activities, the course introduces their operational principles, data characteristics, and analytic workflows through examples and demonstrations. This course equips students with practical techniques and analytical capabilities for addressing real-world challenges using drone-based mapping. By taking this course, students will be able to:

1) Explain the physical principles and geographic significance of drone-based remote sensing techniques;
2) Distinguish the capabilities, limitations, and applications of LiDAR, photogrammetry, multispectral and hyperspectral sensors, and ground-penetrating radar;
3) Operate drones to collect imagery and related geospatial data
4) process and analyze drone data using specialized software;
5) Apply drone mapping techniques to practical problems in land use analysis, infrastructure assessment, and hazard detection.

Course Learning Outcomes

By the end of the course, students will:

1) Demonstrate an understanding of FAA Part 107 regulations and ethical considerations related to drone use in geographic fieldwork
2) Explain the principles underlying drone-based remote sensing and its relevance to geospatial research
3) Operate software platforms for processing and visualizing drone-acquired data
4) Synthesize and communicate analytical findings through maps, reports, and presentations that integrate drone-acquired geospatial data

HOW THIS COURSE WORKS

Mode of delivery: This course is **100% in person**. All lectures and office hours will be held on campus. If I get sick, and coming to campus is not an option, I will post a Zoom-based video lecture on Carmen in place of meeting as a group. Credit hours and work expectations: This is a 3-credit-hour course. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

COURSE MATERIALS AND TECHNOLOGIES

Textbooks

Required

Frazier, A., & Singh, K. (Eds.). (2021). *Fundamentals of capturing and processing drone imagery and data*. CRC Press. (available online from https://library.osu.edu/)

Along with the textbook, we will be reading **peer-reviewed journal articles**. Some weeks have more readings than others. I will upload all the readings to the Carmen website. I will discuss the readings in my lectures so that you have a clear idea of the relationship between the readings and the lecture material.

Course Technology

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Technology skills needed for this course

- Basic computer and web-browsing skills
- Basic ArcGIS skills
- Navigating Carmen (go.osu.edu/canvasstudent)

Required equipment

- Computer: current Mac (macOS) or PC (Windows 10) with high-speed internet connection
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Required software

- WaypointMap: All Ohio State students are eligible for free access to original version (https://www.waypointmap.com/).
- ArcGIS Pro/Pixelement: Both proprietary software can be accessed at Derby Hall.
- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help.

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you can connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (go.osu.edu/add-device).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application (go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes if you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP), and the IT support staff will work out a solution with you.

GRADING SCALE

93–100: A	An “A” grade indicates **outstanding performance** in the class, in comparison with other students.
90–92.9: A-	An “A-” grade indicates **very good performance** in the class, in comparison with other students.
87–89.9: B+	A “B+”, “B”, and “B-” grade indicates **above-average performance** in the class, in comparison with other students. Above-average students will be assigned +/- in comparison with other above-average students.
83–86.9: B	
80–82.9: B-	
77–79.9: C+	A “C+”, “C”, and “C-” grade indicates **average performance** in the class, in comparison with other students. Average students will be assigned +/- in comparison with other average students.
73–76.9: C	
70–72.9: C-	
67–69.9: D+	A “D+” and “D” grade indicates **low but acceptable performance** in the class, in comparison with other students. D-range students will be assigned + in comparison with other average students.
60–66.9: D	
Below 60: E	An “E” grade indicates that the student has not successfully satisfied the course requirements.

The above qualitative language on grades is adopted from https://trustees.osu.edu/index.php?q=rules/university-rules/chapter-3335-8-instruction.html

GRADING RUBRIC

ASSIGNMENT CATEGORY	PERCENTAGE
Attendance	10
Assignments	50
Midterm exam	15
Project (Report + Presentation)	25 (15+10)
Total	100

Descriptions of Course Components

Attendance

Description: This course will include **20 attendance checks throughout the semester**, administered at random times during class sessions through short in-class poll questions using the Vevox online polling platform. Each of them is worth 0.5% of your total grade (10% in total). **To receive credit, you must complete the poll during class and upload a screenshot of your submission (with your name clearly visible) to the Carmen Canvas assignment titled "Attendance" before the class ends**. Any late submissions will not be accepted. Please do not email to ask in advance whether an attendance check will take place. You will not be penalized for documented absences due to a verifiable illness, a family emergency, jury duty, religious obligations, or military service. Appropriate documentation must be provided. All other unexcused absences will count against your attendance grade.

Assignments

Description: There will be **5 assignments** throughout the semester. These assignments are designed as a progressive learning sequence that guides you through the complete workflow of drone-based mapping, from flight planning to data analysis and visualization. Each assignment builds directly on the previous one, allowing you to develop both the technical proficiency and analytical reasoning needed to complete the final mapping project. Each assignment is worth 10 points, accounting for 10% of your total grade (50% in total).

Exams

Description: There will be a midterm exam and a final exam, each of them worth 10% of your final grade. Both exams will be administered in person during scheduled class sessions and will consist of multiple-choice and short-answer questions. Exams will be open-book, meaning you may bring and consult the assigned readings, your lecture notes, and lecture slides during

the exam. No other resources or devices (including AI tools, websites, or communication with others) are permitted.

Academic integrity and collaboration: All work must be completed individually. You may not collaborate with classmates or share answers in any form. Submitting work that is not your own or using unauthorized resources will be treated as a violation of academic integrity and referred to COAM.

Late Submission Policy

Late assignments/exams will incur a 10% deduction for every 24 hours past the deadline. If you anticipate difficulty meeting a deadline, please email both me and the TA as soon as possible. I will waive the late penalty for a handful of reasons, for example, if you have a verifiable medical illness, a verifiable family emergency, jury duty, religious obligation,/or military service. If any of these situations apply to you, I will expect an email prior to the deadline so that we can work out an alternate due date and schedule. **If you wait until the due date has passed to contact me, I will not waive the late penalties.**

Project – Report

Description: Teams of 2-3 students will design and execute a complete drone-mapping mission using sUASs. The project synthesizes technical, analytical, and communication skills developed throughout the course. Each group will plan a mission, collect and process imagery data, and produce a mapping report addressing a geographic problem. Further requirements of the project will be uploaded on Carmen Canvas.

Team Communication: Efficient communication is essential for the success of this project. Each student is responsible for being actively involved in the teamwork. In the concluding section of the paper, the group must include a detailed description of each member's responsibilities throughout the project.

Grading Criteria:

- Use of Data and Visuals: Quality and clarity of visuals in supporting the analysis. Only self-produced figures and maps will be counted. **If you use Generative AI to improve the visual effects, you must provide a clear and detailed clarification aligning with the visual aids.**
- Clarity and Organization: Overall structure, coherence, and presentation of the paper.
- Creativity and Critical Thinking: Insightful discussions on how future trends may impact the airline's network.
- Grammar: Proper use of grammar, punctuation, and overall readability.
- Page: Adequate length of the paper, adhering to the 15-page requirement.

Criteria	1 - Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Use of Data and Visuals	No visuals or ineffective use of visuals	Few visuals (1 original map or figures)	Relevant visuals, moderately effective (2 original maps or figures)	Good use of relevant visuals, effectively supports analysis (3 original maps or figures)	Excellent use of visuals that enhance understanding (4 original maps or figures)
Clarity and Organization	Disorganized, lacks flow	Some structure, but lacks coherence	Clear structure, some areas lacking flow	Well-structured, coherent throughout	Exceptional structure, smooth flow
Creativity and Critical Thinking	Little to no creative thought, no future outlook	Some creative thinking, limited discussion on trends	Demonstrates creative thought, decent discussion on future trends	Creative thinking and strong discussion on future trends	Highly creative, deep insights into future trends
Grammar	Multiple (≥ 8) grammar errors, difficult to read	Frequent (<8) grammar errors, somewhat readable	Few grammar (<5) errors, generally readable	Minimal (< 2) grammar errors, well-written	No grammar errors, polished writing
Page	< 6 pages	6-9 page	10-12 page	13-14 page	15 pages

Project – Presentation

Description: Each group will have 18-20 minutes to present the term project in person. The presentation should clearly highlight the key aspects of the paper. Presentation schedules can be found on Carmen Canvas. Each group needs to submit the presentation slides by Midnight on December 1st, time-stamped via Carmen Canvas. The late submission will not be accepted.

Criteria	1 - Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Content Knowledge	Shows little understanding of the topic, many (>8) typos	Shows limited understanding, several (5-8) typos	Demonstrates good understanding, some (3-4) typos	Demonstrates solid understanding, few (1-2) typos	Demonstrates excellent understanding, no typos
Organization	Presentation is disorganized and unclear	Some organization, but difficult to follow	Organized, but lacks clarity in some areas	Well-organized and mostly clear	Exceptionally organized and easy to follow
Visual Aids	No visuals or visuals are irrelevant	Few or poorly chosen visuals	Relevant visuals used, but not integrated well	Visuals are relevant and well-integrated	Excellent use of visuals that enhance the presentation
Time Management	Less than 8 minutes	8-10 minutes	11-13 minutes	14-16 minutes	18-20 minutes

Missed presentation? Failure to present during the scheduled time will result in a zero score unless prior arrangements/notifications have been made.

COURSE SCHEDULE

Date	Topic	Tasks	Deadline
8/25/26	Course Introduction	**Readings:** Course syllabus	
8/27/26	Drone Regulations and Operational Safety	**Readings:** *Textbook Chapter 5 (pp 75-90)* https://doi.org/10.1007/978-94-6265-132-6_3 (pp 47-67)	
9/1/26	Drone Regulations and Operational Safety	https://doi.org/10.1016/j.techsoc.2016.03.003 (pp 1-11)	Assignment 1: Part 107 knowledge quiz
9/3/26	Introduction to UAS Imagery and Data	**Readings:** *Textbook Chapter 1* (pp 3-16)	
9/8/26	Introduction to UAS Remote Sensing and Photogrammetry	**Readings:** *Textbook Chapter 2* (pp 17-36)	
9/10/26	Sensor for Imagery Collection	**Readings:** *Textbook Chapter 3* (pp 37-57); https://doi.org/10.3390/app13116732 (pp 1-29)	
9/15/26	Structure from Motion Workflow for Processing Drone Imagery	**Readings:** *Textbook Chapter 6* (pp 91-102); https://doi.org/10.3390/drones6010024	Group formation
9/17/26	Aerial Cinematography and Visual Communication with UAS	**Readings:** *Textbook Chapter 7 (pp 103-120); https://doi.org/10.1145/3347713 (pp 1-29)*	
9/22/26	Emerging Applications and Future Trends in Small UAS	**Readings:** https://doi.org/10.3390/drones9010059 https://doi.org/10.1007/s11370-022-00452-4	
9/24/26	Mission Planning	**Readings:** *Textbook Chapter 4 (pp 57-74)*	
9/29/26	Mission Planning -- sUAS	**Readings:** *Textbook Chapter 8 (pp 121-144)* **Activity:** Apply plateforms (e.g., WaypointMap) to generate the flight mission	Assignment 2 – Create your sUAS mission
10/1/26	Field Data Collection and Flight Demonstration -- sUAS	**Activity:** Familiarize the opertiions of sUAS (i.e. DJI Mini Pro 4); Collect imagery data under varying altitude at designated sites	
10/6/26	Field Data Collection and Flight Demonstration -- sUAS		Assignment 3 – Flight logs
10/8/26	Post-Flight Data Validation Management -- sUAS	**Activity:** Continue data collection and post-flight validation; evaluate flight performance and metadata accuracy	
10/13/26	Post-Flight Data Validation Management -- sUAS		Assignment 4 – Imagery data acqusition report
10/15/26	Autumn Break	*No classes*	
10/20/26	Midterm Exam	In-person exam	
10/22/26	3D Visualization and Surface Modeling from Drone Imagery	**Readings:** *Textbook Chapter 9 (pp 145-156)* **Activity:** Create 3D surface models from collected imagery	
10/27/26	Mission Planning -- Enterprise Drones	**Activity:** Collect imagery data under varying altitude at designated sites	
10/29/26	Field Data Collection and Flight Demonstration -- Enterprise Drones	**Activity:** Continuing data collection and post-flight validation; evaluate flight performance accuracy	
11/3/26	Post-Flight Data Validation and Log Management -- Enterprise Drones		
11/5/26	Imagery Layer Design in GIS	**Readings:** https://doi.org/10.3390/rs15205039 (1-30) **Activity:** Analyzing drone imagery layers in ArcGIS Pro	Assignment 5 – Imagery GIS layer
11/10/26	Counting Wildlife from Drone-Captured Imagery	**Readings:** *Textbook Chapter 10 (pp 229-256)*	
11/12/26	Counting Wildlife from Drone-Captured Imagery (cont.)	**Activity:** Counting Greater Crested Terns Exercise	
11/17/26	Modeling Terrain and Vegetation Height from Drone Data	**Readings:** *Textbook Chapter 11 (pp 179-196)*	
11/19/26	Modeling Terrain and Vegetation Height from Drone Data	**Activity:** Mapping vegetation height exercise	

11/24/26	Flood Risk Mapping	**Readings:** *Textbook Chapter 14 (pp 229-256)* **Activity:** Modeling stormwater runoff and flood inundation	
11/26/26	Thanksgiving Break	*No classes*	
12/1/26	Flood Risk Mapping		Project submission
12/3/26	Team presentation		
12/8/26	Team presentation		
12/10/26	Team presentation		
12/15/26	Team presentation		

Note*. The schedule is subject to future changes, and I will inform you in advance of any revisions.*

Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For assignments and exams, you can generally expect results within **7 days**.
- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**. I do not check email on the weekends and after 8 pm during the weekdays.

OTHER COURSE POLICIES

Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Email communication style**: My TA and I expect proper email etiquette. This means using your osu.edu email address for communication, writing the subject of your email in the subject line, identifying which class you're taking with me, being concise, not writing in block letters, using spell check, not deleting prior communications in your reply, and ending with a signature that includes your contact information. I am also expecting that you address me and the TA formally. You can find useful information on how to communicate via email at https://onpace.osu.edu/modules/polishing-your-job-etiquette-skills/communicate-as-a-professional/e-mail-etiquette-content-area

- **Tone and civility during lecture**: I **welcome your active participation during the lectures** in the form of questions regarding the material at hand. However, because it is my responsibility to ensure that students' participation in class is orderly and respectful, **my core expectation is that students will, at all times and without any exceptions, act professionally and courteously in the classroom.**

- **Tone and civility during office hours**: Office hours are not individualized; you can expect multiple visitors. As a result, let's maintain a supportive learning community during office hours where everyone feels safe and where people can disagree amicably.

Using Artificial Intelligence (AI) in this class

Generative artificial intelligence (AI) tools such as ChatGPT, Copilot, Claude, and others are rapidly transforming how we learn, analyze data, and communicate ideas. As part of Ohio State's commitment to developing AI fluency, this course encourages students to engage with these tools thoughtfully and responsibly to **enhance yet replace** human learning and judgment. Hence, all students have important obligations under the **Code of Student Conduct** to complete academic work with fairness and honesty. Using AI tools must therefore align with academic integrity principles and with the specific learning goals of this course.

Guidelines for Responsible Use:

- Permitted Uses: You may use AI tools to support idea generation, technical troubleshooting, visualization refinement, or writing refinement only when explicitly allowed by the instructor for a specific assignment or project.
- Transparency and Attribution: If you use AI, you must document your use clearly, noting how and where the tool contributed. For example, include a footnote or short statement (e.g., "ChatGPT was used to reformat R code syntax" or "AI-assisted draft revision for clarity").
- Verification and Accountability: You are responsible for the accuracy, originality, and ethical integrity of all submitted assisgnments and project, even when AI is used as part of your process. Submitting AI-generated content without critical review or attribution constitutes a breach of academic integrity.
- Consultation Requirement: If you are uncertain whether AI use is appropriate for an assignment, consult the instructor or TA before using it.

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-8-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a welcoming community. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation. To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office (CRCO):
Online reporting form: http://civilrights.osu.edu/
Call 614-247-5838 or TTY 614-688-8605

Religious Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors, in turn, shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of

a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.
If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Civil Rights Compliance Office.

Your Mental Health

As a student you may experience a range of issues that can cause barriers to learn, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand resources are available at go.osu.edu/ccsondemand. You can reach an on-call counselor when CCS is closed at 614-292-5766, and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org. The Ohio State Wellness app is also a great resource available at go.osu.edu/wellnessapp.

Disability Statement (with Accommodations for Illness)

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with Student Life Disability Services (see below for campus-specific contact information). After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.
If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

Social Science Air Transportation (Pre-Major) and (BA) Curriculum Map - GEN
Department of Geography

Revised 11/3/2025 (Integration of proposed GEOG 3360 into Social Sciences Major Electives)

LEARNING GOALS
1. Students acquire and apply foundational knowledge from the introductory courses in the core of the major to explain flight performance as well as federal and international aviation laws and politices. 2. Students acquire and apply statistical skills to critically evaluate data and research findings in the literature (e.g. geospatial data). 3. Students apply quantitative skills to understand the management and operations of aviation-specific organizations such as aircraft manufacturers, airlines, airports, and the air traffic management system. 4. Students acquire knowledge about the social, political, economic, and/or physical structures - including weather and climate - of transportation systems and apply it to explain individual and organizational behaviors. 5. Students explain performance, law, regulations, and policies related to transportation systems. 6. Students comprehend the structure of industry and communications flows and are able to pinpoint sources of an remedies for administrative disagreements. 7. Studens are able to demonstrate how knowledge of advanced aircraft performance has implications for decision-making by management for airports, airlines and aviation service providers.

F= Foundational I= Intermediate A= Advanced	Cr Hrs	Learning Goals						
Aviation and Geography Pre-Major Requirements		**1**	**2**	**3**	**4**	**5**	**6**	**7**
AVIATN 2000: Intro to the Aviation Industry	3	F		F	F	F		F
AVIATN 2100: Private Pilot Fundamentals	5	F						F
GEOG 2400.01 OR GEOG 2400.02: Economic & Social Geography	3		F		F			
GEOG 3300: Transportation Security	3	I		I	I	I	I	
Aviation and Geography Core Requirements								
AVIATN 2200: Aviation Communication	3	F			F		F	F
AVIATN 2300: Aircraft Performance & Weather	3	I	I					I
AVIATN 3000: Aviation Management & Marketing	3							
AVIATN 3200: Aviation Regulations	3	I			I	I	I	
AVIATN 3300: Aviation Human Factors & Safety	3	I	I					I
AVIATN 4500: Aviation Captstone	3	A	A	A	A	A	A	A
GEOG 5300: Geography of Transportation	3	A		A	A	A	A	
GEOG 5900: Weather, Climate & Global Warming	3		A					
Professional Pilot Certification Specialization								
AVIATN 2101: Private Pilot Flight Lab I	2	F						F
AVIATN 2102: Private Pilot Flight Lab II	2	F						F
AVIATN 2501: Commercial Cross Country Flight Lab	2	F						F
AVIATN 3100: Instrument Flight Fundamentals	3	I						I
AVIATN 3101: Instrument Flight Lab	3	I						I
AVIATN 4100: Commercial Flight Operations	3	A						A
AVIATN 4101: Commercial Pilot Flight Lab	3	A						A
AVIATN 4300: Advanced Multi-Engine Operations	2	A						A
AVIATN 4301: Commercial Pilot MEL Flight Lab	2	A						A
OR								
AVIATN 5100: Flight Instruction Methodology	2	A						A
AVIATN 5101: Flight Instructor AME Flight Lab	2	A						A
Aviation Electives (non-PPC)								
AVIATN 2101: Private Pilot Flight Lab I	2	F						F
AVIATN 2102: Private Pilot Flight Lab II	2	F						F
AVIATN 2400: Fundamentals in Unmanned Aircraft Systems	3	F			F			F
AVIATN 2401: UAS Ground and Flight Operations	3	I			I			I

AVIATN 2900: Air Traffic Control Fundamentals	3	F		F	F			F
AVIATN 3193: Individual Studies in Aviation	2-5	I	I	I	I	I	I	I
AVIATN 3400: Aviation Accident Investigation	3	I	I	I	I	I	I	I
AVIATN 3600: Business & Corporate Aviation Management	3	I	I	I	I	I	I	
AVIATN 3700: Building a Diverse Workforce in Aviation	3				I		I	
AVIATN 4000: Air Transportation Analysis I	2-5	I	I	I	I	I	I	I
AVIATN 4193: Individual Studies in Aviation	3	I	I	I	I	I	I	I
AVIATN 4200: Aviation Dispatch Fundamentals	3	I				I		I
AVIATN 4201: Applied Aircraft Dispatch	3	A				A		A
AVIATN 4400: Airport Management	3	I	I	I	I	I	I	I
AVIATN 5000: Air Transportation Analysis II	3	A	A	A	A	A	A	A
AVIATN 5102: Flight Instructor AME Flight Lab	1	A						A
AVIATN 5193: Individual Studies in Aviation	2-5							
AVIATN 5200: Instrument Instruction Methodology	2	A						A
AVIATN 5201: Instrument Instruction Flight Lab	1	A						A
AVIATN 5194: Group Studies in Aviation	2-5							
Social Science Electives: Geography Electives (Requires 2 courses minimum)								
GEOG 2200.01: Mapping Our World	3		F					
GEOG 3600: Space, Power & Political Geography	3				I	I	I	
GEOG 3701: The Making of the Modern World	3				I			
GEOG 3702: Life and Death Geographies: Confronting Global Change	3				I			
GEOG 3750: Geography of North America	3				I	I	I	
GEOG 3900.01 or GEOG 3900.02: Global Climate Change: Causes & Consequences	3				I			
GEOG 5200: Cartography	3		A					
GEOG 5210: Fundamentals of GIS	3		A					
GEOG 3350: Aviation Geography (Proposed for SP2)	3	A		A	A	A	A	
GEOG 3360: Geospatial Mapping in Aviation (Proposed for AU26)	**3**			**A**	**A**	**A**		
GEOG 5230: Drone Mapping (Proposed for AU26)	**3**	**A**	**A**		**A**	**A**		
GEOG 5301: Sustainable Transportation	3				A	A		
GEOG 5700: Geography of Development	3				A			
GEOG 5802: Globalization & Environment	3				A			
Social Science Electives: SBS Electives (Choose additional courses)								
COMM 2367: Persuasive Communication	3						F	
COMM 2331: Strategic Communication Principles	3				F		F	
COMM 3331: Communication in Decision Making	3					I	I	
COMM 3545: Human-Computer Interaction	3				I			
COMM 2540: Intro to Communication Technology	3						F	
COMM 3325: Intro to Organizational Communication	3				I		I	
COMM 3668: Intercultural Communication	3				F			
COMM 3443: Global Media	3				I			
COMM 3330: Communication & Conflict Management	3				I		I	
COMM 3597.02: Media & Terrorism	3				I			
INTSTD 4800: Cultural Diplomacy	3				I			
INTSTD 5800: International Law	3				A	A	A	
INTSTD 5195: Selected Topics in International Studies	3				A			
INTSTD 3701: Intro to Homeland Security	3				I		I	
POLITSC 2150: Voters & Elections	3				F			
INTSTD 4700: Terror and Terrorism	3				I		I	
POLITSC 3115: Intro to the Policy Process	3				I		I	
POLITSC 4200: Politics of Modern Democracies	3				I			
POLITSC 4318: Politics of International Terrorism	3				I		I	
PSYCH 4525: Psychology of Personal Security	3				I			
SOC 2309: Intro to Law & Society	3				F	F		

Concurrence Form

The Ohio State University
College of Arts and Sciences Concurrence Form

The purpose of this form is to provide a simple system of obtaining departmental reactions to course requests. **An e-mail may be substituted for this form.**

An academic unit initiating a request should complete Section A of this form and send a copy of the form, course request, and syllabus to each of the academic units that might have related interests in the course. Units should be allowed two weeks to respond to requests for concurrence.

Academic units receiving this form should respond to Section B and return the form to the initiating unit. Overlap of course content and other problems should be resolved by the academic units before this form and all other accompanying documentation may be forwarded to the College of Arts and Sciences and the Office of Academic Affairs.

A. Proposal to review

Geography	5230	Drone Mapping	
Initiating Academic Unit	Course Number	Course Title	
New Course			11/4/2025
Type of Proposal (New, Change, Withdrawal, or other)			Date request sent
School of Environment and Natural Resources (SENR)			11/18/2028
Academic Unit Asked to Review			Date response needed

B. Response from the Academic Unit reviewing
Response: include a reaction to the proposal, including a statement of support or non-support (continued on the back of this form or a separate sheet, if necessary).

Ian Howat of the School of Environment and Natural Resources (SENR) did not respond with objection to concurrence in the two week period.

Signatures

	Name	Position	Unit	Date
1.	R. Godfrey	Academic Planning Specialist	Geography	11/17/2025
2.				
3.				

Revised 5/27/14

Godfrey, Ryan

From: Coleman, Mat
Sent: Tuesday, November 4, 2025 12:40 PM
To: Godfrey, Ryan
Cc: Wang, Sen; Houser, Jana
Subject: FW: Drone Course Syllabus for Review

Categories: Pending

First concurrence in from CAS for the drone class. See below.

THE OHIO STATE UNIVERSITY

Mat Coleman
Department Chair, Professor
Department of Geography, College of Social and Behavioral Sciences
http://u.osu.edu/coleman.373/

1036B Derby Hall (main office suite)
154 N. Oval Mall
Columbus, OH 43210-1361

From: Stringer, Blake <stringer.97@osu.edu>
Date: Tuesday, November 4, 2025 at 12:24 PM
To: Coleman, Mat <coleman.373@osu.edu>, Howat, Ian <howat.4@osu.edu>
Cc: Houser, Jana <houser.262@osu.edu>, Bolin, Mark <bolin.98@osu.edu>
Subject: Re: Drone Course Syllabus for Review

Mat,

We don't see any conflicts and are happy to concur.

There's an opportunity to advertise AVIATN 2400: Fundamentals in Uncrewed Aircraft Systems that provides a path for students to earn their Part 107 Remote Operator's License. I'm not sure if you'd want that to be a pre-req for the course, which we are happy to oblige. But at the very least, we'd appreciate a mentioning in the course syllabus that AVIATN 2400 is the preferred avenue for certification.

Fly Bucks!

Blake

THE OHIO STATE UNIVERSITY

D. Blake Stringer, Ph.D.
Director, **Center for Aviation Studies**
Professor, Department of Mechanical & Aerospace Engineering
NetJets Designated Chair of Aviation Modernization
228B Bolz Hall, 2036 Neil Avenue, Columbus, OH 43210
stringer.97@osu.edu, aviation.osu.edu
Administrative Assistant: Brooke Webb, webb.661@osu.edu

From: Coleman, Mat <coleman.373@osu.edu>
Sent: Friday, October 31, 2025 3:25 PM
To: Howat, Ian <howat.4@osu.edu>; Stringer, Blake <stringer.97@osu.edu>
Cc: Houser, Jana <houser.262@osu.edu>
Subject: FW: Drone Course Syllabus for Review

Ian, Blake—

I'm seeking concurrence for a new drone-based remote sensing course that I want to get in front of ASCC this semester. Syllabus attached. It was developed by Sen.

Could you guys give this a look over and let me know if you'd be willing to concur? I would send your emails to ASCC as proof of concurrence, along with the syllabus.

Comments welcome, of course!

Happy Halloween,
Mat

Cc Jana

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From: Wang, Sen <wang.18872@osu.edu>
Date: Friday, October 31, 2025 at 1:16 PM
To: Coleman, Mat <coleman.373@osu.edu>
Cc: Tjoelker, Adam <tjoelker.4@buckeyemail.osu.edu>
Subject: Drone Course Syllabus for Review

Hi, Mat,

Attached is the syllabus for the Drone course. Thank you for your time in reviewing it. Please let me know any feedback or suggestions you may have.

Happy Halloween and have a great weekend!

Best regards,

Sen

Sen Wang
Assistant Professor
College of Arts and Sciences
Department of Geography
Email: wang.18872@osu.edu

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