

Cover Sheet: Request 10274

Surveying and Mapping specialization-Geomatics Major

Info

Process	Specialization New/Modify/Close Ugrad
Status	Pending
Submitter	Sager, Scott A sasager@ufl.edu
Created	6/5/2015 10:01:25 AM
Updated	1/21/2016 4:26:08 PM
Description	Current major has no specializations... two specializations are being created.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Forest Resources and Conservation 514946000	White, Tim		6/8/2015
Added new specialization form GEM-SUR.docx					6/5/2015
College	Approved	CALS - College of Agricultural and Life Sciences	Brendemuhl, Joel H	Corrections to the initial submission requested by the CALS CC have been made. Request is now approved.	1/14/2016
Replaced catalog revisions_GEM-SUR.docx					1/12/2016
Added catalog revisions_GEM-SUR2.docx					1/12/2016
Added uccconsult_GEM-GEO.pdf					1/12/2016
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Case, Brandon	Added to the February agenda	1/21/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			1/21/2016
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					

This form may be used to propose a new specialization in an existing undergraduate major. To propose a new major or a new degree program, follow the procedures at <http://approval.ufl.edu>. Note that the terms *specialization* and *track* are synonymous for this process. Instructions for completing and submitting this form begin on the third page.

Existing Degree, Major and Specialization(s)

- | | | | |
|-----------------------------|----------------------------------|---------------|---------|
| 1. Degree Program | Bachelor of Science in Geomatics | 2. CIP Code | 15.1102 |
| 3. Major Name | Geomatics | 4. Major Code | GEM |
| 5. Degree Type | BS | | |
| 6. Existing Specializations | none | | |

Proposed Specialization

- | | | | |
|--------------------|-----------------------|----------------|--------------------|
| 7. Name | Surveying and Mapping | | |
| 8. Code | SUR | 9. Credits | 120 |
| 10. Students | 50/52/56 | | |
| 11. Effective Term | Earliest Available | Effective Year | Earliest Available |

Anticipated Delivery System

- | | | | |
|---|---|---------------------------------|---|
| 12. Percentage of credits available fully online: | <input checked="" type="checkbox"/> < 50% | <input type="checkbox"/> 50-99% | <input type="checkbox"/> 100% |
| 13. Percentage of credits available off-campus: | <input type="checkbox"/> < 25% | <input type="checkbox"/> 25-49% | <input checked="" type="checkbox"/> 50% or more |

14. Rationale for the Proposed Specialization

Two specializations are being created. This one will serve students interested in professional surveying and mapping. The second specialization will focus on the geospatial data analysis/management.

15. Impacts on Other Programs

No specific impacts are anticipated. Course offerings will change minimally from current GEM (no specialization) requirements.

- Prepare a document showing the current and proposed Undergraduate Catalog copy edited using the "track changes" feature in Word. *Note that this must include an **eight-semester plan** for each proposed specialization.*
- Prepare supporting documentation from other colleges the availability of courses that are required in the specialization and/or to provide evidence for support of the proposed major if there is clear or potential overlap or duplication of content.

Instructions

This form may be used to propose a new specialization in an existing undergraduate major. To propose a new major or a new degree program, or to modify or close (terminate) an existing specialization or track, follow the procedures at <http://approval.ufl.edu>. Note that *specialization* and *track* are synonymous for this process.

Existing Degree, Major and Specialization(s)

1. Enter the name of the Degree Program.
2. Enter the six digit Classification of Instructional Programs (CIP) code for the existing degree program. The code has the numerical format XX.XXXX. Contact the [Office of Institutional Planning and Research](#) (OIPR) to verify the CIP code for the existing degree program.
3. Enter the name of the major in which the new specialization will be offered. Example: Mathematics.
4. Enter the two or three letter code that uniquely identifies the major in the student records system. Example: the code for mathematics is MS.
5. Enter the degree type of the major in which the new specialization will be offered. Example: BS
6. Enter the complete name of each specialization that is currently offered in the major.

Proposed Specialization

7. Enter the name of the proposed specialization. Example: Mathematical Modeling.
8. Enter the proposed two or three letter specialization code that would uniquely identify the proposed specialization in the student information system. This code would be appended to the major code. Example: MOD.
9. The credit hours must equal the total credit hours that were approved for the existing major and degree program.
10. Enter the expected number of new students enrolled in this specialization in the first three years.
11. Enter the term (semester and year) that the proposed specialization(s) would start.

Delivery System

12. Indicate the percentage of course credits that will be available through full online courses.
13. Indicate the percentage of course credits that will be available away from the main Gainesville campus (including courses with onsite – off main campus meetings).

Rationale for the proposed specialization

14. Describe the rationale for offering this new specialization and having it on the transcript, how this program will enhance the quality of the existing major, how it relates to undergraduate programs at peer institutions. Also describe what distinguishes this new specialization within the existing major(s) in the degree program, the degree of its overlap with existing majors and specializations (both in the degree program and in other degree programs at the university), and a justification for any such overlap.

Impacts on other programs

15. Describe any potential impact on other programs or departments, including increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the existing program.

Major

Geomatics

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Geomatics ~~is a Science, Technology, Engineering, and Mathematics (STEM) major that addresses land information~~spatial data collection and management, and analysis. Spatial data is collected through many techniques such as field-ground surveying, photogrammetry, remote sensing, satellite positioning, inertial measurements, echo-sounding, and other techniques~~laser scanning. Spatial information collected is may then be integrated into digital land or a geographic information systems and made suitable for use and analysis or other graphical form and analyzed to support a broad range of applications.~~

About This Major

- o **College:** Agricultural and Life Sciences
- o **Degree:** Bachelor of Science in Geomatics
- o **Credits for Degree:** 120
- o **Specializations:** Surveying and Mapping, Geospatial Analysis
- o **Minor:** No
- o **Certificate Program:** Yes
- o **Combined-Degree Program:** Yes
- o **Academic Learning Compact**
- o **Website**

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[Critical Tracking](#) [Recommended Semester Plan](#)

Overview

Geomatics students learn how ~~the Earth is land, infrastructure, and natural resources are measured, how Earth-based data are analyzed, and how these data are~~integrated into useable forms and systems that people can use. Students gain hands-on experience working with field equipment and in high-high-tech classrooms. Present land values, rates of urban development, and environmental concerns require a broadly educated person set of expertise to develop, manage, and apply land-geospatial information. Surveyors and mappers, the practicing component of geomatics, provide these professional services to society~~Students majoring in Geomatics complete either the Surveying and Mapping specialization or the Geospatial Analysis specialization.~~

The Surveying and Mapping specialization is accredited by ABET (see www.abet.org) and prepares students for entry into the Surveying and Mapping profession.

The Geospatial Analysis specialization offers a broader set of courses in GIS and 3-D modeling.

~~This major is also~~Both specializations within the Geomatics major are offered at the Fort Lauderdale Research and Education Center in Ft. Lauderdale, FL., the Gulf Coast Research and Education Center in Plant City, FL and at the Mid-Florida Research and Education Center in Apopka, FL.

~~This major is accredited by the Accreditation Board for Engineering and Technology.~~

To graduate with this major, students must complete all university, college and major requirements.

Equivalent critical-tracking courses as determined by the State of Florida [Common Course Prerequisites](#) may be used for transfer students.

Semester 1

- Complete at least 1 of 7 critical-tracking courses (excluding labs): AEB 2014 or ECO 2023 or ECO 2013, AEC 3030C or SPC 2608, COP 2800 or advisor-approved course in computer programming, MAC 2311, PHY 2053/2053L, PHY 2054/2054L and STA 2023
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete at least 2 additional critical-tracking courses (excluding labs)
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 3

- Complete at least 2 additional critical-tracking courses (excluding labs)
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 4

- Complete at least 2 additional critical-tracking courses (excluding labs)
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete all critical-tracking courses including labs
- 2.5 GPA required for all critical-tracking courses

- 2.0 UF GPA required

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Recommended Semester Plan 1-6, Both Specializations

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold.

Semester 1	Credits
AEB 2014 Economics Issues, Food and You (3) or ECO 2013 Principles of Macroeconomics (4) or ECO 2023 Principles of Microeconomics (4) (all GE-S)	3-4
IUF 1000 What is the Good Life (GE-H)	3
<u>State Core (GE-C, WR)</u>	<u>3</u>
Biological or Physical Science (GE-B/P) (FOR 3004 Forests, Conservation and People or SWS 3022 Introduction to Soils in the Environment and SWS 3022L Introduction to Soils in the Environment Laboratory recommended)	3-4
Composition (State Core GE-C) (WR)	3
Elective (GEO 2200 Physical Geography or GLY 2010C Physical Geology recommended)	3-4
Total	15-18
Semester 2	Credits
COP 2800 Computer Programming Using JAVA or COP 2271 and COP 2271L Computer Programming for Engineers and Computer Programming for Engineers Laboratory or COP 3275 Computer Programming Using C or COP 3229 Computer Programming Using C++ or Advisor-approved computer programming course	3
<u>State Core (GE-M) MAC 2311 Analytic Geometry and Calculus 1</u> (State Core GE-M) *	<u>4</u>
<u>State Core Humanities (GE-H)</u>	<u>3</u>
<u>State Core Social and Behavioral Sciences (GE-S)</u>	<u>3</u>
Elective	2
Humanities (State Core GE-H)	3
Social and Behavioral Sciences (State Core GE-S)	3
Total	15
Semester 3	Credits

State Core (GE-B/P) PHY 2053 and 2053L Physics 1 and Physics 1 laboratory * (State Core GE-B/P)	5
STA 2023 Introduction to Statistics 1 (GE-M)	3
Composition (GE-C) (WR)	3
Elective (GEO 2200 Physical Geography or GLY 2010C Physical Geology recommended, if not already taken)	3-4
Total	14-15
Semester 4	Credits
AEC 3030C Effective Oral Communication or SPC 2608 Introduction to Public Speaking	3
PHY 2054 and 2054L Physics 2 and Physics 2 Laboratory * (GE-B/P)	5
Elective	2
Elective (Gen Ed Diversity, GE-D, and International, GE-N, recommended, if not already completed) and/or Social and Behavioral Sciences (GE-D, N, and/or S)	6
Total	16
Semester 5	Credits
AEC 3033C Research and Business Writing in Agricultural and Life Sciences or ENC 2210 Technical Writing or ENC 3254 Professional Communication (all are WR)	3
SUR 3103C Geomatics **	3
SUR 3323 Visualization of Spatial Information **	3
SUR 3393C Geographic Information Systems **	3
SUR 3641 Surveying Computations **	3
Total	15
Semester 6	Credits
AEB 3133 Principles of Agribusiness Management (3) or MAN 3025 Principles of Management (4)	3-4
AEB 4123 Agricultural and Natural Resource Law (3) or BUL 4310 The Legal Environment of Business (4)	3-4
SUR 3331C Photogrammetry **	3
SUR 3501C Foundations of UAS Mapping	3
SUR 3520 Measurement Science **	3
Total	15-17
Summer	Credits
SUR 4949 Co-op Work Experience	2
Total	2

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* The following courses may be used as substitutes:

MAC 1114 and MAC 2233 for MAC 2311

PHY 2004 and PHY 2004L for PHY 2053 and PHY 2053L

PHY 2005 and PHY 2005L for PHY 2054 and PHY 2054L

Placement tests and/or prerequisites may be required to access certain courses.

Non-specified general education (GE) courses may be selected from any approved course in the subject area. Selection of courses must consider satisfaction of the writing requirement and international studies and diversity requirements

Course availability may necessitate departure from this course sequence. Except for certain courses where sequence is critical (i.e., physics 1 and 2), successful completion is more important than the sequence in which the courses are taken.

* The following courses may be used as substitutes:

MAC 1114 and MAC 2233 for MAC 2311

PHY 2004 and PHY 2004L for PHY 2053 and PHY 2053L

PHY 2005 and PHY 2005L for PHY 2054 and PHY 2054L

Placement tests and/or prerequisites may be required to access certain courses.

Non-specified general education (GE) courses may be selected from any approved course in the subject area. Selection of courses must consider satisfaction of the writing requirement and international studies and diversity requirements

Course availability may necessitate departure from this course sequence. Except for certain courses where sequence is critical (i.e., physics 1 and 2), successful completion is more important than the sequence in which the courses are taken.

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** A minimum grade of C is required for all courses below marked with two asterisks.

Surveying and Mapping Specialization, Semesters 7-8

Recommended Semester Plan

Semester 7	Credits
FNR 3131C Dendrology/Forest Plants (3) or FOR 4934 Topics in For. Res. and Conservation (Florida Forest Communities) (2)	2-3
SUR 4201 Route Geometrics and Design **	3
SUR 4350C Advanced Photogrammetry **	3
SUR 4403 Cadastral Principles **	3
SUR 4530 Geodesy and Geodetic Positioning **	3

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SUR 4941 Supervised Research	<u>1</u>
Total	15- <u>16</u>
Semester 8	Credits
FNR 4343C Forest Water Resources or AOM 4643 Environmental Hydrology: Principles and Issues or SWS 4244 Wetlands Natural Resources elective (see list below)	3
SUR 4380 Remote Sensing **	3
SUR 4430 Surveying and Mapping Practice **	3
SUR 4463 Subdivision Design **	3
SUR 4912 Senior Project **	1
Total	13
Summer	Credits
SUR 4949 Co-op Work Experience	<u>1</u>
Total	<u>1</u>

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Geospatial Analysis Specialization, Semesters 7-8

Recommended Semester Plan

Semester 7	Credits
FNR 3131C Dendrology/Forest Plants (3) or FOR 4934 Topics in For. Res. and Conservation (Florida Forest Communities) (2)	<u>2-3</u>
SUR 4350C Advanced Photogrammetry **	<u>3</u>
SUR 4530 Geodesy and Geodetic Positioning **	<u>3</u>
SUR 4941 Supervised Research	<u>1</u>
Analysis elective / Geospatial Application elective / Geomatics elective	<u>6</u>
Total	15- <u>16</u>
Semester 8	Credits
Natural Resources elective (see list below)	<u>3</u>
SUR 4380 Remote Sensing **	<u>3</u>
SUR 4912 Senior Project **	<u>1</u>
Analysis elective / Geospatial Application elective / Geomatics elective	<u>3</u>
Total	<u>13</u>

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Natural Resources Electives (choose one)

FNR 4343C Forest Water Resources	<u>3</u>
AOM 4643 Environmental Hydrology: Principles and Issues	<u>3</u>

<u>SWS 4244 Wetlands</u>	<u>3</u>
<u>GEO 3280 Principles of Geologic Hydrology</u>	<u>3</u>
<u>FNR 4660 Natural Resource Policy and Economics</u>	<u>3</u>
<u>SUR 4934 Topics in Geomatics (Marine Geomatics)</u>	<u>3</u>

Analysis Electives (choose at least one)

<u>FNR 3410C Natural Resource Sampling</u>	<u>3</u>
<u>GEO 3162C Introduction to Quantitative Analysis for Geographers</u>	<u>4</u>
<u>QMB 3250 Statistics for Business Decisions</u>	<u>4</u>
<u>STA 3024 Introduction to Statistics 2</u>	<u>3</u>
<u>STA 3032 Engineering Statistics</u>	<u>3</u>

Geospatial Application Electives (choose at least one)

<u>AOM 4434 Precision Agriculture</u>	<u>3</u>
<u>EES 4050 Environmental Planning and Design</u>	<u>3</u>
<u>FNR4461 Spatial Models and Decision Analysis</u>	<u>1</u>
<u>GIS 3420C GIS Models for Public Health</u>	<u>3</u>
<u>GIS 4001C Maps and Graphs</u>	<u>4</u>
<u>GIS 4037 Digital Image Processing</u>	<u>4</u>
<u>GIS 4113 Introduction to Spatial Networks</u>	<u>3</u>
<u>SUR 4934 Topics in Geomatics (Practicum in UAS Mapping)</u>	<u>3</u>
<u>SUR 4934 Topics in Geomatics (Geospatial Application of UAS)</u>	<u>3</u>

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Geomatics Electives (choose at least one)

<u>SUR 4201 Route Geometrics and Design</u>	<u>3</u>
<u>SUR 4403 Cadastral Principles</u>	<u>3</u>
<u>SUR 4430 Surveying & Mapping Practice</u>	<u>3</u>
<u>SUR 4463 Subdivision Design</u>	<u>3</u>
<u>SUR 4934 Special Topics in Geomatics</u>	<u>3</u>

External Consultation Results (departments with potential overlap or interest in proposed course, if any)

Department	Name and Title
_____	_____
Phone Number	E-mail
_____	_____
Comments	

Department	Name and Title
_____	_____
Phone Number	E-mail
_____	_____
Comments	

Department	Name and Title
_____	_____
Phone Number	E-mail
_____	_____
Comments	

Sager, Scott A

From: White, Tim
Sent: Thursday, November 12, 2015 10:11 AM
To: Binford, Michael W.
Cc: Brendemuhl, Joel H; Sager, Scott A; Dewitt, Bon A; Andreu, Michael G; Smith, Scot Earle; Mossa, Joann; Mao, Liang; Matyas, Corene; Southworth, Jane; HOCHMAIR, HARTWIG H
Subject: RE: Geospatial

Hi Mike

Thank you so much for your note of support. The SFRC is in support of Geography's proposed certificate in Geospatial Information Analysis. Together our specialization and your certificate will provide important opportunities for undergraduate students. Please let me know if you need anything else from me.

Thanks again
Tim

From: Binford, Michael W.
Sent: Tuesday, November 10, 2015 4:32 PM
To: White, Tim
Cc: Brendemuhl, Joel H; Sager, Scott A; Dewitt, Bon A; Andreu, Michael G; Smith, Scot Earle; Mossa, Joann; Mao, Liang; Matyas, Corene; Southworth, Jane
Subject: RE: Geospatial

Hello, Tim et al.:

Sorry to be slow with my response to this. The geography department supports your development of the undergraduate specialization in Geospatial Analysis. I'm glad that this was worked out in a collegial way.

Do you need anything more than this email from me?

Michael W. Binford, Professor and Chair
Department of Geography
University of Florida
PO Box 117315
Gainesville, FL 32611
www.clas.ufl.edu/users/mbinford

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From: White, Tim
Sent: Tuesday, November 10, 2015 11:21 AM
To: Binford, Michael W.

Cc: Brendemuhl,Joel H; Sager,Scott A; Dewitt,Bon A; Andreu,Michael G; Smith,Scot Earle

Subject: FW: Geospatial

Hi Mike

Hope you're doing well and am sure you're enjoying your travels.

Representatives from our faculties have met regarding our two proposals and a summary is below. I write to ask for a letter of support for the SFRC's request to establish an undergraduate Specialization in Geospatial Analysis. If I understand correctly, you would change the name of your certificate to Geospatial Information Analysis – which we would support. Together these would provide students with important new options.

Does this seem okay to you? Please let me know and we'll move ahead.

Hard to believe all of things that have happened in Cuba since our trip there.

Tim

Tim White

Professor and Director

School of Forest Resources and Conservation

IFAS, University of Florida

Gainesville, FL, 32611

Phone: 352-846-0850

<http://sfrc.ufl.edu>



From: Smith,Scot Earle

Sent: Monday, November 09, 2015 10:23 AM

To: Andreu,Michael G

Cc: Dewitt,Bon A

Subject: Geospatial

Mike:

Bon, Henry, Ben and I met last week with Joann Mossa from Geography. She agreed to drop their objection to the phrase "Geospatial Analysis" in our proposed track thanks largely to Bon. It seems that one faculty member in Geography thought that the phrase "geospatial analysis" was unique to geography.

At this point, it would be best for you to write to Geography's chair, Mike Binford, and ask for the no-objection letter.

I don't foresee a problem.

Thanks.

Scot

Scot E. Smith
Professor of Geomatics
University of Florida
Gainesville, FL 32611
352.392.4990