



# The University of Georgia

University Council  
Athens, Georgia 30602

March 17, 2017

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Undergraduate Student Representative – Ms. Gabrielle Roth  
Graduate Student Representative – Ms. Ashley E. Fallaize

Dear Colleagues:

The attached proposal from the Warnell School of Forestry and Natural Resources for the following major name change will be an agenda item for the March 24, 2017, Full University Curriculum Committee meeting:

Major Name Change:

From: Water and Soil Resources (B.S.F.R.)

To: Natural Resource Management and Sustainability (B.S.F.R.)

Sincerely,

Alison Alexander, Chair  
University Curriculum Committee

cc: Provost Pamela S. Whitten  
Dr. Rahul Shrivastav

# NAME CHANGE JUSTIFICATION FORM

**School/College Name Changes:**

Current School/College Name:

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Proposed School/College Name:

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**Department Name Changes:**

Current Department Name:

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Proposed Department Name:

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**Major Name Changes:**

Current Major Name:

Water and Soil Resources

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Degree:

BSFR

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Proposed Major Name:

Natural Resource Management  
and Sustainability

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Degree:

BSFR

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**Certificate Name Changes:**

Current Certificate Name:

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Proposed Certificate Name:

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**Minor Name Changes:**

Current Minor Name:

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Proposed Minor Name:

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**Prefix Changes:**

Current Prefix and Name:

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Proposed Prefix and Name:

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## **JUSTIFICATION:**

The Warnell School of Forestry and Natural Resources proposes to change the name of the Water and Soil Resources major to Natural Resource Management and Sustainability. Under the proposed name change, the current Water and Soil Resources major will become an area of emphasis, along with an area of emphasis in Geospatial Information Science. The proposed name will better reflect the broader range of natural resource disciplines represented under the major.

Increasing enrollment in the Water and Soil Resources major is an objective in Warnell's 10-year strategic plan, which was revised in 2016 to guide the school's priorities through 2025. The strategic plan was developed with input from over 350 stakeholders representing alumni, industry leaders, board members, donors, and UGA faculty and staff. These stakeholders recognized the importance of having Water and Soil Resources as disciplinary area in the school. Water is an essential natural resource and is inextricably tied to how we manage forests, fisheries, recreation resources, soils, and wildlife habitat. Soil is the foundation that supports all that we sustainably manage on our terrestrial landscapes. However, currently there is marginal enrollment to support it as a major. Retaining the water and soil discipline as an area of emphasis will allow us to meet the School's strategic goals, address demand from employers and complement our other majors. We have also increased recruiting efforts in this area to meet the objective in the strategic plan. The Department of Crop and Soil Sciences offers a degree in Water and Soil Resources. The BSES in Crop and Soil Sciences and the BSFR in Forest Resources have been closely joined for many years. Faculty from both units co-instruct required courses, and courses required for the major are offered in both units. This collaboration would continue under the proposed name change.

We are also proposing to add an area of emphasis in Geospatial Information Science. Many peer forestry/natural resources programs already have majors or concentrations in this area. Additionally, employers hiring graduates from natural resource programs require primary training geospatial analysis. The proposed Geospatial Information Science area of emphasis will serve a critical role in producing GIS analysts who also have a solid foundation in natural resource management that many of our employers desire. The Department of Geography offers areas of emphasis in "Geospatial Analysis and Visualization" and "Remote Sensing and Photogrammetry" under the Bachelor of Science major. However, in discussions with the administration in the Geography Department, they view the proposed area of emphasis as complimentary to their areas of emphasis (see attached letter of support from the Chair of the Department of Geography).

Professional students currently enrolled in the Water and Soil Resources major will be allowed to complete their degrees under the existing major name. There are currently seven students enrolled in the major, two are expected to graduate in Spring 2017, three in Spring 2018, and two in Fall 2018. Students who have declared Water and Soil Resources as a major, but are not yet in the Professional Program (i.e., Pre-professional students) will graduate under the new major name. We request that the name change become effective in Fall 2017.

### Attachments:

Letter of support from the Department of Geography  
Program of study form for the major and proposed areas of emphasis

**Program of Study Form – Natural Resource Management and Sustainability**

<b>Courses</b> ( <i>list acronym, number, and title</i> )	<b>Semester</b>	<b>Hours</b>
<b>Area I 1: Communication Skills</b> ENGL 1101 or 1101E (English Composition I) or ENGL 1101S (English Composition I: Service-Learning)	fall, Y1	3 or 3
ENGL 1102 or 1102E (English Composition II) or ENGL 1103 (Multicultural English Composition) or ENGL 1050H (Composition and Literature, Honors) or ENGL 1060H (Composition and Multicultural Literature, Honors)	spring, Y1	3 or 3 or 3 or 3
<b>Area I 2: Quantitative Skills</b> MATH 1113 or 1113E (Precalculus) or MATH 2200 (Analytic Geometry or Calculus) or MATH 2250 (Calculus I for Science and Engineering) or MATH 2300H (Differential Calculus, Honors) or MATH 2400 (Differential Calculus with Theory) or MATH 2400H (Differential Calculus with Theory, Honors) or MATH 2410 (Integral Calculus with Theory) or MATH 2410H (Integral Calculus with Theory, Honors)	fall, Y2	3 or 4 or 4 or 4 or 4 or 4 or 4 or 4
<b>Area II 1: Physical Sciences</b> preferred courses: CHEM 1211 and 1211L (Freshman Chemistry I with Lab) or CHEM 1311H and 1311L (Advanced Freshman Chemistry I with Lab)	fall, Y1	4 or 4
<b>Area II 2: Life Sciences</b> preferred courses: BIOL 1107 and 1107L (Principles of Biology I with Lab) or BIOL 2107H and 2107L (Principles of Biology I [Honors] with Lab)	fall, Y2	4 or 4
<b>Area III: Quantitative Reasoning</b> preferred courses: MATH 2200 (Analytic Geometry or Calculus) or MATH 2250 (Calculus I for Science and Engineering) or MATH 2300H (Differential Calculus, Honors)	spring, Y2	4 or 4 or 4
<b>Area IV: World Languages and Culture, Humanities and the Arts</b> World Languages/Culture: no preferred courses	spr, Y1	6
World Languages/Culture: no preferred courses	spr, Y2	3
Humanities/Arts: no preferred courses	fall, Y2	3
<b>Area V: Social Sciences</b> preferred courses: AAEC 2580 or 2580E (Applied Microeconomic Principles) or ECON 2106 or 2016E (Principles of Microeconomics) or ECON 2106H (Principles of Microeconomics, Honors)	spr, Y2	3 or 3 or 3
<b>Area VI: Courses Related to Major</b> BIOL 1108 and 1108L (Principles of Biology II with Lab) or BIOL 2108H and 2108L (Principles of Biology II [Honors] with Lab)	spr, Y2	4 or 4
CHEM 1212 and 1212L (Freshman Chemistry II with Lab) or	spr, Y1	4 or 4

CHEM 1312H and 1312L (Advanced Freshman Chemistry II with Lab)		
PHYS 1111-1111L (Introductory Physics—Mechanics, Waves, Thermodynamics) or PHYS 1211-1211L (Principles of Physics for Scientists and Engineers—Mechanics, Waves, Thermodynamics)	spr, Y2	4 or 4
COMM 1100 (Introduction to Public Speaking) or COMM 2150H (Perspective on Public Communication) or AGCM 1200 (Communicating in Agricultural and Environmental Sciences) or FANR 3950 (Professional Communication and Development for Natural Resource Students)	fall, Y2	3 or 3 or 3 or 3
STAT 2000 (Introductory Statistics) or STAT 2100H (Introduction to Statistics and Computing, Honors) or BIOS 2010-2010L (Elementary Biostatistics) or MSIT 3000 (Statistical Analysis for Business I)	fall, Y2	4 or 4 or 4 or 3
<b>Major Area Courses – Common Curriculum</b> FANR 3000 and 3000L (Field Orientation, Measurements, and Sampling in Forestry and Natural Resources with Lab) CRSS(FANR) 3060 and 3060L (Soils and Hydrology with Lab) FANR 3200 and 3200L (Ecology of Natural Resources with Lab) FANR 3300-3300D (Economics of Renewable Resources) FANR 3400-3400D (Society and Natural Resources) FANR 3800 and 3800L (Spatial Analysis of Natural Resources with Lab) FANR 4500S (Senior Project in Forestry and Natural Resources Management) or FANR 4600 (Senior Thesis in Forestry and Natural Resources) FANR 4800/6800 (Renewable Resources Policy) <u>Computer Programming Requirement (choose one from the following):</u> PBIO(BINF)(FANR) 4700/6700 (Computational Plant Science) CSCI 1301-1301L (Introduction to Computing and Programming) CSCI 1360 (Foundations for Informatics and Data Analytics) CSCI 2150- 2150L (Introduction to Computational Science)	fall, Y3 fall, Y3 spr, Y3 fall, Y3 fall, Y3 spr, Y3 spr, Y4  spr, Y4 spr, Y4 reqmt in Y3 or Y4)	4 4 4 2 2 3 4 or 4 2 3 3 4 4
<b>Water and Soil Resources Area of Emphasis</b>		
<b>Concentration</b> PHYS 1111-1111L (Introductory Physics—Mechanics, Waves, Thermodynamics) CRSS 4670/6670 (Environmental Soil Chemistry) GEOL 4220/6220 (Hydrogeology) WASR(FORS) 4110/6110-4110L/6110L (Forest Hydrology) <u>Choose one from the following*:</u> CRSS 4600 WASR 4500 <u>Choose one from the following*:</u> GEOG 3010	XXXXXX spr, Y4 fall, Y4  all of these and electives should be taken in	4 3 3 4 4 or 3 3 or

CRSS(GEOL) 4540 Choose one from the following*: EHSC(FDST)(MIBO) 4310 ECOL(FISH)(WASR) 4310 CRSS(MIBO) 4610 *courses not selected may be taken as major electives	Y3 and Y4	3 4 or 4 or 3
<b>Electives</b> CRSS 2010-2010L (Crop Science) CRSS 3540 (Soil Morphology and Interpretation) CRSS(GEOL) 4540/6540-4540L/6540L (Pedology) CRSS 4580/6580 (Soil Erosion and Conservation) CRSS 4600/6600 (Soil Physics) CRSS 4600L/6600L (Soil Physics Laboratory) CRSS(MIBO) 4610/6610-4610L/6610L (Soil Microbiology) CRSS(WASR) 4660/6660 (Hydrogeochemical Characterization of Environmental Field Sites) ECOL(FISH)(WASR) 4310/6310-4310L/6310L (Freshwater Ecosystems) EHSC(FDST)(MIBO) 4310/6310-4310L/6310L (Environmental Microbiology) EHSC 4350-4350L (Environmental Chemistry) EHSC 4490/6490 (Environmental Toxicology) EHSC 4610 (Water Pollution and Human Health) FORS 3010 (Dendrology) FORS 3010L (Dendrology Laboratory) WASR 3000+ (any WASR courses numbered 3000 or above) WASR 3900 (Water and Soil Resources Internship) WASR(FORS) 4000/6000-4000L/6000L (Forest Soil Management) WASR 4500/6500 (Quantitative Methods in Hydrology) WASR(CRSS)(ECOL)(ENGR)(GEOG)(GEOL) 4700L/6700L (Hydrology, Geology, and Soils of Georgia) GEOG 3010 (General Geomorphology) GEOG 4060/6060 (Field Methods: Environmental Monitoring and Assessment) GEOG 4300/6300 (Introductory Spatial Analysis) GEOG 4330/6330-4330L/6330L (Aerial Photographs and Image Interpretation) GEOG 4350 (Remote Sensing of Environment) GEOL 3010-3010L (Earth Materials) GEOL 3020-3020L (Surficial and Near-Surficial Processes) GEOL 4110/6110 (Principles of Geochemistry)		4 1 3 3 3 1 3 3 3 4 4 3 3 3 2 1 var. 1-3 3 3 3 3 3 3 3 3 3 4 4 3
<b>Total Semester Credit Hours</b>		<b>120</b>
<b>Geospatial Information Science Area of Emphasis</b>		
<b>Concentration</b> FANR 5620/7620-5620L/7620L (GIS Applications for Natural Resources) FANR 5630/7630 (Statistical Software for Natural Resource Management)	spr, Y4 spr, Y3	3 3

GEOG 4350/6350-4350L/6350L (Remote Sensing of Environment) or	spr, Y4	3 or
GEOG 4460/6460 (Field Methods in Remote Sensing)*		3
GEOG 4590/6590-4590L/6590L (Programming for Geographic Information Science)*	spr, Y4	3
<u>Natural Resources Electives (10 hours required)*:</u>	all	
ECOL 4050/6050 (Ichthyology)	electives	4
FANR 4800/6800 (Renewable Resources Policy)	should be	2
WILD(FISH) 3000 (Introduction to Fish and Wildlife Management)	taken in	2
FISH 4200 (Aquatic Biology)	Y3 and	
FISH 4200L (Aquatic Biology Lab)	Y4	3
FISH(ECOL)(MARS)(WILD) 4300/6300 (Environmental Biology of Fishes)		1
FISH(ECOL)(MARS)(WILD) 4300L/6300L (Environmental Biology of Fishes Laboratory)		3
ECOL(FISH)(WASR) 4310/6310-4310L/6310L (Freshwater Ecosystems)		1
FISH 4500/6500 (Fish Physiology)		4
FISH 4500L/6500L (Fish Physiology Lab)		3
FISH/WILD 4520-4520L (Conservation Decision Making)		1
FISH(ECOL)(MARS)(WILD) 4550/6550-4550L/6550L (Sustainable Aquaculture)		3
FISH(EHSC) 4600/6600 (Ecotoxicology)		4
FISH 4650L/6650L (Georgia Fishes Field Study)		3
FORS 3010 (Dendrology)		4
FORS 3010L (Dendrology Laboratory)		2
FORS 4010/6010-4010L/6010L (Silviculture)		1
FORS 4210/6210 (Forest Health and Protection)		4
FORS 4610/6610-4610L/6610L (Forest Mensuration)		3
FORS 4620/6620 (Timber Management)		4
FORS 4700/6700-4700L/6700L (Forest Economics)		4
NRRT 3310 (Outdoor Recreation and Environmental Awareness)		3
NRRT 4400/6400 (Resource Management and Entrepreneurship)		3
NRRT(RLST) 5410/7410-5410L/7410L (Stewardship and Protection of Natural Resources)		3
NRRT 5800S/7800S (Environmental Interpretation)		3
NRRT 5900/7900 (Ecotourism and Sustainable Development)		3
WASR(FORS) 4110/6110-4110L/6110L (Forest Hydrology)		4
WILD(ECOL) 3580 (Vertebrate Natural History)		4
WILD(ECOL) 3580L (Vertebrate Natural History Laboratory)		3
WILD 4000/6000-4000L/6000L (Management of Wildlife Habitat)		1
WILD(ECOL) 4040/6040-4040L/6040L (Herpetology)		4
WILD(BIOL) 4050/6050 (Mammalogy)		4
WILD(BIOL) 4050L/6050L (Mammalogy Laboratory)		3
WILD(ECOL) 4060/6060-4060L/6060L (Ornithology)		1
WILD 4400/6400 (Wildlife Physiology and Nutrition)		4
WILD 4500/6500 (Nongame and Endangered Species Management)		3
WILD 4700/6700 (Techniques in Wildlife Population Management)		3
		2

WILD 4700L/6700L (Techniques in Wildlife Population Management Laboratory)	1
WILD(POPH) 5100/7100 (Principles and Management of Wildlife Diseases)	3
WILD(CRSS) 5330/7330-5330L/7330L (Conserving Wildlife in Agricultural Landscapes)	3
WILD 5350/7350 (Wetland Management for Wildlife)	2
WILD 5350L/7350L (Wetland Management for Wildlife Laboratory)	1
WILD 5700/7700 (Applied Population Dynamics)	2
WILD 5700L/7700L (Applied Population Dynamics Lab)	1
*other courses may be substituted with advisor approval.	
<b>Electives*</b>	
CBIO(CSCI) 4835/6835 (Introduction to Computational Biology)	3
CRSS 4050/6050 (Improving Nutrient and Energy Efficiency with Geographic Information Systems)	4
EDES 4270/6270 (Environment Design Uses of Geographic Information Systems)	3
EDES 4280E/6280E (Environmental Design Uses of Geographic Information Systems)	3
ENGR 3120 (Spatial Data Analysis)	3
ENGR 5930/7930 (GPS with Engineering and GIS Applications)	3
FANR 5640/7640-5640L/7640L (Unmanned Aerial Systems? [UAS] Role in Natural Resource Management)	3
FORS 5650/7650-5650L/7650L (Aerial Photogrammetry in Forestry)	3
FORS 5670/7670 (Forestry Information Systems)	3
WILD(FISH) 5750/7750 (Statistical Software for Fish and Wildlife Population Analysis)	1-3
GEOG 3510-3510L (Cartography and Graphics)	3
GEOG 4140/6140 (Satellite Meteorology/Climatology)	3
GEOG 4330/6330-4330L/6330L (Aerial Photographs and Image Interpretation)	3
GEOG 4380/6380-4380L/6380L (Transportation Modeling and GIS)	3
GEOG 4385/6385 (Community GIS)	3
GEOG 4410/6410-4410L/6410L (Cartographic Visualization Methods)	3
GEOG 4430/6430-4430L/6430L (Advanced Image Analysis and Photogrammetry)	3
GEOG 4450/6450 (Digital Image Analysis)	3
GEOG 4460/6460 (Field Methods in Remote Sensing)	3
GEOG 4470/6470-4470L/6470L (Geospatial Analysis)	3
GEOG 4570/6570-4570L/6570L (Advanced Geographic Information Science)	3
HORT 4095/6095 (GPS/GIS Applications for Landscape Managers)	3
STAT 4360/6360 (Statistical Software Programming)	3
*other courses may be substituted with advisor approval.	
<b>Total Semester Credit Hours</b>	<b>120</b>





UNIVERSITY OF  
**GEORGIA**

Warnell School of Forestry and Natural Resources  
Forestry, Fisheries and Wildlife, Water and Soil Resources  
Natural Resources Recreation and Tourism  
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March 20, 2017

Dr. Pamela Whitten  
Senior Vice President for Academic Affairs and Provost  
203 Administration Building  
University of Georgia  
Athens, Georgia 30602-1651

Dear Provost Whitten:

The Warnell School of Forestry and Natural Resources is proposing to change the name of the Water and Soil Resources major to Natural Resource Management and Sustainability. Under the proposed name change, the current Water and Soil Resources major will become an area of emphasis, along with an area of emphasis in Geospatial Information Science. The proposed name will better reflect the broader range of natural resource disciplines represented under the major.

Water and soil are the foundations of natural resources and are fundamental to all natural resource management. Retaining the water and soil discipline in Warnell is important in meeting the School's strategic goals and in supporting the other majors. Additionally, industry, government agencies, and non-governmental organizations are seeking graduates with natural resource backgrounds that have primary training geospatial analysis. Thus, adding the Geospatial Information Science area of emphasis will allow us to produce GIS analysts who also have a solid foundation in natural resource management that many of our employers desire.

Thank you for your consideration. Please contact me if you have questions.

Sincerely,

W. Dale Greene  
Dean



UNIVERSITY OF  
**GEORGIA**

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Franklin College of Arts and Sciences  
*Department of Geography*

February 27, 2017

Dr. Pamela Whitten  
Senior Vice President for Academic Affairs & Provost  
University of Georgia  
203 Administration Building  
Athens, GA 30602-1651

Dear Provost Whitten,

The Department of Geography supports Warnell School of Forestry and Natural Resources proposed revision of its Professional Program Curriculum. Geography courses are listed as electives in both Areas of Emphasis (Water and Social Resources and Geospatial Information Science). We will be happy to welcome Warnell students into these courses. There are also Geography courses listed in the core required courses for the Geospatial Information Science Area of Emphasis. These courses will be able to accommodate Warnell students and will be regularly offered so that students can effectively plan their programs of study. We are delighted to have Geography courses included and support the proposed revision of these programs as they involve training in geographic skills.

Sincerely,

Steven R. Holloway  
Professor and Head  
[holloway@uga.edu](mailto:holloway@uga.edu)

## Approvals on File

**Proposal:** Major Name Change from Water and Soil Resources (B.S.F.R.) to Natural Resource Management and Sustainability (B.S.F.R.) with a new Area of Emphasis in Water and Soil Resources and a new Area of Emphasis in Geospatial Information Science

**Department:** Warnell School of Forestry and Natural Resources

**College:** Warnell School of Forestry and Natural Resources

**Proposed Effective Term:** Fall 2017

### School/College:

- Warnell School of Forestry and Natural Resources Dean, Dr. W. Dale Greene, 3/20/17

### Additional Support:

- Certificate of Sustainability Director, Dr. Ron Balthazor, 3/24/17
- Geography Department Head, Dr. Steven Holloway, 2/27/17