

UAS Mapping, Orthomosaics & Multispectral Analysis

Student-Facing Syllabus | Tygh Ridge Ranch | 2026 Cohort

Program Overview

This training program provides online, Zoom, classroom, and field-based instruction in aerial data acquisition, orthomosaic production, multispectral analysis, and GIS-based visualization using small unmanned aircraft systems (sUAS). Participants learn to safely plan mapping missions, capture RGB and multispectral imagery, process data into geospatial products, and perform basic analysis and presentation workflows suitable for agriculture, Tribal land management, forestry, natural resources, and environmental applications.

Course Snapshot

Location	Tygh Ridge Ranch, Tygh Valley, Oregon
Recommended start	Wednesday, September 30, 2026, 6:00-8:00 PM Pacific by Zoom
First in-field block	Friday-Monday, October 2-5, 2026 at Tygh Ridge Ranch
Format	Ten-week hybrid program: weekly Wednesday Zoom classes, assigned online work, Pix4D online course work, and three required four-day field blocks.
Weekly Zoom time	Wednesday evenings, 6:00-8:00 PM Pacific
Cohort size	Minimum 6 paid students required to launch; maximum 10 students.
Early enrollment	\$2,950 per student through September 1, 2026
Standard enrollment	\$3,250 per student after September 1, 2026, if space remains
Group threshold	Organizations registering 3 or more students may qualify for group handling and early enrollment pricing, subject to seat availability.
Certificate	Certificate of Completion granted after successful completion of required course work, field participation, evaluations, and capstone project.

Target Audience

Natural resource staff, land management teams, agricultural technicians, environmental specialists, GIS technicians, and drone operators seeking hands-on training in aerial mapping, multispectral data products, and geospatial analysis.

Learning Outcomes

- Plan and fly compliant drone missions for RGB and multispectral data capture.
- Capture imagery suitable for high-quality orthomosaic production.
- Process imagery into orthomosaics and surface models.
- Generate and interpret multispectral vegetation indices.
- Perform introductory GIS analysis and cartographic presentation.
- Deliver professional, client-ready geospatial products.

Schedule Structure

The public launch date has been pushed back approximately two weeks to allow more time for enrollment, student preparation, Pix4D account setup, laptop readiness, and lodging decisions. Dates below should be treated as the recommended cohort schedule unless adjusted for enrollment, weather, safety, or field conditions.

Week / Block	Date	Format	Primary Focus
Week 1	Wed Sep 30	Zoom	Orientation, expectations, safety fundamentals, course setup
Field Block 1	Fri-Mon Oct 2-5	In-field required	RGB mapping, mission planning, crew workflow, flight proficiency, GCP/checkpoint workflow
Week 2	Wed Oct 7	Zoom + online	Mission planning, data intake, folder discipline, quality control
Week 3	Wed Oct 14	Zoom + online	Orthomosaic processing in PIX4Dmatic
Week 4	Wed Oct 21	Zoom + online	Multispectral/thermal fundamentals and Field Block 2 preparation
Field Block 2	Fri-Mon Oct 23-26	In-field required	Multispectral data capture, calibration panels, PIX4Dfields workflow
Week 5	Wed Oct 28	Zoom + online	Vegetation indices, PIX4Dfields processing, interpretation limits
Week 6	Wed Nov 4	Zoom + online	Introduction to GIS for drone

			data
Week 7	Wed Nov 11	Zoom + online	Applied reporting and Field Block 3 preparation
Field Block 3	Fri-Mon Nov 13-16	In-field required	Capstone data capture, advanced mission workflow, client-ready deliverable planning
Week 8	Wed Nov 18	Zoom + online	Capstone processing support and product QA
Thanksgiving week	Wed Nov 25	No required class	Optional catch-up/office-hour window only
Week 9	Wed Dec 2	Zoom + online	Capstone map/report production
Week 10	Wed Dec 9	Zoom	Capstone presentation, review, completion decisions

Course Requirements and Attendance

- Students must complete assigned online sessions when assigned.
- Students are required to attend scheduled Zoom/classroom sessions unless excused by the instructor.
- All in-field training blocks are critical and should be treated as required for course completion.
- Students must complete flight proficiency evaluations, data processing exercises, and a final capstone project to receive a Certificate of Completion.
- Weather, safety, airspace, or operational constraints may require adjustments to field timing or daily flight plans.

Pix4D Training and Exam

- PIX4Dmatic Essentials online course access is included as part of the class structure.
- PIX4Dmatic Essentials certification exam fee is not included and is the student responsibility unless otherwise arranged in writing.
- The Pix4Dmatic certification exam will be administered during the class session timeline when students are ready.
- Students who do not pass or who need more time may retake or complete the exam on their own timeline according to Pix4D rules and fees.
- PIX4Dmatic and PIX4Dfields software subscriptions/licenses are the student responsibility.

Student Laptop Requirement

Students must bring a laptop capable of running PIX4Dmatic and PIX4Dfields locally. The recommended course laptop is a Windows 11, 64-bit workstation-class laptop with Intel i7/i9/Xeon or equivalent high-performance CPU, NVIDIA GeForce RTX/20-series or newer GPU, 64 GB RAM or more, and at least 400-550 GB

free SSD space for processing and class datasets. A 1 TB or larger NVMe SSD is strongly recommended. Students with 32 GB RAM may be able to complete smaller class datasets but should expect slower performance and limited ability to process larger projects.

Source note: Students should verify current software requirements before purchasing equipment. Pix4D support pages: <https://support.pix4d.com/hc/en-us/articles/360044895711> and <https://support.pix4d.com/hc/en-us/articles/360000889343>

Drone and Field Equipment

- Students are encouraged to bring their own mapping-capable drone, preferably RTK-capable, if available.
- A limited number of training drones are available for supervised use at Tygh Ridge Ranch only. These aircraft are not available for offsite student use.
- Students bringing their own aircraft must coordinate with the instructor in advance and remain responsible for aircraft registration, Remote ID compliance where applicable, batteries, chargers, controller compatibility, and safe operating condition.
- Recommended field items include sun protection, field footwear, layered clothing, notebook, external SSD, charging cables, and water bottle.

Lodging Option

- Private bedrooms may be available at Tygh Ridge Ranch for students who do not wish to commute.
- Bedroom count is limited to 10 and lodging is subject to availability.
- Expected lodging rate is \$200-\$250 per night per student, paid separately from tuition.
- Lodging confirmation is required at least 20 days before the applicable field block and cancellations must be made at least 20 days before arrival.

Tuition, Deposit, and Cancellation

- Early enrollment tuition: \$2,950 per student if registered by September 1, 2026.
- Standard tuition: \$3,250 per student after September 1, 2026, if space remains.
- A 50% deposit is required to reserve a seat. Early enrollment deposits should be received by September 1, 2026 to hold the early enrollment price.
- Tuition balance is due 10 days before the first required in-field block; based on the recommended schedule, the balance due date is September 22, 2026.
- Cancellations are 100% refundable through September 1, 2026. After September 1, tuition is non-refundable unless the course is canceled by the provider; student substitutions may be approved in writing.
- The course proceeds only if the minimum of 6 paid students is reached.

Compliance Notice

This course provides training and education only and does not grant FAA operating authority or certification. Participants remain responsible for compliance with all applicable FAA regulations, state/local

requirements, aircraft registration, Remote ID requirements where applicable, and organizational policies. A current FAA Remote Pilot Certificate with small UAS rating is required to act as remote pilot in command under Part 107. Students who are not Part 107 certificated may participate only under an approved supervised training arrangement and may not act as remote pilot in command.

Instructor

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- Professor, Columbia Gorge Community College
- UAS Agriculture / sUAS PRO LLC
- FAA Safety Representative
- FAA-CTI Member
- National Pix4D Trainer
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