

COURSE SYLLABUS

SUR 4940C/6940C PRACTICUM IN UAS MAPPING

Summer A (May 8th - 19th, 2023) - Monday to Friday, 9 AM to 5 PM.

Prerequisites:

SUR4501C/6502C Foundations of UAS Mapping or Permission of Instructor.

Course max enrollment is limited to 12 students.

Instructor:

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Assisted by:

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Course Description and Learning Objectives:

This three-credit course provides students with experience with, in the context of specific deliverable objectives, drone hardware and software, planning UAS mapping operations, data collection using drone systems, and the subsequent processing and analysis of the data acquired on these flights. This is not a 'flying drones' course but rather uses drones as a tool in a suite of required activities to accomplish useful client-focused deliverables. By the end of this course, students will have gained experience in:

- Planning field operations for establishing georeferencing control
- Computing coordinates of ground control points and checkpoints for georeferencing UAS datasets
- Processing high-resolution aerial data acquired via UAS

- Producing common deliverables (e.g., orthophotos, digital elevation models (DEM))
- Analyzing the spatial accuracy/quality of UAS deliverables
- Applying UAS data to address specific applications

Method of Instruction:

The course will meet daily over a period of 10 days for a total of ~70 hours. Learning will occur through a combination of group and independent assignments, field experience, and the processing of UAS data. Groups will consist of 3-4 student groups of 3-5 students each, which will be defined by the instructor based on experience.

Meeting Times and Places:

The class will meet in person at 9 am every day, Monday through Friday of each week (earlier for field collect days TBA), and activities will generally run until 5 pm (potentially later for field collect days TBA). Field portion timing is contingent on weather. The primary lecture/lab room is **Reed Lab 302**. We will also be using and have access to the **PC lab on the 4th floor**.

Project Sites:

- Site A: Flying experience at Flavett field.
- Site B: Automated mission experience at VARIETIES (Millhopper).
- Sites 1: Photogrammetry:
 - UF campus softball stadium
 - Austin Cary Forest
 - IMPAC-II experimental site
- Site 2: Lidar at Austin Cary Forest

Course Evaluation:

Grading is based on participation (including attendance throughout the entire course and **having a positive attitude**), data deliverables, final report, and poster presentation:

40% engaged in positive participation in field and lab activities, lab group and individual assignments and activities, and all aspects of in- and outside-class independent group process and analysis work.

20% reports (10% each).

20% presentations (10% each).

20% poster (10% poster, 10% presentation).

Attendance and Participation:

Students are expected to attend and actively participate in ALL field and office sessions. Requirements for class attendance, assignments, and other work are consistent with university policies that can be found

at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> Links to an external site.

Deliverables:

As the course progresses, students will a) develop field operation plans (i.e., ground control, validation features), compute GCP coordinates, b) process point clouds, c) create orthophotos and other intermediate products, and d) conduct various analyses. Each student will generate **two reports, two PowerPoint presentations, and one poster** summarizing these deliverables and submit them on the final day of the course. Field collection and processing will be performed in groups. Analysis, reports, and posters should be unique. They will be performed and submitted individually but should be done in discussion and communication with your group, such as methodologically regarding how to conduct certain tasks. It is each group's responsibility to ensure that all members of your group are able to solve geospatial issues that may arise, with those with more experience assisting to a reasonable degree those with less experience within the group.

Report components: 5-15 pages, 1.5 spacing, 0.5 " margins, Times New Roman, submitted in MS Word (.doc, .docx; format), with key sections being: Title, Summary abstract, Introduction, Research questions/hypotheses, Methods (field, lab, stats, study site w/ map figure), Results, Discussion, Conclusion, References + Tables and Figures.

Final Poster:

Each student is required to develop and present a poster summarizing the methodology, technology, analysis, and results achieved for both assigned projects. The poster/presentation should also address the questions posed in

the terms of reference. On the final day of class, there will be a poster presentation session.

Grade Scale:

A 93 -100%	C 73 - 76.99%
A- 90 - 92.99%	C- 70 - 72.99%
B+ 87 - 89.99%	D+ 67 - 69.99%
B 83 - 86.99%	D 63 - 66.99%
B- 80 - 82.99%	D- 60 - 62.99%
C+ 77 - 79.99%	E 0 - 59.99%

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Other Requirements:

Cellular phones must be silenced during class. They may be used in field sessions for fieldwork communication pertaining to this coursework only.

General UF Policies and Information

1 Policies and Requirements

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

1.1 Attendance, Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24

hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392- HELP = 352- 392-4357 (option 2).

1.2 Communication Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. **Respect for individual differences and alternative viewpoints will be maintained in this class at all times.** All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

1.3 Semester Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning.

At approximately the mid-point of the semester, the School of Forest, Fisheries, & Geomatics Sciences will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

1.4 Academic Honesty Policy

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."*

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic

integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated.

Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

1.5 Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

1.6 Services for Students with Disabilities:

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, disability.ufl.edu

1.7 Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

2 Campus Helping Resources

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFFGS Academic Hub <https://ufl.instructure.com/courses/303721>

2.1 Student Life, Wellness, and Counseling Help

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- Counseling and Wellness resources <http://www.counseling.ufl.edu/cwc/>
- U Matter, We Care <http://www.umatter.ufl.edu/>
- Career Connections Center <http://career.ufl.edu/>
- Other resources are available at <http://www.distance.ufl.edu/getting-help> for online students.

2.2 Student Complaint Process

The School of Forest, Fisheries, & Geomatics Sciences cares about your experience and we will make every effort to address course concerns. We request that our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered. You can also submit feedback anytime.

If you have a more urgent concern, your first point of contact should be the Academic Coordinator or the Graduate/Undergraduate Coordinator for the

program offering the course. You may also submit a complaint directly to UF administration:

- <https://distance.ufl.edu/getting-help/>
- <https://registrar.ufl.edu/complaint.html>