

MSU Course Acceptability for TWS Certification of Professional Wildlife Biologists

Note: This document serves as a guideline to support application to The Wildlife Society's Associate Wildlife Biologist. Courses listed below should be acceptable to TWS for meeting category requirements, but final determination is made by the TWS certification board.

EDUCATIONAL CATEGORIES	
<p>A. Wildlife Management and Biology (12 hours minimum required) – At least one course (≥ 3 credits) must demonstrate training in understanding and manipulating wildlife habitat relationships and population dynamics in the context of objectives and influences established by human concerns and activities. Conservation biology courses are accepted if they contain a specific focus on wildlife management and decision making. One course (≥ 3 credits) must focus solely on the science of mammalogy, ornithology, or herpetology (this course must be taken at a college/university and cannot be substituted by experience). Courses that combine herpetology, mammalogy and/or ornithology will meet this requirement. Up to 3 credit hours of invertebrate biology courses can be counted as long as there is specific focus on natural resource management applications. Ichthyology, marine biology (except courses focusing on marine mammals, birds or reptiles), microbiology, or related courses will not count in this category, but will qualify in the Zoology category.</p>	Hours taken
WFA 4153 Principles of Wildlife Conservation & Management	
WFA 4273 Ecology & Management of Human-Wildlife Conflicts	
WFA 4283 Human-Wildlife Conflicts Techniques	
WFA 4243 Wildlife Techniques	
WFA 4373 Conservation in Agricultural Landscapes	
WFA 4394 Waterfowl Ecology and Management	
WFA 4473 Wildlife and Fisheries Practices	
WFA 4484 Upland Avian Ecology and Management	
WFA 4494 Large Mammal Ecology and Management	
WFA 4383 Wetland Ecology & Management	
WFA 4633 Problem Solving in Conservation Biology	
WFA 4423 Herpetology	
WFA 4433 Mammalogy	
WFA 4443 Ornithology	
Minimum of 12 hours required for Category A	
<p>B. Ecology (3 hours minimum required) – Courses in general plant or animal ecology (excluding human ecology) Examples of other acceptable courses include Ecosystem Ecology, Community Ecology, Environmental Ecology, Forest Ecology, Organismal Ecology, Population Ecology, and Natural Resource Ecology.</p>	Hours taken
WFA 3133 Applied Aquatic and Terr. Ecology	
WFA 4383 Wetland Ecology & Management	
BIO 3104 Ecology	
BIO 4213 Plant Ecology	
Minimum of 3 hours required for Category B	
<p>C. Zoology (9 hours minimum required) – Courses in taxonomy, biology, behavior, physiology, anatomy, or natural history of vertebrates or invertebrates. Courses in genetics, nutrition, physiology, disease, and other biology or general zoology courses are accepted. Credits in general genetics and general biology should be split evenly between the Zoology and Botany categories. Ichthyology or fisheries biology courses are accepted.</p>	Hours taken
WFA 4113 Animal Behavior	
WFA 4133 Fisheries Science	
WFA 4173 Fish Physiology	
WFA 4263 Wildlife Diseases	
WFA 4313 Fisheries Management	
WFA 4323 Wildlife Nutrition and Physiology	
WFA 4453 Ichthyology	
ADS 3014 Anatomy and Physiology	
ADS 4115 Animal Nutrition	
BIO 1134 Biological Science I, 2 credit hrs apply (of 4 available)	
BIO 1144 Biological Science II, 2 credit hrs apply (of 4 available)	
BIO 1504 Zoology	
BIO 2103 Cell Biology	
BIO 3103 Genetics	
BIO 3303 Parasitology	
BIO 3304 General Microbiology	
BIO 3504 Comparative Anatomy	

BIO 3514 Invertebrate Zoology	
BIO 3524 Biology of Vertebrates	
BIO 4404 Environmental Microbiology	
BIO 4413 Immunology	
BIO 4514 Animal Physiology	
EPP 4154 General Entomology	
EPP 4244 Aquatic Entomology	
EPP 4313 Forensic Entomology	
PO 4843 Avian Physiology	
VS 3014 Anatomy and Physiology	
Minimum of 9 hours required for Category C	
D. Botany Category (9 hours minimum required) – Courses in general botany, plant genetics, plant morphology, plant physiology or plant taxonomy. One of the following is accepted: dendrology, silvics, or silviculture. 3 hours must be a plant identification or taxonomy course	Hours taken
WFA 4223 Wildlife Plant Identification (<i>plant identification course</i>)	
BIO 1134 Biological Science I, 2 credit hrs (of 4 available)	
BIO 1144 Biological Science II, 2 credit hrs (of 4 available)	
BIO 2113 Plant Biology	
BIO 2213 Survey of Plant Kingdom	
BIO 4203 Taxonomy of Spermatophytes (<i>plant identification course</i>)	
BIO 4214 General Plant Physiology	
BIO 4224 Aquatic Botany	
EPP 4113 Plant Pathology	
FO 2113 Dendrology (<i>plant identification course</i>)	
FO4223/4221 Practice of Silviculture (not an option in combination with Dendrology)	
PSS 3313 Intro to Weed Science	
PSS 4633 Weed Biology/Ecology	
Minimum of 9 hours required for Category D	
E. Physical Sciences (9 hours minimum required) – Courses in physical sciences such as chemistry, physics, geology, or soils with least two disciplines represented	Hours taken
BCH 4013 Principles of Biochemistry	
CH 1043 Survey of Chemistry I or CH 1213 Chemistry I	
CH 1053 Survey of Chemistry II or CH 1223 Chemistry II	
CH 1051 Exp. Chemistry Lab or CH 1221 Chemistry Lab	
GR 1114 Physical Geography	
PH 1113 General Physics I	
PH 1123 General Physics II	
PSS 3303 Soils	
PSS 3301 Soils Lab	
Minimum of 9 hours required for Category E	
F. Basic Statistics (3 hours minimum required)	Hours taken
ST 2113 Statistics for Behavioral Sciences	
ST 3123 Intro. to Statistical Inferences	
Minimum of 3 hours required for Category F	
G. Quantitative Science (6 hours minimum required) – Courses in calculus, biometry, college algebra, advanced algebra, trigonometry, systems analysis, mathematical modeling, sampling, computer science, or other quantitative science. Elementary algebra, remedial algebra, and introductory personal computing courses do not count in this category. Geographical Information Systems courses may count if they incorporate analytical components through data collection, analysis, and interpretation.	Hours taken
WFA 4123 Wildlife and Fisheries Biometrics	
WFA 4253 Application of Spatial Technologies to Wildlife/Fish Mgmt.	
FO 3103 Computer Applications/Lab	
FO 4213 Forest Biometrics	
FO 4472/4471 GIS Nat. Res. Mgmt./Lab	
MA 1613 Calculus for Business/ Life Science Majors	
MA 1713 Calculus I	
ST 4213 Nonparametric Methods	
Minimum of 6 hours required for Category G	

H. Humanities and Social Sciences (9 hours minimum required) – Courses in economics, sociology, psychology, political science, government, history, literature or foreign language	Hours taken
AEC 2713 Introduction to Agricultural Economics	
EC 2113 Macroeconomics	
EC 2123 Microeconomics	
FO 4113 Forest Resource Economics	
PHI 1113 Introduction to Ethics	
SO 1003 Sociology	
PS 1113 American Government	
PSY 1013 Psychology	
MSU Social Science Electives	
MSU Humanities Electives	
Minimum of 9 hours required for Category H	
I. Communications (12 hours minimum required)- Courses designed to improve communication skills such as English composition, technical writing, journalism, public speaking, or use of mass media. A maximum of three semester hours each will be allowed for a completed master's thesis and Ph.D. dissertation. Courses in literature interpretation, foreign languages, and classes requiring a term paper, class projects, and seminars in non-communication courses generally will not count toward this category. However, non-communication courses designated by the college or university as communication-intensive (e.g., writing-intensive course) will be accepted in this category. The applicant must provide official university documentation describing how the course meets the communication-intensive requirement. Applicants may receive partial credit for non-communication courses that have a significant component dedicated to improving communication, such as senior thesis and other capstone courses, and natural resource-related seminars. A course syllabus or letter from an instructor describing the communication component of the course is required.	Hours taken
AELC 3203 Professional Writing ANR Human Sciences	
AELC 3333 Professional Presentations in Agriculture and Life Sciences	
CO 1003 Fund. of Public Speaking	
CO 1013 Introduction to Communication	
CO 1403 Introduction to the Mass Media	
CO 3343 Writing for the Media	
EDF 3413 Writing for Thinking	
EN 1103 Eng. Comp. I	
EN 1113 Eng. Comp. II	
EN 3313 Writing for the Workplace	
MGT 3213 Organizational Communication	
Minimum of 12 hours required for Category I	
J. Policy, Administration, and Law – Courses that demonstrate significant content or focus on natural resource policy and/ r administration, wildlife or environmental law, or natural resource/land use planning will apply in addition to courses that document contributions to the understanding of social, political, and ethical decisions for wildlife and natural resources management. Up to three semester hours in classes dealing with human dimension issues may count in this category, depending on course content. Conservation Biology courses that effectively integrate legal and policy aspects of conservation planning will count toward this category. Courses that are tools supporting professional practice, e.g., Landsat, introductory GIS techniques, or more general courses such as environmental science, resource management, law enforcement, criminology, political science, and introductory survey courses in conservation will not apply.	Hours taken
WFA 4353 Fish and Wildlife Policy and Law Enforcement	
WFA 4363 Wildlife and Fisheries Administration and Communication	
WFA 4463 Human Dimensions of Fish & Wildlife Mgt.	
FO 4343 Forest Administration and Organization	
FO 4353 Natural Resource Law	
FO 4413 Natural Resource Policy	
PS 4743 Environmental Policy	
Minimum of 6 hours required for Category J	

Initially created by Stephen Grado; Updated November 2010 by S. Riffell, B. Leopold and R. Singleton. Updated 2012, 2013, 2014 by Sam Riffell. Updated 2016, 2020, 2021 by Leslie Burger