



Drone Exploring: Career Spotlights

Archaeology — Post

Overview: This session takes a serious look at how drones support professional archaeology through photogrammetry and LiDAR mapping: the roles involved (archaeologist, GIS specialist, drone survey technician), the certifications and software skills needed, and realistic pay ranges. Explorers plan a mock photogrammetry survey mission, considering flight lines, image overlap, and ground control points, and discuss the ethics of site preservation.

OBJECTIVES

- Understand how photogrammetry and LiDAR from drones support archaeological site mapping.
- Learn the certifications (FAA Part 107) and software skills (GIS platforms, photogrammetry tools) used in this field.
- Identify realistic pay ranges across drone survey, GIS, and archaeology-adjacent roles.
- Practice planning a mock photogrammetry survey mission and discuss the ethics of site preservation and permissions.

SUPPLIES

- Laptop and projector to show sample photogrammetry and LiDAR site models
- Printed handouts: Career Pathway — Archaeological Drone Survey Specialist and Survey Mission Planning Worksheet
- Whiteboard or flip chart and markers
- Optional: printed or digital copy of FAA's free Part 107 study guide (faa.gov/uas)

ADVISOR NOTES

- This session is career-focused: use real certification requirements, real software tools, and real pay ranges rather than a hobbyist framing.
- Emphasize that working on real archaeological sites requires permits, permissions from landowners or agencies, and often collaboration with professional archaeologists. Drone skills alone aren't enough.
- Encourage Explorers who are 16 or older and interested to look at the FAA Part 107 study guide as a concrete next step after this session.
- Consider inviting a guest speaker who works in archaeology, cultural resource management, or drone-based GIS mapping to share their career path. See Optional Extensions.
- If no guest speaker is available, Advisors can run the entire session using this outline, the Career Pathway handout, and the resource links below.

SESSION OUTLINE

- **Welcome and Icebreaker** (10 min)
 - “What historical site or mystery would you most want to help map or study, and why?”
- **Safety and Ethics Moment: Permits and Preservation** (10–15 min)
 - Review the FAA Part 107 Remote Pilot Certificate: minimum age 16, required knowledge test.
 - Discuss why archaeological work requires permits, landowner permission, and often coordination with tribal or descendant communities before any survey or excavation.
 - Explain that drones support non-invasive documentation, which is preferred over disturbing a site whenever possible.
- **Mini-Lesson: The Tools and Careers Behind Aerial Archaeology** (15–20 min)
 - Roles: archaeologist, GIS specialist, drone survey or LiDAR technician, cultural resource management consultant.
 - Tools: photogrammetry software (such as Pix4D), LiDAR processing tools, GIS platforms like ArcGIS or QGIS.

- Typical pay: drone surveying roles range roughly \$39,000-\$72,000/year; LiDAR drone specialists can earn \$50,000-\$173,000/year depending on experience and industry.
- **Activity: Plan a Photogrammetry Survey Mission (20–25 min)**
 - Using the Survey Mission Planning Worksheet, small groups plan a mock survey: flight altitude, image overlap percentage, flight line spacing, and ground control point placement.
- **Discussion: Ethics of Site Preservation (10–15 min)**
 - Discuss why archaeologists prioritize preservation and documentation over disturbance, and how aerial survey supports that goal.
- **Wrap-Up Discussion (10 min)**
 - Groups present their survey mission plans.
 - Discuss the concrete steps (certification, GIS skills, archaeology coursework) needed to pursue this as a career.

REFLECTION SECTION

Advisor Note: Some sample questions are below. They are designed to help the participants apply what they have learned to their own interests. You are welcome to use these questions or develop your own.

Focusing Questions

- What surprised you about the amount of planning required for a single survey mission?
- Which part of this field (flying, GIS analysis, archaeology fieldwork) sounds most interesting to you?

Analysis Questions

- Why is image overlap percentage important for building an accurate 3D model of a site?
- Why do permits and permissions matter so much in this field, beyond just flying safely?

Generalization Questions

- How is careful, permission-based fieldwork like other professional situations where trust matters?
- What other careers combine technical skill with ethical responsibility, like this one does?

Challenge: This week, research one university program or organization that combines archaeology with drone or GIS technology and identify what coursework or certifications they recommend.

OPTIONAL EXTENSIONS

Guest Speaker: Invite someone who works in archaeology, cultural resource management, or drone-based GIS mapping to share their career path and take questions, in person or by video call.

Advisor-Led Option: If no guest speaker is available, Advisors can run the full session using this outline, the Career Pathway handout, and the resource links below. No outside expert is required.

Resource Links: FAA Part 107 overview ([faa.gov/uas/commercial_operators](https://www.faa.gov/uas/commercial_operators)); introductory guides to photogrammetry and LiDAR survey methods; university archaeology or GIS program pages.

Extension Project: Explorers who are 16 or older can begin studying for the actual Part 107 knowledge test using the FAA's free study guide.

Handout: Career Pathway — Archaeological Drone Survey Specialist

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A typical path into this field looks like this:

1. Interest and Hobby Flying

Learn basic drone operation and become comfortable with mapping and flight-planning apps.

2. FAA Part 107 Certification (Age 16+)

Pass the FAA knowledge test to legally fly for pay.

3. GIS and Photogrammetry Skills

Learn GIS platforms (ArcGIS, QGIS) and photogrammetry or LiDAR processing software.

4. Archaeology or Cultural Resource Coursework

Coursework or a degree in archaeology, anthropology, or cultural resource management strengthens this pathway.

5. Specialized Roles

Drone surveying roles range roughly \$39,000-\$72,000/year; LiDAR specialists can earn \$50,000-\$173,000/year.

Handout: Survey Mission Planning Worksheet

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Use this worksheet to plan your mock photogrammetry survey mission.

Planning Item	Your Plan	Notes and Risks
Flight altitude		
Image overlap percentage		
Flight line spacing		
Ground control point locations		
Permits and permissions needed		