

**Hibernation Science Workshop Schedule 2023**

**Sunday, 6 August 2023**

Time	Room	Instructor	Topic
16:00	Nerland Dorm		Recommended activity: Tanana Valley State Fair for dinner (campus dining is closed) - no transportation provided

**Monday, 7 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast - Arctic JAVA opens at 7; Dine 49 opens at 7:30
8:30	Murie 104	Drew	Review of schedule and logistics - optional
9:00	Murie 104	Larson	Introductions [Kelly], people and themes [Icebreakers in small groups-->complex questions]
10:00	Murie 104		4 speakers (Brian, Kelly, Elena, Matt: Overview, One objectives, one question slide)
11:00			Break
11:15	Murie 104	Larson	Finish Intro talks and discussion
12:00			Lunch break - Pick food up from Museum Café
13:30	Murie 104	Barnes	Arctic ground squirrel husbandry; how to catch and keep them.
14:00	Murie 104	Drew/Rice	Regulations and compliance when working with USDA covered species in the US/AGS husbandry - best practices
14:30	Murie 104	Andrews	13-lined ground squirrel husbandry
		Gracheva	13-lined ground squirrel husbandry
15:30	Murie 104	Toien	Husbandry Bears in context of scientific questions
16:00	Murie 104	Drew/Rice	Tour of BiRD (group 1)
		Toien	Tour of bear facility (group 2)
		Drew/Rice	Tour of BiRD (group 2)
		Toien	Tour of bear facility (group 1)
18:00	Nerland Hall	Barnes	Meet at Nerland Hall for bus pick-up to 1170 Sundance Loop, Fairbanks, AK 99709
		Barnes	Transport to Barnes/York residence for dinner

**Tuesday, 8 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast-Arctic JAVA opens at 7; Dine 49 opens at 7:30
9:00	Murie 104	Barnes	Annual cycle of arctic ground squirrels, round the year we go.
10:00	Murie 104	Barnes	preparing, entry, steady-state, arousals, marmot synchrony
10:45			Break
11:00	Murie 104	Barnes	Compare energetics of hibernation between ags and bears
11:30	Murie 104	Toien	Thermoregulation vs metabolic suppression in hibernating black bears
12:00	Museum		Lunch - Pick food up from the museum café to take with you on the bus
12:30	Front of Murie Building		Transport to CRREL permafrost tunnel
13:00	Permafrost Tunnel		CRREL permafrost tunnel tour (Group 1)
			CRREL permafrost tunnel tour (Group 2)
15:00			Transport from CRREL permafrost tunnel
15:30	Murie 104	Tupone	Thermoregulatory Circuits
16:30	Murie 104	Tupone	Thermoregulatory Inversion
17:30	Dine 49-after 6PM enter through lower level of Wood Center		Dinner break
19:00	Dine49 (Wood Center, upstairs)	Daniello	Trail Walk/Campus Tour

**Wednesday, 9 August 2023**

Time	Room	Instructor	Topic
7:00	Meet at Arctic Java		Breakfast-Arctic JAVA opens at 7; Dine 49 opens at 7:30
7:30	Meet at Arctic Java	Larson	Overwintering strategies nature walk and bug collection Arctic Java
9:00	Murie 203/207	Larson	Ectotherm overwintering
12:30	Museum		Lunch Break - Pick up food from Museum Café, enjoy on campus
13:30	Murie 107	Bagriantsev	Biophysics of ion channels underlying temperature tolerance in hibernators
14:30	Murie 107	Gracheva	Neurophysiology of fluid/ionic balance regulation
15:30			Break - Museum for coffee
15:50	Murie 107	Gracheva	Neurophysiology of hunger/satiety
16:50	Murie 107	Gracheva	Optogenetics, in vivo imaging and fiber photometry - main challenges and potential solutions
18:00	Dine 49-after 6PM enter through lower level of Wood Center		Pick up hot meal to go from Dine 49 at 18:00
18:30	Nerland or Geogeson pending weather		Applying state-of-the-art neuroscience techniques in hibernating species - opportunities and barriers Journal club discussion of <a href="https://www.biorxiv.org/content/10.1101/2023.03.16.533067v1">https://www.biorxiv.org/content/10.1101/2023.03.16.533067v1</a>

**Thursday, 10 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast-Arctic JAVA opens at 7; Dine 49 opens at 7:30
9:00	Murie 104	Grabec-virtual	<a href="#">FaunaBio - Zoom link here</a>
10:00	Murie 104	Barnes	Low hanging fruit
10:15	Murie 104	Andrews	Genomics (historical) and metabolomics of hibernation
11:00	Murie 104	Andrews	Metabolic fuel use during hibernation
12:00	Museum		Lunch break - Pick up food from Museum Café
13:30	Murie 104	Andrews	Pros and cons of nonmodel organisms Genomic resources
14:00	Murie 104	Goropashnaya/Yoldi Bergua	Genomic resources Zoonomia; S Martin - "Squirrel Box" AGS and 13-lined ground squirrel genomes on NCBI
15:00	Murie 104	Rice	Carbon, nitrogen shuttling and recycling and insights of metabolomics and fluxomics in hibernators
16:00	Murie 104	Andrews/Sherrick	Metaboanalyst - <a href="https://www.metaboanalyst.ca/MetaboAnalyst/ModuleView.xhtml">https://www.metaboanalyst.ca/MetaboAnalyst/ModuleView.xhtml</a>
17:30	Dine 49-after 6PM enter through lower level of Wood Center		Dinner break
19:00	Geogeson Botanical Gardens		Music in the Garden

**Friday, 11 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast - Dine 49 opens at 7:30; Arctic Java is closed
9:00	Murie 104	Zieschang	Hand out COVID tests/Pick up test (for those going to Toolik)
9:00	Murie 104	Drew	Brain Energy Metabolism of hibernation
10:00	Murie 104	Drew	Resistance to cerebral ischemia/reperfusion injury
11:00	Murie 104	Goropashnaya	Resistance to muscle atrophy and ischemia/reperfusion injury
12:00	Museum		Lunch break - Pick up food from Museum Café
13:30	Murie 104	Toien	The downstate of hibernation in bears - a human sized hibernator
14:30	Murie 104	Toien	Scaling & respirometry 2-hour session. Pick one of the following:
15:30-17:30	Murie 230	Drew	Rigor and reproducibility of behavioral pharmacology of hibernation - journal club discussion (group 1) Arrive guidelines
15:30-17:30	WRRB 004	Andrews/Sherrick	More time with metaboanalyst (group 2)
15:30-17:30	Murie 130	Goropashnaya	Working with genomic resources (group 2) (bring laptop if possible)
18:00	Dine 49-after 6PM enter through lower level of Wood Center		Pick up hot meal to go from Dine 49
18:30	Murie, 3rd floor-south end by windows		Discussion- Seeking funding for hibernation research-Round table stories and discussion

**Saturday, 12 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast - Dine 49 opens at 7:30; Arctic Java is closed
9:00	Murie 104	Barnes	Heading towards spring, reproduction
9:30	Murie 104	Barnes	Loss and resumption of circadian rhythms in AGS
10:00	Murie 104	Williams - virtual	T3 signaling and activation of the reproductive axis
11:00	Murie 104	Drew	Biomarkers of the seasonal phenotypes and Translating the adenosine model of hibernation
12:00			Lunch at Farmers Market or Lunch at Dine 49 - carpool
14:00	Murie 104		Biomedical applications, translation and commercialization
	Murie 104	Drew	Customer Discovery and Traditional drug discovery-identify a novel target
14:15	Murie 104	Andrews	Biomedical applications of hibernation research
15:30	Murie 104	Andrews	Bringing a hibernation-based therapy to the marketplace
16:30			Meet charter bus at Nerland Hall Depart for Trail Breaker Kennels (\$30/person; 5-7:00 - <a href="https://trailbreakerkennel.com/summer-tours/">https://trailbreakerkennel.com/summer-tours/</a> ) - 1700-1900
19:00			Stop for food purchase on the way home from Trailbreaker Kennels Arctic Java and Museum closes at 4pm; Dine 49 closes at 3pm

**Sunday, 13 August 2023**

Time	Room	Instructor	Topic
			Breakfast and Lunch - Dine 49 opens at 7:30 and closes at 3pm; Arctic Java is closed
			Take COVID tests (for those going to Toolik) -report if positive
			Free Day - On Your Own. See map in welcome packet for restaurants within walking distance from campus.

**Monday, 14 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast at Dine 49 (opens at 7:30 a.m.) or Arctic Java (opens at 7:00 a.m.)
			Take COVID tests (for those going to Toolik)
9:00	Murie 104	Toien	How to design a bear hibernation facility
10:00	Murie 104	Rice	Surgical, husbandry and experimental design techniques and strategies for hibernators
11:00	Murie 104	Duddleston	Urea Nitrogen Salvage
12:00	Museum		Pick up food at Museum Cafe
12:30	Meet bus at Murie front entrance		Depart for LARS-AGS Breeding Facility Tour MRI tour with discussion of imaging in hibernation
14:30	Murie 104	Carl Murphy	
15:30	Murie 104		Closing remarks-History of hibernation research and where do we go from here?
16:30			<a href="https://www.research.net/r/2023Hibernation">Please complete the Anonymous Exit Survey (for those not going to Toolik) https://www.research.net/r/2023Hibernation</a> Dine 49 is open for dinner and closes at 18:00 Prepare for departure to Toolik

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**Tuesday, 15 August 2023**

Time	Room	Instructor	Topic
7:00			Pick up Breakfast and Lunch to go at Dine 49 at 7:00 a.m.
8:00			Depart for Toolik (Pick up from Nerland Hall)
19:00			Arrive at Toolik Evening Orientation and Room Assignment

**Wednesday, 16 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast
8:30			Tour of Research Station
12:00			Lunch
18:00			Tour of ground squirrel burrows, trapping demo in afternoon
19:00			Dinner
TBD	Toolik	Barnes	Climate changes is altering physiology and phenology of an arctic hibernator.

**Thursday, 17 August 2023**

Time	Room	Instructor	Topic
7:30			Breakfast
			Pack lunch and drinks
			Drive on bus to Atigun River
			Tour study site
			4-hour hike on either side of gorge to waterfall (5-mile round trip)

17:00	Toolik	Barnes	Return to station for dinner at 6pm
18:00			Dinner

<b>Friday, 18 August 2023</b>
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Time	Room	Instructor	Topic
7:00			Breakfast
			Pack lunch, drinks, snacks
8:00			Depart from Toolik
			<a href="https://www.research.net/r/2023Hibernation">Once in wifi range please complete the Anonymous Exit Survey at https://www.research.net/r/2023Hibernation</a>
19:00			Arrive to Fairbanks, on own thereafter