Wildlife Tracks & Sign
2 Credits
WILD 291

Instructor

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Course Description

Wildlife Tracks & Sign develops observation skills that students can apply to future careers in wildlife biology and other natural resource fields. This course builds upon knowledge gained in biology and ecology classes and transforms this understanding into tangible field skills. Students learn to identify and interpret a wide range of wildlife sign and study the application of these skills into wildlife biology research methods.

Student Learning Outcomes

- To learn to interpret and identify track and sign of common wildlife species in Western Montana
- To understand how track and sign skills can be applied to wildlife management and conservation efforts
- Earn a Wildlife Track & Sign professional certification from CyberTracker North America

Assignments

10% - Participation
Grade is based on a quantitative behavior, judgment and attitude scoring rubric

25% - Field Journal
Students are required to make individual 5 field entries in a journal throughout the program. These entries are focused field notes designed to record observations in the field. Each entry is focused on one species that students wish to take the time to study in more depth.

40% - Final Evaluation
Students will be evaluated through an external certification process by a CyberTracker North America evaluator on their ability to correctly identify and interpret a diversity of track and sign in Swan Valley, MT. In addition to receiving a grade for performance on this evaluation, students that score above 69% will be awarded a certificate.

25% - Final Reflection

After the course students will have one week to submit a 500-750 word response to the question "Using examples from the course, how can knowledge of wildlife tracks and sign inform management and conservation?"

Grading Scale

A 100-94	A- 93-90	
B+ 87-89	B 84-86	B- 80-83
C+ 77-79	C 74-76	C- 70-73
D+ 67-69	D 64-66	D- 60-63
F <60		

Course Topics & Schedule

	Instruction Hours		Date
	Lecture	Lab	
Introduction to Tracks and Sign Students will be introduced to topics of study including gait patterns, foot morphologies, and animal behavior.	3	6	3/20
Track & Sign of Swan Valley Megafauna Students will integrate knowledge of behavior and biology of local megafauna, including wolves, mountain lion, bears, elk, and deer, to identify and interpret tracks and sign.	3	6	3/21
Track & Sign of Swan Valley Microfauna Students will integrate knowledge of behavior and biology of local microfauna, including rodents, weasels, birds, and insects, to identify and interpret tracks and sign.	3	6	3/22
Field Necropsy and Management Applications Students will study field methods of determining cause of death of animal carcasses and applications for management such as depredations on domestic livestock.	3	6	3/23
Case Study: Using Track & Sign to Monitor Rare Carnivores Students will study the Southwest Crown Rare Carnivore Monitoring Project as an application of wildlife track and sign to non-invasive data collection methods.	3	6	3/24
Track & Sign Evaluation Students will participate in a two-day, external evaluation of skills gained throughout the course with a potential to earn a professional certificate.		15	3/25-26
Total	15	45	

SVC Credit Definitions and Policy

Swan Valley Connection's college field programs are accredited through the University of Montana's Extended Credit program. The University of Montana's credit hour definitions are stated in procedure 201.35, adopted 5/8/14 and revised 2/11/16 in accordance with the Academic Standards and Curriculum Review Committee (ASCRC) procedures 201.40, 201.55, 203.6, the Board of Regents Policies 303.3, 309.1, and Code of Federal Regulations 34 (C.F.R.) 600.2. Approved by ASCRC, Graduate Council, and Faculty Senate

Credit Hour Definitions

Credits for all coursework completed at the University of Montana shall be awarded in accordance with the Department of Education's regulations as set forth in 34 C.F.R. § 600.2.

A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

1. One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester; or

2. At least an equivalent amount of work for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

The one hour of work referred to above is approximate and may be reasonably met with a 50-60-minute time period.

This definition is not intended to require a minimum amount of time in class, nor limit the scope or distribution over time of activities that may count toward the credit hour. Moreover, it only specifies the minimum amount of time. Departments and programs are free to apply higher workload requirements per credit hour.

Applications of the Definition

Credits awarded for short courses and workshops shall comply with ASCRC procedure 201.40 and BOR policy 309.1.

Laboratory work, practica, studio work, and similar activities may be awarded 1 credit per at least 3 hours of organized or independent academic activity per week for 15 weeks. Departments may establish a higher minimum time requirement per academic credit hour earned.

Activities may include a variety of items, but they should develop or apply student abilities consistent with the institution's or program's learning objectives.

Compressed Courses

Swan Valley Connections' field programs are designated as compressed courses and adhere to the policies under the University of Montana's Faculty Senate procedure number 201.40, adopted 9/13/11, in accordance with the Board of Regents Policy 309.1.

Compressed courses (i.e. courses which do not meet at the standard scheduled times for fall semester, winter session, spring semester, or one of the summer sessions) must adhere to BOR Policy 309.1- Course Credits: Short Courses and Workshops. This policy states that "The method for awarding credit for short courses and workshops should be consistent with the method used in the regular academic programs".

Swan Valley Connections Semester Credit Hours

Swan Valley Connections' college field programs award semester credit hours for courses using both traditional and experiential instruction methods in a compressed course format. The University of Montana's definitions of a credit hour are applied to Swan Valley Connections instructional methods as not less than:

1. Fifteen hours of traditional instruction in the form of direct faculty instruction and a minimum of 30 hours of out-of-class student work over the duration of the field program; or

2. Forty-five hours of experiential instruction in the form of laboratory work, site visits, service projects, practica, or other organized or independent academic activities that develop or apply student abilities consistent with the program's learning objectives.

To maintain the academic integrity of our college field programs, Swan Valley Connections will maintain the policy of requiring the following minimum credit ratios;

1. 2-credit courses will at minimum include 15 hours of direct faculty instruction with an accompanying 45 hours of experiential learning and 15 hours of out-of-class work in the form of graded assignments, course preparation, or readings.

2. 3-credit courses will at minimum include 15 hours of direct faculty instruction with an accompanying 90 hours of experiential learning and 30 hours of out-of-class work in the form of graded assignments, course preparation, or readings.

3. 4-credit courses will at minimum include 20 hours of direct faculty instruction with an accompanying 120 hours of experiential learning and 40 hours of out-of-class work in the form of graded assignments, course preparation, or readings.

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Swan Valley Connections instruction format requirements

Hours of Instruction				Hours of Instruction		
Direct Faculty	Experiential			Direct Faculty	Experiential	
	2 credits	3 credits	4 credits		3 credits	4 credits
15	45	90	-	38	21	66
16	42	87	-	39	18	63
17	39	84	-	40	15	60
18	36	81	-	41	12	57
19	33	78	-	42	9	54
20	30	75	120	43	6	51
21	27	72	117	44	3	48
22	24	69	114	45	-	45
23	21	66	111	46	-	42
24	18	63	108	47	-	39
25	15	60	105	48	-	36
26	12	57	102	49	-	33
27	9	54	99	50	-	30
28	6	51	96	51	-	27
29	3	48	93	52	-	24
30	-	45	90	53	-	21
31	-	42	87	54	-	18
32	-	39	84	55	-	15
33	-	36	81	56	-	12
34	-	33	78	57	-	9
35	-	30	75	58	-	6
36	-	27	72	59	-	3
37	-	24	69	60	-	-

Selected Readings

Allen ML, Wittmer HU, Houghtaling P, Smith J, Elbroch LM, Wilmers CC (2015) The Role of Scent Marking in Mate Selection by Female Pumas (Puma concolor). PLoS ONE 10(10): e0139087. doi:10.1371/ journal.pone.0139087

Brzeski, K. E., Gunther, M. S., & Black, J. M. (2013). Evaluating River Otter Demography Using Noninvasive Genetic Methods. *The Journal of Wildlife Management, 77*(8), 1523–1531. http://www.jstor.org/stable/24365353

D'Amico, M., Clevenger, A. P., Román, J., & Revilla, e. (2015). General Versus Specific Surveys: Estimating the Suitability of Different Road-Crossing Structures for Small Mammals. *The Journal of Wildlife Management, 79*(5), 854–860. http://www.jstor.org/stable/24365828

D'Eon, R. G. (2001). Using Snow-Track Surveys to Determine Deer Winter Distribution and Habitat. *Wildlife Society Bulletin (1973-2006), 29*(3), 879–887.
Todd J. Ulizio, Squires, J. R., Pletscher, D. H., Schwartz, M. K., Claar, J. J., & Ruggiero, L. F. (2006). The Efficacy of Obtaining Genetic-Based Identifications from Putative Wolverine Snow Tracks. *Wildlife Society Bulletin (1973-2006), 34*(5), 1326–1332. http://www.jstor.org/stable/4134266

McKelvey, K. S., von Kienast, J., Aubry, K. B., Koehler, G. M., Maletzke, B. T., Squires, J. R., Lindquist, E. L., Loch, S., & Schwartz, M. K. (2006). DNA Analysis of Hair and Scat Collected along Snow Tracks to Document the Presence of Canada Lynx. *Wildlife Society Bulletin (1973-2006), 34*(2), 451–455. http://www.jstor.org/stable/3785147

Southwestern Crown Carnivore Monitoring Team. 2018. Forest Carnivore Monitoring in the Southwestern Crown of the Continent: Baseline Report 2013-2016.

Stansbury, C. R., Ausband, D. E., Zager, P., Mack, C. M., Miller, C. R., Pennell, m. W., & Waits, l. P. (2014). A Long-Term Population Monitoring Approach for a Wide-Ranging Carnivore: Noninvasive Genetic Sampling of Gray Wolf Rendezvous Sites in Idaho, USA. *The Journal of Wildlife Management, 78*(6), 1040–1049. http://www.jstor.org/stable/43188238

Stonehouse K. F., Anderson, C. R. Jr., Peterson, M. E. & Collins D. R. (2016). Approaches To Field Investigations of Cause-Specific Mortality in Mule Deer. Technical Publication, 48 (1) Colorado Parks and Wildlife Issn 0084-8883