Cover Sheet: Request 9626

ucc1-SUR4XXX Geospatial Applications of UASs

Info

Process	Course|New|Ugrad/Pro
Status	Pending
Submitter	Sager,Scott A sasager@ufl.edu
Created	10/2/2014 3:29:44 PM
Updated	8/28/2015 8:12:12 AM
Description	new course, co-taught with SUR6XXX Geospatial Applications of UASs

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Forest Resources and Conservation 514946000	White, Tim		2/20/2015
Replaced UCC1_SUR4XXX Geospatial Applications of UASs.pdf Added differences_SUR4XXX-SUR6XXX Geospatial Applications of UASs.doc					10/2/2014 10/2/2014
College	Approved	CALS - College of Agricultural and Life Sciences	Brendemuhl, Joel H	Approved by CALS CC.	8/28/2015
Replaced syllabus_SUR4XXX Geospatial Applications of UASs.docx Replaced syllabus_SUR6XXX Geospatial Applications of UASs.docx Replaced UCC1_SUR4XXX Geospatial Applications of UASs.pdf Added ucc1_SUR4XXX Geospatial Applications of UASs.docx Replaced syllabus_SUR4XXX Geospatial Applications of UASs.docx Replaced syllabus_SUR6XXX Geospatial Applications of UASs.docx Added syllabus_SUR4XXX Geospatial Applications of UASs2.docx Added syllabus_SUR6XXX Geospatial Applications of UASs2.docx					3/3/2015 3/3/2015 3/3/2015 3/3/2015 4/27/2015 4/27/2015 4/27/2015 4/27/2015
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			8/28/2015
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

UCC1: New Course Transmittal Form

Recommended SCNS Course Identification

1. Prefix SUR 2. Level 4 3. Number XXX 4. Lab Code None

5. Course Title Geospatial Applications of UASs

6. Transcript Title (21 character maximum) GEOSPATIAL APP OF UAS

7. Effective Term Earliest Available 8. Effective Year Earliest Available 9. Rotating Topic? No

10. Amount of Credit 3 11. If variable, # minimum and # maximum credits per semester.

12. Repeatable credit? No 13. If yes, total repeatable credit allowed #

14. S/U Only? No 15. Contact Type Select Contact Type

16. Degree Type Baccalaureate 17. If other, please specify: Click here to enter text.

18. Category of Instruction Intermediate

19. Course Description (50 words maximum)

Covers contemporary issues and common applications associated with small UASs (Unmanned Aerial Systems).

20. Prerequisites

SUR3501C

21. Co-requisites

Click here to enter text.

22. Rationale and Placement in Curriculum

Co-taught with SUR6XXX Geospatial Applications of UASs (see separate request).

23. Complete the syllabus checklist on the next page of this form.

Syllabus Requirements Checklist

The University's complete Syllabus Policy can be found at:
http://www.aa.ufl.edu/Data/Sites/18/media/policies/syllabi_policy.pdf

The syllabus of the proposed course **must** include the following:

- ☒ Course title
- ☒ Instructor contact information (if applicable, TA information may be listed as TBA)
- ☒ Office hours during which students may meet with the instructor and TA (if applicable)
- ☒ Course objectives and/or goals
- ☒ A weekly course schedule of topics and assignments.
- ☒ Methods by which students will be evaluated and their grades determined
- ☒ Information on current UF grading policies for assigning grade points. This may be achieved by including a link to the appropriate undergraduate catalog web page: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.
- ☒ List of all required and recommended textbooks
- ☒ Materials and Supplies Fees, if any
- ☒ A statement related to class attendance, make-up exams and other work such as: *"Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx."*
- ☒ A statement related to accommodations for students with disabilities such as: *"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."*
- ☒ A statement informing students of the online course evaluation process such as: *"Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results."*

It is **recommended** that the syllabus contain the following:

- ☒ Critical dates for exams or other work
- ☐ Class demeanor expected by the professor (e.g. tardiness, cell phone usage)
- ☒ The university's honesty policy regarding cheating, plagiarism, etc.

  Suggested wording: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

- ☒ Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies

COURSE SYLLABUS

SUR4XXX *Geospatial Applications of UASs*

W 5th Period, F 5-6th Period
Fall Semester
(3 Credits)

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 – Wednesday 2pm-4pm in Reed Lab 406A (or by arrangement)

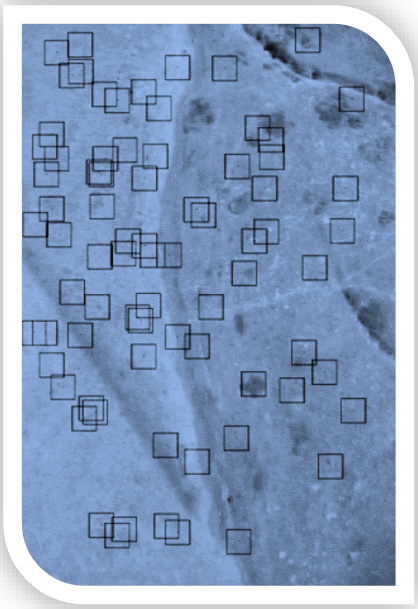
Course Overview and Objectives

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 team of students is tasked to lead a discussion in preparation for the lecture to increase the class' foundational knowledge in the area to be presented and facilitate active discourse during the lecture. A different 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 asynchronously. 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 (11:45am-12:35pm) for a preparatory discussion led by a team of students; and a two period session on Friday (11:45am-1:40pm) for the lecture. Asynchronous students participate in the discussion by posting comments to the course website prior to the class meeting time.

Readings

The following readings are required:

DARC (2013). Law and Policy Guidebook. Drones and Aerial Robotics Conference. http://droneconference.org/darc2013_guidebook.pdf

FAA (2014) Interpretive Rule summarizing FAA interpretation of the Special Rule for Model Aircraft. https://www.federalregister.gov/articles/2014/06/25/2014-14948/interpretation-of-the-special-rule-for-model-aircraft

FAA Modernization and Reform Act of 2012 – PL 112-95 (Secs 332-336) http://www.faa.gov/regulations_policies/reauthorization/media/PLAW-112publ95%5B1%5D.pdf

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Getzin, S., K. Wiegand, I. Schoening (2012). "Assessing Biodiversity in Forests Using very High-Resolution Images and Unmanned Aerial Vehicles." Methods Ecol. Evol. 3: 397–404

Hardin, P. and R. Jensen (2011). "Small-Scale Unmanned Aerial Vehicles in Environmental Remote Sensing: Challenges and Opportunities. GISci. Remote Sens. 48: 99–111

Watts, A., J. Perry, S. Smith, M. Burgess, B. Wilkinson, Z. Szantoi, P. Ifju and H. Percival (2010). "Small Unmanned Aircraft Systems for Low-Altitude Aerial Surveys." J. Wildl. Manag. 74: 1614–1619.

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

Grading is based predominantly on participation, but will also include a term project, and a final quiz. The final course grade is broken down as follows:

1) Participation.	20%
2) Preparatory presentation	30%
3) Term Project (including presentation)	30%
4) Final Exam	20%

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 ability to attend live lectures.

2. Preparatory Presentation (30%)

Students are expected to develop a 20-minute professional-grade presentation encompassing key components of the speaker's area of expertise. The presentation will cover the week's assigned reading material in addition to material from other sources which the student team will identify through independent research. The team is also expected to work with the instructors to ensure that the presentation is professional. Asynchronous students will work with the instructor to develop recorded modules to be presented.

3. Term Project (30%)

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 give a brief presentation of their project to the class.

4. Final Exam (20%)

The final exam 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.

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/sccr/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 turned off during class.

Schedule

Lec	Subject
1	Rules and regulations
2	Business aspects
3	Agriculture applications
4	Cadastral applications
5	Forestry applications
6	Natural resource applications
7	Wildlife applications
8	Navigation sensors
9	Cameras and other geospatial sensors
10	User groups and open-source
11	Big data and cloud computing
12	UAV Engineering and design

Monday	Tuesday	Wednesday	Thursday	Friday
8/24	8/25	8/26 Introduction	8/27	8/28
8/31	9/1	9/2 Prep Lecture 1	9/3	9/4 Lecture 1
9/7 Labor Day	9/8	9/9 Prep Lecture 2	9/10	9/11 Lecture 2
9/14	9/15	9/16 Prep Lecture 3	9/17	9/18 Lecture 3 Term Project Proposal Due
9/21	9/22	9/23 Prep Lecture 4	9/24	9/25 Lecture 4
9/28	9/29	9/30 Prep Lecture 5	10/1	10/2 Lecture 5

				Updated Term Project Proposal Due
10/5	10/6	10/7 Prep Lecture 6	10/8	10/9 Lecture 6
10/12	10/13	10/14	10/15	10/16 Homecoming
10/19	10/20	10/21 Prep Lecture 7	10/22	10/23 Lecture 7
10/26	10/27	10/28 Prep Lecture 8	10/29	10/30 Lecture 8
11/2	11/3	11/4 Prep Lecture 9	11/5	11/6 Lecture 9 Term Project Progress Report Due
11/9	11/10	11/11 Prep Lecture 10	11/12	11/13 Lecture 10
11/16	11/17	11/18 Prep Lecture 11	11/19	11/20 Lecture 11
11/23	11/24	11/25	11/26 Thanksgiving	11/27 Thanksgiving
11/30	12/1	12/2 Prep Lecture 12	12/3	12/4 Lecture 12
12/7	12/8	12/9 Prep Lecture 13	12/10	12/11 Lecture 13 Final Term Project Submission
12/14	12/15	12/16 Term Project Presentations	12/17	12/18 Term Project Presentations

COURSE SYLLABUS

SUR6934 *Geospatial Applications of UASs*

W 7th Period, F 6-7th Period
Fall Semester
(3 Credits)

Prerequisites

SUR6934C *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 – Wednesday 2pm-4pm in Reed Lab 406A (or by arrangement)

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:

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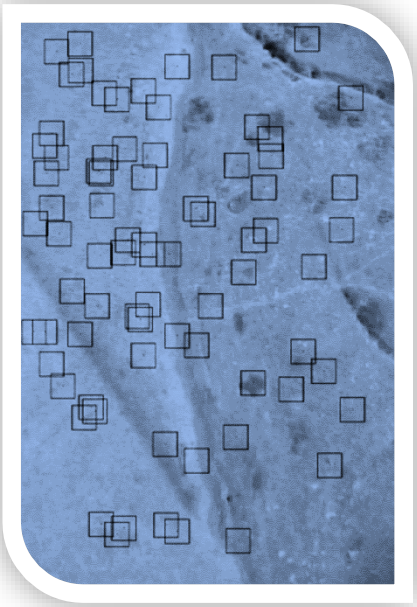

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Meeting Times and Places

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3) Term Project + Presentation	35% + 5%
4) Final Exam	10%

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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 ability to attend live lectures.

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3. Term Project Paper (35%) and Term Project Presentation (5%)

The term project will focus on an instructor-approved UAS-related subject. Throughout the semester, the student will provide a proposal, refined proposal, and progress report, each of which will be graded and returned with accompanying guidance from the instructors. At the end of the semester, 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. Final Exam (10%)

The final exam will be composed of questions related to the guest lectures and the assigned reading material.

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  Counseling Services

Groups and Workshops
Outreach and Consultation
Self-Help Library
Wellness Coaching

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Institute of Food and Agricultural Sciences
School of Forest Resources and Conservation
Geomatics Program
32611-0565

406 Reed Lab
PO Box 110565
Gainesville, FL

September 11, 2014

Dear Curriculum Committee:

RE: Undergraduate/graduate differentiation in dual enrolled SUR4XXX/ SUR6XXX *Geospatial Applications of UASs*

We appreciate your consideration of the undergraduate and graduate sections of *Geospatial Applications of UASs* for formal approval and assignment of a course number. The course is co-taught – designed for upper division (junior and senior) undergraduates or early stage graduate students. There will be higher expectations for graduate students in this course.

Whereas undergraduate students are only required to give a presentation, graduate students are required to produce a journal-style paper on a topic relevant to the course. For example, this may be focused on a certain application or issue discussed in the course. This paper makes up 35% of the final grade for graduate students and is expected to contain a comprehensive understanding of the scholarly debate on the chosen topic.

Sincerely,

Grenville Barnes
Professor

Ben Wilkinson
Assistant Professor