

Reed, Katie

From: Neal, Steve
Sent: Wednesday, March 23, 2016 9:42 AM
To: Smith, Randy
Cc: Martin, Linda; Reed, Katie
Subject: Requesting CAA Approval for Revision of Forestry, Fisheries and Wildlife Major
Attachments: Forestry, Fisheries & Willdlife Revision Au2016.pdf

Randy,

The School of Environment and Natural Resources (SENR) is seeking University Council on Academic Affairs approval for revision of the Forestry, Fisheries and Wildlife (FFW) undergraduate major as outlined in the attached proposal effective autumn semester 2016. Total credit hours for the major is being increased to 122 to accommodate the addition in credit hours to one of the required core major courses (ENR 3700). In addition, the FFW major incorporates professional certification requirements for each of the three focus areas of the curriculum which prevents reducing the total credit hours. As a part of this revision, each of the specializations are being aligned to require 51 credit hours, and the Urban Forestry and Wildlife Specialization is being removed. SENR does not currently have an urban forester on the faculty to support this specialization. The few remaining students (less than 5) enrolled in this specialization are being assisted in completing the degree through appropriate course substitutions.

This proposal was developed and approved by the Wildlife faculty within SENR and subsequently approved by the SENR Academic Affairs Committee. The proposal was also reviewed and endorsed by the College of Food, Agricultural, and Environmental Sciences Academic Affairs Committee.

Let me know if any additional information is needed in support of this request. Thank you.

Steve



Steven M. Neal, Ph.D.

Professor and Assistant Dean for Academic Affairs
College of Food, Agricultural, and Environmental Sciences
100E Agricultural Administration, 2120 Fyffe Rd. Columbus, OH 43210
Office: 614-292-1734
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January 12, 2016

Dr. Steven Neal
Assistant Dean
2120 Fyffe Road
100 Agricultural Admin Building
Columbus, OH 43210
CAMPUS

Dear Dr. Neal,

Our Academic Affairs Committee along with faculty and staff in the School of Environment & Natural Resources (SENR) recently completed a review of our Forestry, Fisheries and Wildlife (FFW) undergraduate major. SENR faculty, with my concurrence, are proposing several revisions to this major.

We are submitting a revised program of study for our existing major in Forestry, Fisheries and Wildlife. We last revised this program during the semester conversion.

The proposed revisions address several necessary changes. The most significant changes being requested are to increase the hours required to 122 and making each specialization consistent in hours. The increase of one hour to the curriculum is needed for two reasons. The first being that one of the SENR core courses required of all our majors, ENR 3700, is going through a course change to increase the credit hours to 3. This additional hour has to be accounted for in each of our majors by decreasing free or directed electives. FFW does not have consistent free or directed electives across the various specializations. The second reason is due to professional certifications. The FFW major incorporates professional certification requirements for each of the three focus areas into the curriculum. These professional certifications prevent us from reducing the curriculum by one hour to accommodate the increase in hours for ENR 3700.

We are removing the Urban Forestry and Wildlife specialization. SENR no longer has an urban forester on faculty and therefore cannot offer the specialization. There are less than 5 remaining students in this specialization and we are working with them to complete their program with appropriate course substitutions.

Other changes include several additions and deletions to some of the specializations. The Wildlife and Pre-Veterinary Science specialization incorporates the admission prerequisites for the College of Veterinary Medicine, which were revised this year. The specialization has been revised to reflect the new requirements. Other specializations have been revised to adjust the overall hours to 51 and still meet the certification requirements.

These changes were developed and approved by the Wildlife faculty in the School, and further approved by the Academic Affairs Committee.

Attached is the proposed program of study as well as the current program of study. We respectfully request that the Council on Academic Affairs review this proposal and provide their approval and/or recommendations to further improve our efforts to enhance this major.



THE OHIO STATE UNIVERSITY

I believe that the documents accompanying this cover letter fulfill the guidelines set forth by the Council of Academic Affairs. Should there be any additional information needed or requested by the Council, please contact me.

Thank you for your time and consideration of our proposal.

Sincerely,

Jeff Sharp, Ph.D.
Director and Professor

Attachments:

cc:

BUT FOR OHIO STATE

SENR
Forestry, Fisheries & Wildlife
 121 Hours - Summer Semester 2012

COURSE & NUMBER	Units	COURSE & NUMBER	Units
UNIVERSITY REQUIREMENTS (GE)		SENR REQUIREMENTS	
Writing Skills	6 Hours	SENR CORE REQUIREMENTS	21 Hours
English 1110 (First Year Writing Course)	3	ENR 1100 (ENR Survey)	1
ENR 2367 (Communicating Environmental and Natural Resources Information)	3	ENR 2100 (Intro to Environmental Science)	3
Arts & Humanities	12 Hours	ENR 2300 (Society and Natural Resources)	3
GE Literature Course ●▲	3	ENR 3300 (Intro to Forestry, Fisheries & Wildlife)	3
GE Arts Course ●▲	3	ENR 3400 (Psychology of Environmental Problems) or ENR 3500 (Community, Environment & Development)	3
GE History Course ▲	3	ENR 4000 (Natural Resources Policy)	3
GE Culture & Ideas or other Humanities course ●▲ [Recommended: ENR 3470 (Religion & Environmental Values in America)]	3	ENR 3700 (Intro to Spatial Info for Natural Resources)	2
Social Sciences	6 Hours	ENR 4900.02 (Senior Capstone) (Natural Resources Mgt)	3
Rural Sociology 1500 ● (Recommended) or GE Social Science ●▲	3	FFW MAJOR SPECIALIZATIONS:	
AED Econ 2001 or Economics 2001.01 (Microeconomics)	3	Fisheries & Aquatic Science	51
Diversity Courses	overlapping	Forest Ecosystem Science & Management	51
Social Diversity in US ●	----	Forestry & Wildlife (dual specialization)	52-53
Global Studies Course 1 ▲	----	Wildlife & Fisheries Science (dual specialization)	51
Global Studies Course 2 ▲	----	Wildlife & Pre-Veterinary Science (pre-professional)	54
Data Analysis, Quantitative & Logical Skills	8 Hours	Wildlife Science	50
ENR 2000 (Recommended) or GE Equivalent Statistics/ Data Analysis course	3	<i>Note: dual specializations may required additional time and coursework to complete degree requirements</i>	
Math 1156 or 1151 (Calculus for the Biological Sciences)	5		
Natural Sciences	17 Hours		
Chemistry 1210 (General Chemistry I)	5		
Biology 1113 (Biological Sciences: Energy Transfer & Development)	4		
Biology 1114 (Biological Sciences: Form, Function, Diversity, & Ecology) or an additional Biological Science or Physical Science Course*	4		
ENR 3000 (Soil Science)	3		
ENR 3001 (Soil Science Laboratory)	1		
Free Electives	0 – 1 Hours	MINIMUM HRS FOR GRADUATION (varies per specialization)	121 Hours

*See note on specializations for Fisheries & Aquatic Sciences and Wildlife & Fisheries

Fisheries and Aquatic Sciences Specialization	Units	
Fisheries and Aquatic Sciences	19-20	
ENR 5342 Principles of Fisheries Ecology & Management	3	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates	3	
ENR 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5348 Conservation & Management of Aquatic Populations	3	
ENR 5280 Stream Ecology	4	
Additional class in Fisheries and Aquatic Sciences- Suggestions include: ENR 5345 Methods in Aquatic Ecology (4), ENR 5355 Aquaculture (3), ENR 5250.01 Wetland Ecology and Restoration (3), <i>Note: any course not chosen may be taken as a Specialization Elective.</i>	3-4	
Additional Biological Sciences	11	
EEOB 3310 Evolution	4	
EEOB 3320 Organismal Diversity	3	
EEOB 3410 Ecology	4	
Additional Physical Sciences	8	
ENR 3285 Watershed Hydrology	3	
CHEM 1220 General Chemistry II	5	
Specialization Electives	13	
Elective courses 2000-level and above that support major with advisor consent. Potential Options :		
EEOB 3420 Behavioral Ecology	3 - 4	
EEOB 5420 Aquatic Ecosystems—Ecology of Inland Waters	1.5 - 4	
EEOB 5430 Aquatic Ecosystems—Fish Ecology	1.5 - 4	
EEOB 5920 Field Biology of Aquatic and Wetland Plants (Stone Lab)	3 - 4	
EEOB 5930 Ichthyology (Stone Lab)	3 - 4	
ENR 3280 Water Quality Management	2	
ENR 5355 Aquaculture	3	
GEOG 5220 Fundamentals of GIS (<i>beginning AU15 course # changes to 5210</i>)	3	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
<i>Other courses may be added with faculty advisor approval.</i>		
University GE Total/SENR Core Total	70	
Fisheries and Aquatic Science Major Option Total	51	
Degree Total	121	

Recommended Electives (for grad school, not counted in degree total) *	4*	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry	4	

Recommended Additional Courses (for American Fisheries Society certification, not counted in degree total)		
One Additional Communications Course- suggestions include: COMM 3620 Intro to Interpersonal Communication, COMM 2110 Principles of Effective Public Speaking, ENR 3611 Foundations for Environmental Communications, Education and Interpretation, ENR 4611 Environmental Interpretation & Visitor Services	2 - 3	
Physical Science- If Physics 1200 is taken (from Specialization Electives above), no additional physical science course is required. If Physics 1200 is not taken, additional course in chemistry, physics, soils, geology, hydrology, earth science, astronomy, or meteorology is required to meet certification requirements.		

Forest Ecosystem Science and Management Specialization	Units	
Required Hours	36	
AGSYSMGT 2370 Environmental Hydrology or ENR 3285 Watershed Hydrology	2-3	
ENR 3321 Biology and Identification of Woody Forest Plants	3	
ENR 3322 Forest Ecosystems	3	
ENR 3323 Forest Biometrics	3	
ENR 3333 Silviculture	3	
ENR 3600 Management of Public Lands	2	
ENR 3335.01 Introduction to Wildland Fire Management	2	
ENR 4320 Sustainable Forest Products	3	
ENR/AED 4310 Environmental & Natural Resources Economics	3	
ENR 5642 Environment and Natural Resources Administration	3	
ENR 5320 Forest Management	3	
ENR 5340 Forest Ecosystem Management	3	
PLNT PATH 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
Specialization Electives	15	
Elective Courses 2000-level and above that support major with advisor consent (soils, recreation, wildlife, geo-spatial analysis, etc.)		
University GE Total/SENR Core Total	70	
Forest Ecosystem Science and Management Major Option Total	51	
Degree Total	121	

Forestry and Wildlife Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	7	
EEOB 3310 Evolution	4	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates or ENR 5350.02 Taxonomy and Behavior of Fishes or EEOB 3320 Organismal Diversity	3	
Botany	2	
EEOB 2210 Biodiversity of Ohio- Plants	2	
Additional Physical Sciences	5	
PHYSICS 1200 General Physics: Mechanics, Kinematics, Fluids, Waves	5	
Communications	3	
ENR 4611 Environmental Interpretation & Visitor Services	3	
Policy Administration and Law	2-3	
ENR 5649 Wildlife Conservation Policy or ENR 3600 Management of Public Lands (2)	2-3	
Forestry	21	
ENR 3321 Biology and Identification of Woody Forest Plants	3	
ENR 3322 Forest Ecosystems	3	
ENR 3323 Forest Biometrics	3	
ENR 3333 Silviculture	3	
ENR/AED Econ 4310 Environmental & Natural Resources Economics	3	
ENR 5320 Forest Management	3	
PLNT PATH 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
University GE Total/SENR Core Total	70	
Wildlife-Forestry Major Option Total	52-53	
Degree Total	122-123	

Recommended Additional Courses (for TWS certification, not counted in degree total) *	3*	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking or ENR 4611 Environmental Interpretation & Visitor Services	3	
Recommended Electives (for grad school, not counted in degree total) *	9*	
CHEM 1220 General Chemistry II	5	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry	4	

Wildlife and Fisheries Sciences Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	4	
EEOB 3310 Evolution	4	
Botany	5	
EEOB 2210 Biodiversity of Ohio- Plants	2	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Communications	6	
ENR 4611 Environmental Interpretation & Visitor Services	3	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Fisheries and Aquatic Science	13	
ENR 5342 Principles of Fisheries Ecology & Management	3	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates (3) or 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5280 Stream Ecology	4	
<i>One of the following classes:</i>		
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates (3), ENR 5350.02 Taxonomy and Behavior of Fishes (3), ENR 5348 Conservation and Management of Aquatic Populations (3), or ENR 5355 Aquaculture (3)	3	
Additional Physical Science	7	
ENR 3285 Watershed Hydrology	3	
CHEM 1220 General Chemistry II	5	
University GE Total/SENR Core Total	70	
Wildlife and Fisheries Science Major Option Total	51	
Degree Total	121	

Recommended Electives (for grad school, not counted in degree total) *	4*	
CHEM 2310 Organic Chemistry or BIOCHEM 4511 Intro Biochemistry	4	

Recommended Additional Courses (for American Fisheries Society certification, not counted in degree total)		
Physical Science- additional courses in chemistry, physics, soils, geology, hydrology, earth science, astronomy, and meteorology.		

Wildlife and Pre-Veterinary Science Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Botany	3	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Communications	3	
ENR 4611 Environmental Interpretation & Visitor Services	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Pre-Veterinary Requirements	33 - 34	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
PHYSICS 1201 Electricity & Magnetism, Optics, Modern Physics	5	
CHEM 1220 General Chemistry II	5	
CHEM 2510 Organic Chemistry I	4	
CHEM 2520 Organic Chemistry II	4	
BIOCHEM 4511 Introduction to Biological Chemistry	4	
MICRBIOL 4000 Basic & Practical Microbiology or MICRBIOL 4100 General Microbiology	4 - 5	
MOLGEN 4500 General Genetics	3	
University GE Total/SENR Core Total	70	
Wildlife and Pre-Veterinary Science Major Option Total	54	
Degree Total	124	

Recommended Additional Courses (for TWS certification, not counted in degree total)*	5 - 6*	
COMM 3620 Intro to Interpersonal Communications or COMM 2110 Principles of Effective Public Speaking	3	
ENR 3321 Biology & Identification of Woody Forest Plants or EEOB 2210 Biodiversity of Ohio- Plants	2 - 3	

Wildlife Science Specialization	Units	
Wildlife Management	8	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
ENR 5370 Management of Wildlife Habitat	2	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	7	
EEOB 3310 Evolution	4	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates or ENR 5350.02 Taxonomy and Behavior of Fishes or EEOB 3320 Organismal Diversity	3	
Botany	5	
EEOB 2210 Biodiversity of Ohio- Plants	2	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Additional Physical Sciences	15	
CHEM 1220 General Chemistry II	5	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
PHYSICS 1201 Electricity & Magnetism, Optics, Modern Physics	5	
Communications	6	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
ENR 4611 Interpretation & Visitor Services	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Free Elective	1	
University GE Total/SENR Core Total	70	
Wildlife Science Major Option Total	51	
Degree Total	121	

Recommended Elective (for grad school, not counted in degree total) *	4*	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry	4	

CHANGES HIGHLIGHTED

SENR
Forestry, Fisheries & Wildlife
 121- 122 Hours - ~~Summer~~ Autumn Semester ~~2012~~ 2016

COURSE & NUMBER	Units	COURSE & NUMBER	Units
UNIVERSITY REQUIREMENTS (GE)		SENR REQUIREMENTS	
<i>Writing Skills</i>	6 Hours	SENR CORE REQUIREMENTS	24 22Hours
English 1110 (First Year Writing Course)	3	ENR 1100 (ENR Survey)	1
ENR 2367 (Communicating Environmental and Natural Resources Information)	3	ENR 2100 (Intro to Environmental Science)	3
Arts & Humanities	12 Hours	ENR 2300 (Society and Natural Resources)	3
GE Literature Course ●▲	3	ENR 3300 (Intro to Forestry, Fisheries & Wildlife)	3
GE Arts Course ●▲	3	ENR 3400 (Psychology of Environmental Problems) or ENR 3500 (Community, Environment & Development)	3
GE History Course ▲	3	ENR 4000 (Natural Resources Policy)	3
GE Culture & Ideas or other Humanities course ●▲ [Recommended: ENR 3470 (Religion & Environmental Values in America)]	3	ENR 3700 (Intro to Spatial Info for Natural Resources)	3
Social Sciences	6 Hours	ENR 4900.02 (Senior Capstone) (Natural Resources Mgt)	3
Rural Sociology 1500 ● (Recommended) or GE Social Science ●▲	3	FFW MAJOR SPECIALIZATIONS:	
AED Econ 2001 or Economics 2001.01 (Microeconomics)	3	Fisheries & Aquatic Science	51
Diversity Courses	overlapping	Forest Ecosystem Science & Management	51
Social Diversity in US ●	----	Forestry & Wildlife (dual specialization)	52-53 51
Global Studies Course 1 ▲	----	Wildlife & Fisheries Science (dual specialization)	51
Global Studies Course 2 ▲	----	Wildlife & Pre-Veterinary Science (pre-professional)	54 51
Data Analysis, Quantitative & Logical Skills	8 Hours	Wildlife Science	50 51
ENR 2000 (Recommended) or GE Equivalent Statistics/ Data Analysis course	3	<i>Note: dual specializations may require additional time and coursework to complete degree requirements</i>	
Math 1156 or 1151 (Calculus for the Biological Sciences)	5		
Natural Sciences	17 Hours		
Chemistry 1210 (General Chemistry I)	5		
Biology 1113 (Biological Sciences: Energy Transfer & Development)	4		
Biology 1114 (Biological Sciences: Form, Function, Diversity, & Ecology) or an additional Biological Science or Physical Science Course*	4		
ENR 3000 (Soil Science)	3		
ENR 3001 (Soil Science Laboratory)	1		
Free Electives	0 - 1 Hours	MINIMUM HRS FOR GRADUATION (varies per specialization)	121 122Hours

Comment [RLJ1]: Course change request submitted to increase to 3 hours

Comment [RLJ2]: All specializations will be 51 hours

Comment [RLJ3]: All specializations will be 51 hours

Comment [RLJ4]: All specializations will be 51 hours

Comment [RLJ5]: Note no longer required

Comment [RLJ6]: No free electives

Comment [RLJ7]: Total hours will be 122

*See note on specializations for Fisheries & Aquatic Sciences and Wildlife & Fisheries

Fisheries and Aquatic Sciences Specialization	Units	
Fisheries and Aquatic Sciences	19-20	
ENR 5342 Principles of Fisheries Ecology & Management	3	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates	3	
ENR 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5348 Conservation & Management of Aquatic Populations	3	
ENR 5280 Stream Ecology	4	
Additional class in Fisheries and Aquatic Sciences- Suggestions include: ENR 5345 Methods in Aquatic Ecology (4), ENR 5355 Aquaculture (3), ENR 5250.01 Wetland Ecology and Restoration (3), <i>Note: any course not chosen may be taken as a Specialization Elective.</i>	3-4	
Additional Biological Sciences	11	
EEOB 3310 Evolution	4	
EEOB 3320 Organismal Diversity	3	
EEOB 3410 Ecology	4	
Additional Physical Sciences	8	
ENR 3285 Watershed Hydrology	3	
CHEM 1220 General Chemistry II	5	
Specialization Electives	12-13	
Elective courses 2000-level and above that support major with advisor consent. Potential Options :		
EEOB 3420 Behavioral Ecology	3 - 4	
EEOB 5420 Aquatic Ecosystems—Ecology of Inland Waters	1.5 - 4	
EEOB 5430 Aquatic Ecosystems—Fish Ecology	1.5 - 4	
EEOB 5920 Field Biology of Aquatic and Wetland Plants (Stone Lab)	3 - 4	
EEOB 5930 Ichthyology (Stone Lab)	3 - 4	
ENR 3280 Water Quality Management	2	
ENR 5355 Aquaculture	3	
GEOG 5220 Fundamentals of GIS (<i>beginning AU15 course # changes to 5210</i>)	3	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
<i>Other courses may be added with faculty advisor approval.</i>		
University GE Total/SENR Core Total	70 71	
Fisheries and Aquatic Science Major Option Total	51	
Degree Total	121 122	

Recommended Electives (for grad school, not counted in degree total) *	4*	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	

Recommended Additional Courses (for American Fisheries Society certification, not counted in degree total)		
One Additional Communications Course- suggestions include: COMM 3620 Intro to Interpersonal Communication, COMM 2110 Principles of Effective Public Speaking, ENR 3611 Foundations for Environmental Communications, Education and Interpretation, ENR 4611 Environmental Interpretation & Visitor Services	2 - 3	
Physical Science- If Physics 1200 is taken (from Specialization Electives above), no additional physical science course is required. If Physics 1200 is not taken, additional course in chemistry, physics, soils, geology, hydrology, earth science, astronomy, or meteorology is required to meet certification requirements.		

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Forest Ecosystem Science and Management Specialization	Units	
Required Hours	36-37	
AGSYSMGT 2370 Environmental Hydrology or ENR 3285 Watershed Hydrology	2-3	
ENR 3321 Biology and Identification of Woody Forest Plants	3	
ENR 3322 Forest Ecosystems	3	
ENR 3323 Forest Biometrics	3	
ENR 3333 Silviculture	3	
ENR 3600 Management of Public Lands	2	
ENR 3335.01 Introduction to Wildland Fire Management	2	
ENR 4320 Sustainable Forest Products	3	
ENR/AED 4310 Environmental & Natural Resources Economics	3	
ENR 5642 Environment and Natural Resources Administration	3	
ENR 5320 Forest Management	3	
ENR 5340 Forest Ecosystem Management	3	
PLNT PATH 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
Specialization Electives	14-15	
Elective Courses 2000-level and above that support major with advisor consent (soils, recreation, wildlife, geo-spatial analysis, etc.)		
University GE Total/SENR Core Total	70-71	
Forest Ecosystem Science and Management Major Option Total	51	
Degree Total	121 122	

Forestry and Wildlife Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	7	
EEOB 3310 Evolution	4	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates or ENR 5350.02 Taxonomy and Behavior of Fishes or EEOB 3320 Organismal Diversity	3	
Botany	2	
EEOB 2210 Biodiversity of Ohio- Plants	2	
Additional Physical Sciences	5	
PHYSICS 1200 General Physics: Mechanics, Kinematics, Fluids, Waves	5	
Communications	3	
ENR 4611 Environmental Interpretation & Visitor Services	3	
Policy Administration and Law	2-3	
ENR 5649 Wildlife Conservation Policy or ENR 3600 Management of Public Lands (2)	2-3	
Forestry	21	
ENR 3321 Biology and Identification of Woody Forest Plants	3	
ENR 3322 Forest Ecosystems	3	
ENR 3323 Forest Biometrics	3	
ENR 3333 Silviculture	3	
ENR/AED Econ 4310 Environmental & Natural Resources Economics	3	
ENR 5320 Forest Management	3	
PLNT PATH 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
Directed Electives (2000 level or above with faculty mentor approval)	3-4	
University GE Total/SENR Core Total	70	
Wildlife-Forestry Major Option Total	52-53	
Degree Total	122-123	

Comment [RLJ8]: Addition of 3 Directed Elective hours

Comment [RLJ9]: New total is 71

Comment [RLJ10]: New total 51

Comment [RLJ11]: New degree total is 122

Recommended Additional Courses (for TWS certification, not counted in degree total) *	3*	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking or ENR 4611-Environmental Interpretation & Visitor Services	3	
Recommended Electives (for grad school, not counted in degree total) *	9*	
CHEM 1220 General Chemistry II	5	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	
Physics 1200 General Physics: Mechanics, Kinematics, Fluids, Waves	5	

Comment [RLJ12]: Remove, this course is required above

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Comment [RLJ13]: Moved from required to recommended

Wildlife and Fisheries Sciences Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	4	
EEOB 3310 Evolution	4	
Botany	5	
EEOB 2210 Biodiversity of Ohio- Plants	2	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Communications	6	
ENR 4611 Environmental Interpretation & Visitor Services	3	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Fisheries and Aquatic Science	13	
ENR 5342 Principles of Fisheries Ecology & Management	3	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates (3) or 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5280 Stream Ecology	4	
<i>One of the following classes:</i>		
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates (3), ENR 5350.02 Taxonomy and Behavior of Fishes (3), ENR 5348 Conservation and Management of Aquatic Populations (3), or ENR 5355 Aquaculture (3)	3	
Additional Physical Science	78	
ENR 3285 Watershed Hydrology	3	
CHEM 1220 General Chemistry II	5	
University GE Total/SENR Core Total	79	
Wildlife and Fisheries Science Major Option Total	51	
Degree Total	124	
Recommended Electives (for grad school, not counted in degree total) *	4*	
CHEM 2310 Organic Chemistry or BIOCHEM 4511 Intro Biochemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	
Recommended Additional Courses (for American Fisheries Society certification, not counted in degree total)		
Physical Science- additional courses in chemistry, physics, soils, geology, hydrology, earth science, astronomy, and meteorology.		

Comment [RLJ14]: New total is 71

Comment [RLJ15]: New degree total is 122

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Wildlife and Pre-Veterinary Science Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Botany	3	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Communications	3	
ENR 4611 Environmental Interpretation & Visitor Services	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Pre-Veterinary Requirements	33 — 34 25	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
PHYSICS 1201 Electricity & Magnetism, Optics, Modern Physics	5	
CHEM 1220 General Chemistry II	5	
CHEM 2510 Organic Chemistry I	4	
CHEM 2520 Organic Chemistry II	4	
BIOCHEM 4511 Introduction to Biological Chemistry	4	
MICRBIOL 4000 Basic & Practical Microbiology or MICRBIOL 4100 General Microbiology	4 5	
PHYSIO 3200 Physiology	5	
MOLGEN 4500 General Genetics	3	
COMM 2110 or 2131	3	
University GE Total/SENR Core Total	70 71	
Wildlife and Pre-Veterinary Science Major Option Total	54 51	
Degree Total	124 122	

Comment [RLJ16]: Moving this into its own category of additional physical sciences

Comment [RLJ17]: new vet med requirement is MICRBIO 4000

Comment [RLJ18]: addition of COMM 2110 or 2131

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Recommended Additional Courses (for TWS certification, not counted in degree total)*	5-6*2	
COMM 3620 Intro to Interpersonal Communications or COMM 2140 Principles of Effective Public Speaking	3	
ENR 3321 Biology & Identification of Woody Forest Plants or EEOB 2210 Biodiversity of Ohio- Plants	2-3	

Comment [RLJ19]: no longer needed since the new vet med prerequisites include an additional communications course

Comment [RLJ20]: ENR 3321 is already required above

Wildlife Science Specialization	Units	
Wildlife Management	8	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
ENR 5370 Management of Wildlife Habitat	2	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	7	
EEOB 3310 Evolution	4	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates or ENR 5350.02 Taxonomy and Behavior of Fishes or EEOB 3320 Organismal Diversity	3	
Botany	5	
EEOB 2210 Biodiversity of Ohio- Plants	2	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Additional Physical Sciences	15	10
CHEM 1220 General Chemistry II	5	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
PHYSICS 1201 Electricity & Magnetism, Optics, Modern Physics	5	
Communications	6	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
ENR 4611 Interpretation & Visitor Services	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Free Elective Directed Electives (2000 level or above with faculty mentor approval)	1	6
University GE Total/SENR Core Total	70	71
Wildlife Science Major Option Total	51	
Degree Total	121	122

Recommended Elective (for grad school, not counted in degree total) *	4*	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	

Comment [RLJ21]: moving this to Directed Elective category with a note that it is recommended for grad school

SENR
Forestry, Fisheries & Wildlife
 122 Hours - Autumn Semester 2016

COURSE & NUMBER	Units	COURSE & NUMBER	Units
UNIVERSITY REQUIREMENTS (GE)		SENR REQUIREMENTS	
Writing Skills	6 Hours	SENR CORE REQUIREMENTS	22 Hours
English 1110 (First Year Writing Course)	3	ENR 1100 (ENR Survey)	1
ENR 2367 (Communicating Environmental and Natural Resources Information)	3	ENR 2100 (Intro to Environmental Science)	3
Arts & Humanities	12 Hours	ENR 2300 (Society and Natural Resources)	3
GE Literature Course ●▲	3	ENR 3300 (Intro to Forestry, Fisheries & Wildlife)	3
GE Arts Course ●▲	3	ENR 3400 (Psychology of Environmental Problems) or ENR 3500 (Community, Environment & Development)	3
GE History Course ▲	3	ENR 4000 (Natural Resources Policy)	3
GE Culture & Ideas or other Humanities course ●▲ [Recommended: ENR 3470 (Religion & Environmental Values in America)]	3	ENR 3700 (Intro to Spatial Info for Natural Resources)	3
Social Sciences	6 Hours	ENR 4900.02 (Senior Capstone) (Natural Resources Mgt)	3
Rural Sociology 1500 ● (Recommended) or GE Social Science ●▲	3	FFW MAJOR SPECIALIZATIONS:	
AED Econ 2001 or Economics 2001.01 (Microeconomics)	3	Fisheries & Aquatic Science	51
Diversity Courses	overlapping	Forest Ecosystem Science & Management	51
Social Diversity in US ●	----	Forestry & Wildlife (dual specialization)	51
Global Studies Course 1 ▲	----	Wildlife & Fisheries Science (dual specialization)	51
Global Studies Course 2 ▲	----	Wildlife & Pre-Veterinary Science (pre-professional)	51
Data Analysis, Quantitative & Logical Skills	8 Hours	Wildlife Science	51
ENR 2000 (Recommended) or GE Equivalent Statistics/ Data Analysis course	3		
Math 1151 or 1156 (Calculus for the Biological Sciences)	5		
Natural Sciences	17 Hours		
Chemistry 1210 (General Chemistry I)	5		
Biology 1113 (Biological Sciences: Energy Transfer & Development)	4		
Biology 1114 (Biological Sciences: Form, Function, Diversity, & Ecology) or an additional Biological Science or Physical Science Course*	4		
ENR 3000 (Soil Science)	3		
ENR 3001 (Soil Science Laboratory)	1		
		MINIMUM HRS FOR GRADUATION	122 Hours

*See note on specializations for Fisheries & Aquatic Sciences and Wildlife & Fisheries

Fisheries and Aquatic Sciences Specialization	Units	
Fisheries and Aquatic Sciences	19-20	
ENR 5342 Principles of Fisheries Ecology & Management	3	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates	3	
ENR 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5348 Conservation & Management of Aquatic Populations	3	
ENR 5280 Stream Ecology	4	
Additional class in Fisheries and Aquatic Sciences- Suggestions include: ENR 5345 Methods in Aquatic Ecology (4), ENR 5355 Aquaculture (3), ENR 5250.01 Wetland Ecology and Restoration (3), <i>Note: any course not chosen may be taken as a Specialization Elective.</i>	3-4	
Additional Biological Sciences	11	
EEOB 3310 Evolution	4	
EEOB 3320 Organismal Diversity	3	
EEOB 3410 Ecology	4	
Additional Physical Sciences	8	
ENR 3285 Watershed Hydrology	3	
CHEM 1220 General Chemistry II	5	
Specialization Electives	12-13	
Elective courses 2000-level and above that support major with advisor consent. Potential Options :		
EEOB 3420 Behavioral Ecology	3 - 4	
EEOB 5420 Aquatic Ecosystems—Ecology of Inland Waters	1.5 - 4	
EEOB 5430 Aquatic Ecosystems—Fish Ecology	1.5 - 4	
EEOB 5920 Field Biology of Aquatic and Wetland Plants (Stone Lab)	3 - 4	
EEOB 5930 Ichthyology (Stone Lab)	3 - 4	
ENR 3280 Water Quality Management	2	
ENR 5355 Aquaculture	3	
GEOG 5210 Fundamentals of GIS	3	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
<i>Other courses may be added with faculty advisor approval.</i>		
University GE Total/SENR Core Total	71	
Fisheries and Aquatic Science Major Option Total	51	
Degree Total	122	

Recommended Electives (for grad school, not counted in degree total) *	4*	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	

Recommended Additional Courses (for American Fisheries Society certification, not counted in degree total)		
One Additional Communications Course- suggestions include: COMM 3620 Intro to Interpersonal Communication, COMM 2110 Principles of Effective Public Speaking, ENR 3611 Foundations for Environmental Communications, Education and Interpretation, ENR 4611 Environmental Interpretation & Visitor Services	2 - 3	
Physical Science- If Physics 1200 is taken (from Specialization Electives above), no additional physical science course is required. If Physics 1200 is not taken, additional course in chemistry, physics, soils, geology, hydrology, earth science, astronomy, or meteorology is required to meet certification requirements.		

Forest Ecosystem Science and Management Specialization	Units	
Required Hours	36-37	
AGSYSMGT 2370 Environmental Hydrology or ENR 3285 Watershed Hydrology	2-3	
ENR 3321 Biology and Identification of Woody Forest Plants	3	
ENR 3322 Forest Ecosystems	3	
ENR 3323 Forest Biometrics	3	
ENR 3333 Silviculture	3	
ENR 3600 Management of Public Lands	2	
ENR 3335.01 Introduction to Wildland Fire Management	2	
ENR 4320 Sustainable Forest Products	3	
ENR/AED 4310 Environmental & Natural Resources Economics	3	
ENR 5642 Environment and Natural Resources Administration	3	
ENR 5320 Forest Management	3	
ENR 5340 Forest Ecosystem Management	3	
PLNT PATH 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
Specialization Electives	14-15	
Elective Courses 2000-level and above that support major with advisor consent (soils, recreation, wildlife, geo-spatial analysis, etc.)		
University GE Total/SENR Core Total	71	
Forest Ecosystem Science and Management Major Option Total	51	
Degree Total	122	

Forestry and Wildlife Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	7	
EEOB 3310 Evolution	4	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates or ENR 5350.02 Taxonomy and Behavior of Fishes or EEOB 3320 Organismal Diversity	3	
Botany	2	
EEOB 2210 Biodiversity of Ohio- Plants	2	
Communications	3	
ENR 4611 Environmental Interpretation & Visitor Services	3	
Policy Administration and Law	2-3	
ENR 5649 Wildlife Conservation Policy or ENR 3600 Management of Public Lands	2-3	
Forestry	21	
ENR 3321 Biology and Identification of Woody Forest Plants	3	
ENR 3322 Forest Ecosystems	3	
ENR 3323 Forest Biometrics	3	
ENR 3333 Silviculture	3	
ENR/AEDECON 4310 Environmental & Natural Resources Economics	3	
ENR 5320 Forest Management	3	
PLNT PATH 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
Directed Elective (2000 level or above with faculty mentor approval)	3-4	
University GE Total/SENR Core Total	71	
Wildlife-Forestry Major Option Total	51	
Degree Total	122	

Recommended Additional Courses (for TWS certification, not counted in degree total) *	3*	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
Recommended Electives (for grad school, not counted in degree total) *	14*	
CHEM 1220 General Chemistry II	5	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	
PHYSICS 1200 General Physics: Mechanics, Kinematics, Fluids, Waves	5	

Wildlife and Fisheries Sciences Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	4	
EEOB 3310 Evolution	4	
Botany	5	
EEOB 2210 Biodiversity of Ohio- Plants	2	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Communications	6	
ENR 4611 Environmental Interpretation & Visitor Services	3	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Fisheries and Aquatic Science	13	
ENR 5342 Principles of Fisheries Ecology & Management	3	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates (3) or 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5280 Stream Ecology	4	
<i>One of the following classes:</i>		
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates (3), ENR 5350.02 Taxonomy and Behavior of Fishes (3), ENR 5348 Conservation and Management of Aquatic Populations (3), or ENR 5355 Aquaculture (3)	3	
Additional Physical Science	8	
ENR 3285 Watershed Hydrology	3	
CHEM 1220 General Chemistry II	5	
University GE Total/SENR Core Total	71	
Wildlife and Fisheries Science Major Option Total	51	
Degree Total	122	

Recommended Electives (for grad school, not counted in degree total) *	4*	
CHEM 2310 Organic Chemistry or BIOCHEM 4511 Intro Biochemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510)	4	

Recommended Additional Courses (for American Fisheries Society certification, not counted in degree total)		
Physical Science- additional courses in chemistry, physics, soils, geology, hydrology, earth science, astronomy, and meteorology.		

Wildlife and Pre-Veterinary Science Specialization	Units	
Wildlife Management	6	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Botany	3	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Communications	3	
ENR 4611 Environmental Interpretation & Visitor Services	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Additional Physical Sciences	5	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves (can be used toward the 35 hour science elective vet med admission requirement)	5	
Pre-Veterinary Requirements	25	
CHEM 1220 General Chemistry II (prerequisite for Biochem 4511, can be used toward the 35 hour science elective vet med admission requirement)	5	
CHEM 2510 Organic Chemistry I (prerequisite for Biochem 4511, can be used toward the 35 hour science elective vet med admission requirement)	4	
PHYSIO 3200 Physiology	5	
BIOCHEM 4511 Introduction to Biological Chemistry	4	
MICRBIOL 4000 Basic & Practical Microbiology	4	
COMM 2110 Principles of Effective Public Speaking or 2131 Business and Professional Speaking	3	
University GE Total/SENR Core Total	71	
Wildlife and Pre-Veterinary Science Major Option Total	51	
Degree Total	122	
Recommended Additional Courses (for TWS certification, not counted in degree total)*	2	
EEOB 2210 Biodiversity of Ohio- Plants	2	

Admission to the OSU College of Veterinary Medicine requires 35 hours of science electives. In addition to chemistry, biology and physics, the following ENR courses are able to be counted as science electives: ENR 5360, 5362, 5364.01, 5364.02, 3321, and 2100.

Wildlife Science Specialization	Units	
Wildlife Management	8	
ENR 5360 Principles of Wildlife Ecology & Management	3	
ENR 5362 Wildlife Ecology Methods	3	
ENR 5370 Management of Wildlife Habitat	2	
Wildlife Biology	6	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology and Management	3	
Zoology	7	
EEOB 3310 Evolution	4	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates or ENR 5350.02 Taxonomy and Behavior of Fishes or EEOB 3320 Organismal Diversity	3	
Botany	5	
EEOB 2210 Biodiversity of Ohio- Plants	2	
ENR 3321 Biology & Identification of Woody Forest Plants	3	
Additional Physical Sciences	10	
CHEM 1220 General Chemistry II	5	
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5	
Communications	6	
COMM 3620 Intro to Interpersonal Communication or COMM 2110 Principles of Effective Public Speaking	3	
ENR 4611 Interpretation & Visitor Services	3	
Policy Administration and Law	3	
ENR 5649 Wildlife Conservation Policy	3	
Directed Elective (2000 level or above with faculty mentor approval)	6	
CHEM 2310 Introductory Organic Chemistry or BIOCHEM 4511 Intro to Biological Chemistry (prereq: CHEM 1220 or 1250 and 2310 or 2510) (recommended for graduate school)	4	
University GE Total/SENR Core Total	71	
Wildlife Science Major Option Total	51	
Degree Total	122	