

COURSE SYLLABUS

SUR4376 / SUR6377 *Geospatial Applications of UASs* Fall Semester (3 Credits)

W 7th Period F 6-7th Period

Prerequisites: SUR3501C *Foundations of UAS Mapping* (or Permission of Instructor).

Instructors

Dr. Grenville Barnes gbarnes@ufl.edu (352) 392 4998

Reed Lab 406B

Dr. Ben Wilkinson benew@ufl.edu (352) 392-3465

Reed Lab 406A

Office Hours – By appointment

Course Overview and Objectives

Covers issues and applications associated with small unmanned aerial systems (UASs).

By the end of this course, the student will be able to:

- describe common/typical UAS applications (e.g. agriculture, forestry, property rights)
- describe the technical considerations involved in implementing UAS applications
- cite the common business and legal aspects of operating UASs
- lead and participate in current debates on UAS issues and applications

Method of Instruction

This class is designed as an active learning experience. In-class and online discussions are critical, and students are expected to engage in these activities. Students prepare for each weekly lecture by completing related reading assignments. In addition, each week a *facilitator or facilitator-group*, is tasked to lead a discussion in preparation for the lecture. This serves to increase the class' foundational knowledge in the area to be presented and facilitates active discourse during the lecture. A different person or team will guide the preparatory discussion each week. Students are expected to participate via the message boards on the course website, which is the primary method of engagement for students taking the course from distance. Student will also, with guidance from the instructors, develop a term project (see below) to be presented towards the end of the semester.

Meeting Times and Places

The class meets twice a week: a one period session on Wednesday (1:55pm-2:45pm) for a preparatory discussion led by a student or team of students; and a two period session on Friday (12:50pm-2:45pm) for the lecture. Asynchronous distance students participate in the discussion by posting comments to the course website prior to the

class meeting time. All distance students are required to participate live on Wednesday and Friday at least one week in the semester when they are the week's *facilitator*.

Readings

Readings are provided for each week's theme/application within the module for that week.

Communication

The course is managed through the Canvas system and all communication with instructors should be done through the facilities in that system.

Course Evaluation

The final course grade is broken down as follows:

- | | |
|--|------------------------------|
| 1) Participation. | 20% |
| 2) Preparatory presentation | 30% |
| 3) Term Project (including presentation) | 30% (Graduate Students: 40%) |
| 4) Exams | 20% (Graduate Students: 10%) |

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>.

1. Participation (20%)

Students are evaluated based on thoughtfully contributing to the class discussions and message board. Attendance is mandatory, and unexcused absences will be penalized. For asynchronous students, the discussion board contributions will be more heavily weighted based on their inability to attend live lectures.

2. Preparatory Presentation (30%)

Students are expected to develop a 20-minute professional-grade presentation encompassing key components of the week's topic. The presentation will cover the week's assigned reading material in addition to material from other sources which the student person/team will identify through independent research. The person/team is also expected to work with the instructors to ensure that the presentation is professional.

3. Term Project (Undergrads: 30%) (Graduate Students: 40%; comprising 35% for the paper, 5% for presentation)

The term project will be on an instructor-approved UAS-related subject, and may be a research paper, a video, a comprehensive literature review, or some other approved format. Throughout the semester, the student will provide milestone reports on their project, each of which will be graded and returned with accompanying guidance from the instructors. At the end of the semester, students will prepare a brief presentation of their project. The presentations will be upload to the course website and peer-reviewed by the class. (Graduate students will prepare a journal-style paper on the topic, based on the term project, and give a brief presentation of their project to the class.)

4. Midterm Quizzes (Undergrads: 20%) (Graduate Students: 10%)

Midterms will be composed of questions related to the guest lectures and the assigned reading material.

Grade Scale

A	95 - 100%
A-	90 - 94.99%
B+	87 - 89.99%
B	83 - 86.99%
B-	80 - 82.99%
C+	77 - 79.99%
C	73 - 76.99%
C-	70 - 72.99%
D+	67 - 69.99%
D	63 - 66.99%
D-	60 - 62.99%
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>.

Schedule

The following schedule will be followed:

Week prior to lecture:

On Wednesday of the week prior to lectures, reading and/or watching assignments will be posted to the course website. All students are expected to read and watch them before the following Wednesday. The following week's *facilitator* (or facilitator-group depending on enrollment) will also research additional material and begin developing his/her presentation and preparatory discussion with the assistance of the instructors. Facilitator lecture/date assignments will be made the first week of

class. *Note: distance students must be able to participate live on both Wednesday and Friday of the week that they are assigned to the facilitator.*

Week of the lecture:

Wednesday: The facilitator will give a 20 minute presentation on the week's topic, which will be recorded and posted to the website. They will also assign additional material such as articles or online videos related to the topic. Following the presentation, the class will identify and prioritize relevant questions for the speaker. Asynchronous students are expected to participate in the discussion via the website message board, and should make their contributions by midnight Wednesday. **All students will post topic-related questions to the website by midnight on Wednesday, and "like" at least one other student's question by midnight on Thursday.**

Friday: The guest lecturer will give a 50 minute presentation in class. Following a 10 minute break, the facilitator will lead a Q/A discussion based on the posted questions. The facilitator will record and enter summarized answers to the prepared questions and in-class discussion on the class website. Both the recorded lecture and Q/A session will be posted to the website.

Schedule of topics (* Tentative)

<u>Lec #</u>	<u>Date</u>	<u>Subject</u>	<u>Speaker</u>
1	9/1	Rules and regulations	Eben Broadbent (UF)
2	9/8	Bridges/Infrastructure	Peter Ifju (UF)
3	9/15	Coastal Morphology	Chris Sherwood (USGS)
4	9/22	Agriculture	Aditya Singh (UF) *
5	9/29	Mining	Michael Detwiler (Wood Rogers)
6	10/13	Forest Ecology	Stephanie Bohlman (UF)
7	10/20	Surveying (multiple)	Craig Emrick/Brian Murphy (Pickett) *
8	10/27	Multispectral/Agriculture	Taylor Glenn (Precision Silver)
9	11/3	Operations/Analysis	Mark Bauer (USGS) *
10	11/17	Marine Applications	Michael Starek (TAMU) *
11	12/1	Advanced UAS Cameras	Tolee Mamatas (Altavian)

Monday	Tuesday	Wednesday	Thursday	Friday
8/21	8/22	8/23 Intro	8/24	8/25
8/28	8/29	8/30 Prep-presentation 1	8/31	9/1 Guest Speaker 1
9/4	9/5	9/6 Prep-presentation 2	9/7	9/8 Guest Speaker 2
9/11	9/12	9/13 Prep-presentation 3	9/14	9/15 Guest Speaker 3
9/18	9/19	9/20 Prep-presentation 4	9/21	9/22 Guest Speaker 4
9/25	9/26	9/27 Prep-presentation 5	9/28	9/29 Guest Speaker 5
10/2	10/3	10/4 Midterm 1	10/5	10/6 Homecoming
10/9	10/10	10/11 Prep-presentation 6	10/12	10/13 Guest Speaker 6
10/16	10/17	10/18 Prep-presentation 7	10/19	10/20 Guest Speaker 7
10/23	10/24	10/25 Prep-presentation 8	10/26	10/27 Guest Speaker 8
10/30	10/31	11/1 Prep-presentation 9	11/2	11/3 Guest Speaker 9
11/6	11/7	11/8 Midterm 2	11/9	11/10 Veteran's Day
11/13	11/14	11/15 Prep-presentation 10	11/16	11/17 Guest Speaker 10
11/20	11/21	11/22 Thanksgiving	11/23 Thanksgiving	11/24 Thanksgiving
11/27	11/28	11/29 Prep-presentation 11	11/30	12/1 Guest Speaker 11
12/4	12/5	12/6 Graduate Student Presentations	12/7 Reading Day	12/8 Reading Day
12/11	12/12	12/13	12/14	12/15

UF Academic Honesty

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 to 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/scr/process/student-conduct-honor-code>.
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, www.dso.ufl.edu/drc/

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.

Campus Helping Resources

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.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

Other Requirements

Cellular phones must be silenced during class.