

Winter Backcountry Leader (Avalanche)

Lesson Plans and Instructor Schedule



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Instructor Schedule

The Winter Backcountry Leader (Avalanche) Training Program has been assembled based upon the following schedule: The first weekend is spent in the classroom (with applied exercises) to set a baseline of common knowledge. The second weekend is largely winter camping and survival techniques together with companion rescue exercises. The third weekend is day tripping used to apply group management, track-setting and hazard evaluation skills. The day tripping allows for thorough evening preparation, discussion and feedback. It also allows more practice with trip preparation given there would, in effect, be two day trips taking place over the weekend (one each day).

First Weekend - Classroom

Day 1 - Evening: 115 min (1.9 hrs.) plus breaks - An evening session to cover course introductions, outline as well as start with a session on weather information gathering

- Greetings and Course Introduction
- Identify Backcountry (winter) Hazards
- Weather Gathering Information

Day 2 – A full classroom day broken into morning and afternoon topics (5.7 hrs. plus lunch and breaks – approx. 8 hrs. total)

Morning: 182 min (3 hrs.) plus breaks

- Avalanche Terrain
- Factors Affecting Avalanche Conditions
- Pre-Trip Planning
- Communicating with Participants (pre-trip)
- Group Briefing
- Low Impact Travel

Afternoon: 160 min (2.7 hrs.) plus breaks

- Navigation

Day 3 – A full classroom day that is broken into morning and afternoon topics (6 hrs. plus lunch and breaks – approx. 8 hrs. total)

Morning: 195 min (3.25 hrs.) plus breaks

- Principles of Group Management
- Principles of Risk Management
- Winter Camping (theory)
- Menu Planning

Afternoon: 165 min (2.75 hrs.) plus breaks

- Emergency Response
- Companion Rescue (theory)
- Companion Rescue (dry land practice)

Second Weekend – Outing

This is largely a weekend (two nights) where there is minimal travel in an effort to practice a variety of winter shelters, companion rescue scenarios and fire lighting (emergency) skills.

Day 4 - Full Field Day (Overnight)

- Winter camping (tent camping skills)
- Kitchen Construction and Management
- Fire Lighting Skills
- Companion Rescue Scenarios

Day 5 - Full Field Day (Overnight)

- Snow Shelter Construction
- Emergency Shelter Construction
- Companion Rescue Scenarios

Day 6 - Pack up and return to trail head

- Debrief weekend

Third Weekend – Outing

The final weekend is a travel weekend comprised of day trips. The day trip format allows for practice prepping two different trips via the trip planning process for more practice and feedback. The weekend is largely applied theory with feedback and teachable moments for student growth.

Group Meeting and Briefing on Friday evening: Review trip planning, hazard evaluation, group management etc.

Day 7 - Evening: 60 min – Evening meeting and trip preparation

Day 8 - Full Field Day

- Participant led day trip incorporating, as practical, all theoretical trip planning, execution, and hazard management techniques
- Instructors should demo snow pack tests together with analysis of results (fracture character)
- Debrief the day

Day 9 - Full Field Day

- Participant led day trip incorporating, as practical, all theoretical trip planning, execution, and hazard management techniques
- Students incorporate snowpack tests into their hazard analysis
- Emergency bivy scenario
- Debrief the day

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
1 PM	Greeting & Course Intro	LP 1		Classroom	<ul style="list-style-type: none"> Welcome Emergency & Local contact numbers Course Agenda / Schedule Competencies and Assessment Waivers and ACC waiver delivery process 	<ul style="list-style-type: none"> Model course start Provide overview of course competencies Review equipment expectations Allow students to get to know each other 	A3, E2	<ul style="list-style-type: none"> Visual media Lecture Group interaction 	50
1 PM	Identify Backcountry (Winter) Hazards & Travel Considerations	LP 2	Ch. 3	Classroom	<ul style="list-style-type: none"> Brainstorm a list backcountry winter hazards (day and overnight) 	<ul style="list-style-type: none"> Identify backcountry winter hazards (day and overnight) one might encounter 	E4	<ul style="list-style-type: none"> Group discussion and interaction Discussion to serve as the topic list for the course 	20
1 PM	Weather Gathering Information	LP 3	Ch. 2	Classroom	<ul style="list-style-type: none"> Introduce basic weather concepts that are relevant to backcountry winter travel Review how weather affects the snowpack (and hazard) 	<ul style="list-style-type: none"> Explain the basic concepts of the weather Understand basic weather patterns Identify and interpret weather forecast information 	B1, B2	<ul style="list-style-type: none"> Lecture Visual Media Group Interaction Group Exercises 	45

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
2 AM	Avalanche Terrain Identification	LP 4	Ch. 1	Classroom	<ul style="list-style-type: none"> Review the concept of Avalanche Terrain and its characteristics Review the ATES ratings Introduce the technical model for ATES ratings 	<ul style="list-style-type: none"> Identify and describe parts of an avalanche path Describe the significant physical characteristics of avalanche terrain including: incline, aspect, elevation, ground roughness, forest cover- Apply a classification criteria to mountain terrain (ATES Model – Introduce the technical model) 	A8, J1	<ul style="list-style-type: none"> Lecture Visual media Terrain photo exercise Group participation in evaluating terrain & trip ratings 	40
2 AM	Factors Affecting Avalanche Conditions	LP 5	Ch. 1	Classroom	<ul style="list-style-type: none"> Review factors affecting avalanche conditions Where to find and monitor the Avalanche forecast Review how terrain and basic weather factors contribute to variability in the snowpack 	<ul style="list-style-type: none"> Describe how terrain affects the snowpack Describe how weather affects avalanche conditions Locate, review and monitor the avalanche bulletin Describe spatial variability 	I4, J4	<ul style="list-style-type: none"> Visual media Lecture Group interaction 	20

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
2 AM	Pre-Trip Planning	LP 6	Ch. 1 Ch. 2	Classroom	<ul style="list-style-type: none"> • Introduce and model the planning and decision making process • Integrate weather and avalanche forecasts into the planning process • Complete a pre-trip risk assessment • Model the completion of a Trip Plan 	<ul style="list-style-type: none"> • Select an appropriate backcountry trip for yourself and your participants • Establish trip objectives and participant requirements • Determine group size and leader/participant ratios • Gather relevant participant information (i.e. medical forms, waivers etc.) • Monitor Avalanche and Weather information • Develop a contingency plan • Prepare a Trip Plan 	A2, A4, A5, A7, A8, D4, E1, E3, N3, E5, E6, I4, I5, I6	<ul style="list-style-type: none"> • Lecture • Visual media • Group interaction • Group exercise 	60
2 AM	Communicating with Participants (pre-trip)	LP 7	Ch. 2	Classroom	<ul style="list-style-type: none"> • Effectively communicate pertinent trip details to the trip participants • Gather relevant participant information 	<ul style="list-style-type: none"> • Communicate trip details to participants 	A1,A3, A6,A7, C1, F3,I1, I2,	<ul style="list-style-type: none"> • Lecture • Visual media • Group interaction 	30

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
2 AM	Group Briefing (meeting point)	LP 8	Ch. 3	Classroom	<ul style="list-style-type: none"> Define what information needs to be conveyed to participants at the meeting point before proceeding on the outing. Clarify travel expectations 	<ul style="list-style-type: none"> Communicate and confirm trip details: equipment needs, risk propensity, duration, weather and hazard forecast (or any changed because of hazard forecast), group travel expectations, low impact travel considerations 	A1, A3, A6, C1, C5, E6	<ul style="list-style-type: none"> Lecture Visual media Group interaction 	20
2 AM	Low Impact Travel and Camping	LP 9	Ch. 4	Classroom	<ul style="list-style-type: none"> Understand low impact travel, camping and waste management techniques 	<ul style="list-style-type: none"> Describe low impact backcountry travel and camping practices 	C1, C2, C3	<ul style="list-style-type: none"> Lecture Visual Media Group Interaction 	30
2 PM	Navigation	LP 10	Ch. 5	Classroom	<ul style="list-style-type: none"> Understand the principles for navigation using a map, compass and GPS 	<ul style="list-style-type: none"> Use topographic maps Account for magnetic declination Effectively use a compass for navigation Use an altimeter to aid in navigation Interpret map features to terrain, and terrain to map features Resect ones position Use a GPS for navigation Navigate in a whiteout Prepare a route card 	G2, G3, G4, G5, G6	<ul style="list-style-type: none"> Lecture Visual Media Group Interaction Classroom Table Top Exercises 	160

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
3 AM	Principles of Group Management & Backcountry Travel	LP 11	Ch. 3	Classroom	<ul style="list-style-type: none"> Describe leadership and group management strategies in a winter setting in avalanche terrain 	<ul style="list-style-type: none"> Supervise and monitor participants Pace a group Manage transitions Manage group dynamics Resolve group conflicts Incorporate interpretive skills / knowledge to enhance participant experience Fit and Adjust a backpack Carry out basic equipment repair and maintenance 	D1, D3, D5, D6, D7, F1, F2,	<ul style="list-style-type: none"> Lecture Visual media Group interaction Show repair kit contents 	30

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
3 AM	Principles of Risk Management & Backcountry Travel	LP 12	Ch. 3	Classroom	<ul style="list-style-type: none"> Develop an understanding of situational awareness to recognize and mitigate hazards (human and natural) in a backcountry winter environment 	<ul style="list-style-type: none"> Understand the concepts of track setting in avalanche terrain Understand the importance in monitoring weather to aid in decision making Understand the importance to observe, record and interpret avalanche activity Understand snowpack tests to aid in decision making Use the Avaluator Slope Evaluation Tool to aid in decision making Identify factors that compromise group safety Identify wildlife hazards Safely cross rivers and lakes in winter Apply knowledge of terrain to aid in route finding Identify and mitigate Human Factors as a decision making influence 	D2, E 7, G1, J2, J3, J4, M1	<ul style="list-style-type: none"> Lecture Visual media Group interaction 	45

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
3 AM	Winter Camping	LP 13	Ch. 6	Classroom	<ul style="list-style-type: none"> Understand the principles of winter camping and shelter construction 	<ul style="list-style-type: none"> Describe the concepts of snow shelter design Describe the principles of emergency shelters Describe the principles of winter tent camping Describe the principles of site selection above and below tree line Describe the principles of meal planning and water collection in a winter environment Describe the principles of sleeping systems for winter camping Understand fire lighting concepts in a winter environment Describe the principles of kitchen design 	F3, L1, L2, L5, C2	<ul style="list-style-type: none"> Lecture Visual media Group interaction 	75
3 AM	Menu Planning for a Winter Environment	LP 14	Ch. 6	Classroom	<ul style="list-style-type: none"> Understand menu planning and stove considerations for a winter environment 	<ul style="list-style-type: none"> Plan appropriate meals for both single and multi-day winter outings Understand stove and fuel considerations for winter use 	L3, L4, L6	<ul style="list-style-type: none"> Lecture Visual media Group interaction 	45

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
3 PM	Emergency Response	LP 15	Ch. 8	Classroom	<ul style="list-style-type: none"> Effectively respond to emergencies in a winter backcountry setting 	<ul style="list-style-type: none"> Perform basic wilderness first aid Use emergency communications Apply basic winter survival skills 	N1, N2, N4	<ul style="list-style-type: none"> Lecture Visual media Group interaction 	30
3 PM	Companion Rescue	LP 16	Ch. 7	Classroom	<ul style="list-style-type: none"> Effectively manage and execute companion rescue 	<ul style="list-style-type: none"> Ensure group safety during companion rescue Determine search pattern to be used Use a digital transceiver Use effective probing to pinpoint a buried subject Use effective shoveling to extricate a buried subject 	K1, K2, K3, K4, K5	<ul style="list-style-type: none"> Lecture Visual media Group interaction 	45
3 PM	Companion Rescue Dry Land Training	LP 17	Ch. 7	Local field near classroom	<ul style="list-style-type: none"> Develop a working knowledge of transceiver search best practices for single and multiple burials 	<ul style="list-style-type: none"> Perform a full function check Perform a group check Demonstrate the steps in a Single Transceiver Search Demonstrate the steps in a multiple (2) transceiver search Demonstrate the steps in managing a group in a transceiver search 	K1, K2, K3	<ul style="list-style-type: none"> Demonstrate Active participation 	90

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
4, 5	COMPANION RESCUE – Field Training	LP 18	Ch. 7	Field	<ul style="list-style-type: none"> Develop a working knowledge of transceiver search and extrication best practices for single and multiple burials together with first aid management 	<ul style="list-style-type: none"> Perform trailhead transceiver group check Manage group safety during all phases of companion rescue Demonstrate the steps in a single and multiple transceiver search Demonstrate proper probing technique Demonstrate best practice organized shovelling techniques Manage a companion rescue scenario Manage post-extrication first aid requirements 	K1, K2, K3, K4, K5, K6, N2, N3	<ul style="list-style-type: none"> Demonstrate Active participation 	180
4, 5	WINTER CAMPING AND SHELTER BUILDING	LP 19	Ch. 6	Field	<ul style="list-style-type: none"> Develop a working knowledge of winter shelter and kitchen construction 	<ul style="list-style-type: none"> Demonstrate appropriate winter tent camping Demonstrate winter shelter construction Demonstrate winter kitchen construction Demonstrate low impact camping practices 	C2, L1, L2, L3, L4, L5, L6	<ul style="list-style-type: none"> Demonstrate Active participation 	2 days
4, 5	EMERGENCY SHELTER CONSTRUCTION	LP 20	Ch. 6 Ch. 8	Field	<ul style="list-style-type: none"> Develop working knowledge of emergency shelter considerations and construction 	<ul style="list-style-type: none"> Demonstrate emergency shelter construction – low and high tech 	N1, L2, L5	<ul style="list-style-type: none"> Demonstrate Active participation 	90
4, 5	FIRE LIGHTING SKILLS	LP 21	Ch. 6	Field	<ul style="list-style-type: none"> Develop basic fire lighting skills 	<ul style="list-style-type: none"> Demonstrate fire lighting skills using a variety of methods 	N1, L5	<ul style="list-style-type: none"> Demonstrate Active participation 	120

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
6	Demobilize a Winter Camp	LP 22	Ch. 4	Field	<ul style="list-style-type: none"> • Pack up camp employing no-trace techniques 	<ul style="list-style-type: none"> • Demonstrate no-trace best practices for winter camp demobilization 	C1, C2	<ul style="list-style-type: none"> • Demonstrate • Active participation 	60 half field day
7	TRAVEL IN AVLANCHE TERRAIN - Preparation	LP 23	Ch. 1 Ch. 2 Ch. 3	Class / Meeting Room	<ul style="list-style-type: none"> • Apply the theoretical concepts of trip planning, group communication and briefing in a practical application 	<ul style="list-style-type: none"> • Demonstrate appropriate backcountry trip selection for yourself and your participants • Demonstrate trip objectives and participant requirements • Demonstrate and monitor Avalanche and Weather information • Prepare a contingency plan • Prepare a Trip Plan • Prepare a route card • Communicate and confirm trip details to participants: equipment needs, risk propensity, duration, weather and hazard forecast (or any changed because of hazard forecast), group travel expectations, low impact travel considerations 	A2, A3, A4, A5, A6 A7, A8, B1, B2, C1, D4, E1, E3, E2, E6, F1, F3,I1, I2, I3, I4,I5, I6, N3,	<ul style="list-style-type: none"> • Demonstrate • Active participation (leading) • On-going feedback • This is applied course content with feedback 	Evening day 6 90 min

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
8,9	TRAVEL IN AVALANCHE TERRAIN – field (Continued on next page)	LP 24	Ch. 3 Ch. 4 Ch. 5 Ch. 6 Ch. 7 Ch. 8	Field	<ul style="list-style-type: none"> Apply the theoretical concepts of group & risk management and traveling in avalanche terrain in a practical application 	<ul style="list-style-type: none"> Demonstrate trailhead transceiver and equipment check Supervise and monitor participants Demonstrate appropriate pacing Demonstrate and manage transitions Manage group dynamics Resolve group conflicts Demonstrate low impact backcountry travel Demonstrate fluid movement skills Apply interpretive skills / knowledge to enhance participant experience Fit and adjust a backpack Carry out basic equipment repair and maintenance Demonstrate appropriate track setting in avalanche terrain Understand the importance in monitoring weather to aid in decision making Observe, record and interpret avalanche activity Demonstrate and interpret snowpack tests to aid in decision making 	A1, A3, B2, C1, C2, C3, C4, D1, D2, D3, D5, D6, D7, E4, E5, E6, E7, F2, F3, G1, G2, G3, G4, G5, G6, H1, I1, I2, I3, I4, I5, J1, J2, J3, J4, J5, J6, K1, K2, K3, K4, K5, M1, N1, N2, N3, N4	<ul style="list-style-type: none"> Demonstrate Active participation (leading) On-going feedback This is applied course content with feedback 	Day 7,8

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
8,9	TRVEL IN AVALANCHE TERRAIN – field (continued)	LP 24	Ch. 3 Ch. 4 Ch. 5 Ch. 6 Ch. 7 Ch. 8	Field	<ul style="list-style-type: none"> Apply the theoretical concepts of group & risk management and traveling in avalanche terrain in a practical application 	<ul style="list-style-type: none"> Demonstrate the Avaluator Slope Evaluation Tool to aid in decision making Identify factors that compromise group safety Identify wildlife hazards Demonstrate safe crossing of rivers and lakes in winter Demonstrate use of terrain to aid in route finding Identify and mitigate Human Factors as a decision making influence Demonstrate topographic map use Account for magnetic declination Demonstrate compass use for navigation Demonstrate altimeter use to aid in navigation Interpret map features to terrain and terrain to map features Demonstrate resecting ones position Demonstrate GPS use for navigation Demonstrate whiteout navigation 	A1, A3, B2, C1, C2, C3, C4, D1, D2, D3, D5, D6, D7, E4, E5, E6, E7, F2, F3, G1, G2, G3, G4, G5, G6, H1, I1, I2, I3, I4, I5, J1, J2, J3, J4, J5, J6, K1, K2, K3, K4, K5, M1, N1, N2, N3, N4	<ul style="list-style-type: none"> Demonstrate Active participation (leading) On-going feedback This is applied course content with feedback 	Day 7,8

Day	Lesson Name/Description	LP#	Chapter	Location	Goals	Objectives	DACUM	Method	Time (min)
9	Emergency Bivy Scenario with Day Tripping Equipment	LP 25	Ch. 6 Ch. 8	Field	<ul style="list-style-type: none"> Reinforce the minimum day tripping equipment necessary for an emergency bivy (above or below tree line) 	Demonstrate improvisational emergency shelter building skills	N1, N3, L1, L2, L5	Active participation	90

Lesson Plan 1 - Course Introduction

Goals: Welcome participants, complete introductions, frame the structure and agenda for the course.

Time: 50 minutes

Resources: Copy of course outline, waivers and pens

Outcomes:

- Welcome participants to the course and complete brief introductions;
- Familiarize participants with the course structure, agenda and competencies;
- Introduce the terrain and scope of a Winter Backcountry Leader (Avalanche);
- Explain to students the instructing methodology for the course; and
- Model the Alpine Club of Canada waiver delivery policy and complete participant waivers.

Itinerary:

10 minutes: Introductions

- Introduce instructor(s) and highlight their background(s) and experience
- Participants introduce themselves and share their backgrounds and experience as well as their expectations for the course

15 minutes: Course Structure and Competencies

- Review the course agenda and structure
- Highlight the anticipated participant outcomes and competencies
- Self and instructor assessment

5 minutes: Terrain and Scope

- Reiterate the terrain and scope of the Winter Backcountry Leader (Avalanche)
 - Day Trips
 - Multiday Trips
 - Mode of Travel

5 minutes: Instructing Methodology

Classroom:

- Lecture (What, So What, Now What)
- Guided Discovery
- Participation
- Classroom Exercises

Field:

- Describe, Demonstrate, Do
- Instructor(s) will discuss, then model, then coach participant practice of the skills

15 minutes: Waivers & Contact Information

- Review the ACC waiver delivery policy and waiver delivery best practices
- Participants complete ACC waivers
- Confirm emergency contacts, allergies and medications for each participant
- Confirm local contact or cell numbers for each participant including email

Lesson Plan 2 - Backcountry Winter Hazards & Travel Considerations

Goals: Brainstorm a list of hazards one might encounter and subsequently need to mitigate in a backcountry winter (avalanche) environment. The second part is to list Travel considerations to attend to while planning or on a backcountry trip. The intent is for this list to form the basis of the course

Time: 20 minutes

Resources: Flip chart paper or white board & pens

Outcomes:

- Participants will generate a list of backcountry winter hazards that fall into four primary categories:
 - Natural
 - Human
 - Planning
 - Travel

Itinerary:

10 minutes: Divide into 4 groups – one category per group

- Brainstorm a list of hazards and travel considerations

10 minutes: Each group shares their list. Add to it where necessary as a participatory (team) approach

NATURAL	HUMAN	PLANNING	TRAVEL
Avalanches	Allergies	Decision Making	Pacing
Cold Weather	Medications	Trip Plan	Group Management
Warm Weather	Group Dynamics	Weather Forecast	Equipment
Precipitation	Conflict	Avalanche Forecast	Navigation
Creek Crossings	Decision Making	Companion Rescue	Low Impact Travel
Lake Crossings	Communication	Camping - Shelters	Movement Skills
Wildlife	Human Factors	Emergency First Aid	Route Card
	Risk Tolerance	Menu Planning	
		Emergency Communication	

Lesson Plan 3 - Weather Gathering Information

Goals: Introduce participants to weather information resources and basic weather forecasting. Weather forecasting is a part of the planning process. Discuss the Big 3 that influence the snowpack (front load to be discussed further in Factors Affecting Avalanche Conditions lesson)

Time: 45 minutes

Resources: Computer Projector with access to internet weather sites, whiteboard and pens

Outcomes:

- Identify general weather patterns in Western Canada
- Identify useful weather resources (compute and phone apps)
- Familiarize participants with weather maps and basic forecasting; and
- Discuss weather and the Big Three (Wind, Precipitation, and Temperature) that affect the snowpack and avalanche hazard.

Itinerary:

30 minutes: Basic weather forecasting

- Atmospheric pressure and pressure mapping
- Cloud formation, identification and significance
 - approaching warm fronts
 - approaching cold fronts
 - rapid changes vs. gradual changes
 - lifting mechanisms
- Jet streams and the coriolis effect
- 500 mb charts

15 minutes: Current weather

- Online resources: Av Can Mtn. Weather Forecast, SpotWx, Environment Canada, University of Washington wind and precipitation models, Canada Radar
- Current conditions
- Short range forecast (for the duration of the weekend)

Lesson Plan 4 - Avalanche Terrain Identification

Goals: Review the concepts of avalanche terrain and its characteristics. Review the ATES ratings and introduce the technical model for ATES ratings to better understand Simple, Challenging and Complex avalanche terrain.

Time: 40 minutes

Resources: White board or flip chart, computer projector, terrain photos, Avaluator – the public description of ATES, handout of technical model for ATES ratings

Outcomes:

- Describe the parts of an avalanche path
- Describe start zone characteristics of an avalanche path
- Describe the significant physical characteristics of avalanche terrain including; incline, aspect, elevation, ground roughness, forest cover
- Apply the public ATES model to terrain
- Apply the technical ATES model to avalanche terrain
- Identify safe routes in avalanche terrain (terrain photo exercise)

Itinerary:

5 minutes: Describe the parts and characteristics of an avalanche path

- Start Zone, Track, Run Out

10 minutes: Describe physical characteristics of avalanche terrain

- Incline, aspect, elevation, ground roughness, forest cover

15 minutes: Review the public ATES ratings and describe the technical model for the ATES ratings.

- Review the public ATES ratings
 - Have students rate terrain shown on the screen
- Introduce the technical model for ATES
 - Have students identify terrain photos and explain WHY they are rating terrain a certain classification (using the technical model descriptions)

10 minutes: Have students identify safe routes on terrain photos

- Use terrain photos to have students identify safe travel options

Lesson Plan 5 - Factors Affecting Avalanche Conditions

Goals: Review the primary factors that affect avalanche conditions including terrain and weather and how this results in spatial variability. Explore where to find the Avalanche Forecast and what information is contained in the forecast itself.

Time: 20 minutes

Resources: White board or flip chart, computer projector, internet access

Outcomes:

- Describe the primary weather factors that affect avalanche conditions
- Describe how terrain affects avalanche conditions
- Describe and understand spatial variability
- Show where to find the local avalanche bulletin and the information it can provide

Itinerary:

5 minutes: Describe the BIG three weather factors that affect avalanche conditions (this can back-link to LP3 and is a forward link to LP 6)

- Temperature
- Wind
- Precipitation

5 minutes: Describe terrain and its various shapes and how this contributes to spatial variability

- Planar slopes, convex slopes, alpine, tree line, below tree line

10 minutes: Explore the local Avalanche Bulletin (this will forward link to LP 6) and is simply an introduction

- Find the local Bulletin and forecast
- Interpret the information being provided with respect to travel in the mountains in winter
- Describe the hazard rating

Lesson Plan 6 - Pre-Trip Planning

Goals: Introduce participants to the trip planning process

Time: 60 minutes

Resources: Avalanche Canada (AC) Trip Planning Form and Trip Planning Checklist, computer projector, internet connection

Outcomes:

- Using the AC Trip Planning Form and Trip Planning Check List participants will complete a trip planning exercise utilizing concepts explored in LP 3, 4 and 5

Itinerary:

15 minutes: Introduce the AC Trip Planning Form and Trip Planning Checklist

- Identify a target group (novice, intermediate etc.) and trip destination and describe the process for completing the Trip Planning Form and Checklist
- Link to the importance of gathering participant information and waivers
- Is the trip appropriate
- Determine group size

30 minutes: Assign participants (in groups of two or three) a target group and destination and have them complete the AC Trip Planning Form and Checklist. Reinforce participants to:

- Establish trip objectives
- Determine if the trip is appropriate (given the assigned participant demographic)
- Determine group size and leader / participant ratios
- Determine an equipment list
- Articulate what they need from the participants (waiver, medical forms etc.)
- Prepare a contingency plan (plan `B')
- Identify current avalanche information and forecast
- Identify current weather information and forecast
- Identify the terrain rating(s) of the trip
- Determine if the trip is appropriate given the Avalanche and Weather forecast
- Determine local emergency contacts and numbers (will be covered in LP 12 and 15)

15 minutes: Have groups summarize and share their trip plan

- Describe the participant demographic
- Describe the Avalanche and Weather forecast
- Describe if the trip is appropriate (given demographic, avalanche and weather information)
- Describe the required equipment for each participant (leader equipment may be touched on here but will be covered in LP 11 and 12)

Lesson Plan 7 - Communicating with Participants (Pre-Trip)

Goals: Introduce participants to the trip planning process

Time: 30 minutes

Resources: Avalanche Canada (AC) Trip Planning Form and Trip Planning Checklist, computer projector, internet connection

Outcomes:

- Using the AC Trip Planning Form and Trip Planning Check List participants will complete a trip planning exercise utilizing concepts explored in LP 3, 4 and 5

Itinerary:

20 minutes: Expanding on the previous lesson, group members will put together a pre-trip information package for perspective participants on the trip they were assigned. This will include (write these down as headers for the group to fill in):

- A Description of the trip
 - Destination
 - Length of time for the outing
 - Target group (beginner, intermediate etc.)
 - Mode of travel (snowshoe, ski-touring, ski – nordic etc.)
 - Meeting place and time
 - ATES rating of the trip
- Describe required information from participants
 - (waiver, medical form, emergency contact information, skiing, snow shoeing (mode of travel) ability etc.)
- Describe an equipment list for your assigned trip
 - Mode of travel
 - Blister kit / personal first aid kit
 - Avalanche equipment (shovel, probe and transceiver)
 - Pack size
 - Lunch or food for multi-day trip
 - Recommended clothing layers (incl. extra gloves)
 - Emergency tarp
 - Communication device (phone, radio, spot etc.)

10 minutes: Have groups summarize and share their pre-trip information

Lesson Plan 8 - Group Briefing (meeting point)

Goals: Define what information needs to be conveyed to participants at the meeting point before proceeding on the outing. Clarify travel expectations

Time: 20 minutes

Resources: White board or flip chart, computer projector

Outcomes:

- Familiarize participants with the meeting location information dissemination process;
- Discuss group equipment distribution; and
- Outline group travel expectations and environmental concerns.

Itinerary:

10 minutes: Group welcome and review of the outing

- Introductions (participants and instructors)
- Review of the outing and discussion of significant risks/hazards
 - Review of the Avalanche Hazard and Weather forecast
 - Confirmation the trip is within participant abilities & risk propensities
- Collection or administration of waivers and medical forms

5 minutes: Equipment checks and group equipment distribution

- Participant equipment check (everything needed for the outing and in good repair)
- Group equipment distribution

5 minutes: Group travel expectations

- On trail (travel with the group, lead and sweep designation)
- Pacing
- Distance and time for the outing
- Breaks to adjust clothing and hydrate, lunch etc.
- Immediate environmental concerns (human waste, litter, weather, wildlife encounters)
 - Weather factors
 - Snow
 - Rain
 - Heat
 - Cold
 - Wind & wind chill

Lesson Plan 9 - Low Impact Travel and Camping

Goals: Understand low impact travel, camping, and waste management techniques

Time: 30 minutes

Resources: White board or flip chart, computer projector

Outcomes:

- Describe low impact travel techniques
- Describe low impact camping techniques
- Describe environmental and ethical concerns

Itinerary:

6 minutes: Low impact travel

- Describe social impact and how to minimize this in more popular areas
 - Crowding
 - Noise
- Review environmental concerns when travelling in low snow areas
- Travel and waste management
 - Proximity to water sources

12 minutes: Low impact camping techniques

- Site selection
 - Proximity to water sources
 - Wildlife considerations
- Kitchen site selection
- Critter proofing your camp
- No-tracing your camp when departing

12 minutes: Environmental and ethical concerns

- Human waste (day and winter camp)
- Litter
- Grey Water
- Fires
- Wildlife encounters

Lesson Plan 10 - Navigation

Goals: Understand the principles for navigation using a map, compass and GPS

Time: 160 minutes split into modules

Resources: White board or flip chart, computer projector, topographic map sheets, route card sheet

Outcomes:

- Use topographic maps
- Account for magnetic declination
- Effectively use a compass for navigation
- Use an altimeter to aid in navigation
- Interpret map features to terrain, and terrain to map features
- Resect ones position
- Use a GPS for navigation
- Navigate in a whiteout
- Prepare a route card

Itinerary:

35 minutes: Topographic Maps

- Brainstorm what maps can tell us – why do we use them?
- Describe how we go from the planet to a 1:50k map sheet
- Describe contours (and perhaps calculating slope angles – avalanche terrain)
 - Using terrain photos identify terrain from a map feature and vise versa
- Altimeters
 - Setting your altimeter
- Lat/long vs. UTM grid reference
 - Describing your position on a map
 - Give a list of six (6) digit grid references and have participants find and describe the location on the map

45 minutes: Compass Bearings and Resection

- Parts of a compass
- Describe the three norths (magnetic, grid, and true)
- Magnetic declination and how to account for it
 - Calculation and website options
- Taking a compass bearing to an object in the field and follow it
- Taking a compass bearing on the map (and translating that to the field)
- Describe hand railing and aiming off
- Resection
 - How to fix your position from field to map
 - Two (or three) bearings
 - Altimeter and bearing
 - Creek and bearing
 - Ridge and altimeter
- Give a series of 'where am I?' grid references for students to resect

Lesson Plan 10 – Navigation (Continued)

Itinerary (continued):

45 minutes: Route Cards

- Brainstorm the purpose of a route card
- Travel time estimates (horizontal, elevation gain and loss)
- Route card exercise: give four way points (grid references) and have participants complete a route card with time, direction (bearing) and distance calculations. Repeat this with a second exercise if time

10 minutes: Navigating

- Describe: Rough, Standard, and Precision navigation and when each might be used
- Whiteout (and green out) navigation
 - Techniques
 - Dead Reckoning (direction, speed and time)
 - Slow down and be precise
- Navigating around obstacles

15 minutes: Digital Navigation

- Describe how a GPS functions
- Describe what a GPS can and cannot do for you

10 minutes: The Digital World

- Google earth as a trip planning / navigation aid
- Map aps for your smart phone
- GPS aps for your smart phone
- Other digital resources

Lesson Plan 11 - Principles of Group Management & Backcountry Travel

Goals: Describe leadership and group management strategies in a winter setting in avalanche terrain

Time: 30 minutes

Resources: White board or flip chart, computer projector

Outcomes:

- Supervise and monitor participants
- Pace a group
- Manage transitions
- Manage group dynamics
- Resolve group conflicts
- Incorporate interpretive skills / knowledge to enhance participant experience
- Fit and Adjust a backpack
- Carry out basic equipment repair and maintenance

Itinerary:

10 minutes: Leadership Styles

- Discuss various leadership styles
- Discuss and describe situational leadership

10 minutes: Managing Group Dynamics

- Discuss conflict and how that affects a group
- Discuss and describe sources of conflict (expectations, communication etc.)
- Discuss and describe how to resolve conflict in a group setting

10 minutes: Managing a Group in the Field

- Interpretive skills
- Pacing
- Transition planning
- Adjusting equipment
- Repair and maintenance

Lesson Plan 12 - Principles of Risk Management & Backcountry Travel

Goals: Develop an understanding of situational awareness to recognize and mitigate hazards (human and natural) in a backcountry winter environment

Time: 45 minutes

Resources: White board or flip chart, computer projector, terrain photos

Outcomes:

- Understand the concepts of track setting in avalanche terrain
- Understand the importance in monitoring weather to aid in decision making
- Understand the importance to observe, record and interpret avalanche activity
- Understand snowpack tests to aid in decision making
- Use the Avaluator Slope Evaluation Tool to aid in decision making
- Identify factors that compromise group safety
- Identify wildlife hazards
- Safely cross rivers and lakes in winter
- Apply knowledge of terrain to aid in route finding
- Identify and mitigate Human Factors as a decision-making influence

Itinerary:

5 minutes: Situational Awareness

- Brainstorm the concept of Situational Awareness and what it might include
- Human & natural

10 minutes: Human Factors

- Introduce and discuss FACETS

15 minutes: Environmental Factors

- Weather factors
- Avalanche activity
- Snowpack tests
- Avaluator Slope Evaluation tool as an aid to decision making
- Wildlife hazards

15 minutes: Terrain as a Risk Management Tool

- Describe and discuss that of the weather, snowpack, and terrain considerations, terrain is the one we as leaders can control with certainty
- Introduce the acronym STEPS as a self-check tool when leading a group (snow, terrain, exposure, people, severity (consequences))

Lesson Plan 13 - Winter Camping

Goals: Understand the principles of winter camping and shelter construction

Time: 75 minutes

Resources: White board or flip chart, computer projector, sample of clothing and sleeping systems (show and tell)

Outcomes:

- Describe the concepts of snow shelter design
- Describe the principles of emergency shelters
- Describe the principles of winter tent camping
- Describe the principles of site selection above and below tree line
- Describe the principles of meal planning and water collection in a winter environment
- Describe the principles of sleeping systems for winter camping
- Understand fire lighting concepts in a winter environment
- Describe the principles of kitchen design

Itinerary:

20 minutes: Sleeping & Clothing Systems

- Sleeping system sandwich
 - Ensolite, thermarest, sleeping bag, warm layers, liner layers, water vapor
 - Keeping things warm (stuff you don't want to freeze)
 - Moisture management
 - Warm water bottles
 - Going pee
- Clothing winter camping
 - Layering
 - Types of materials: advantages/ disadvantages
 - Hand and foot systems

15 minutes: Tenting in a Winter Environment

- Tenting
 - Site selection
 - Platforms
 - Below treeline – proximity to trees
 - Above treeline – wind walls
 - Anchoring
 - Frost management
 - Sitting trench
 - Brushing snow (vs. shoveling – tearing fly)

Lesson Plan 13 - Winter Camping (continued)

Itinerary (continued):

20 minutes: Winter Shelters – Snow Shelters

- Snow shelter principles
 - Advantages & Disadvantages
 - Considerations (weather, time, snow depth living vs. emergency, ventilation etc.)
 - Cold sink
 - Sleeping platform height
- Types of snow shelters
 - Tree well (emergency)
 - Quinzhee
 - Snow cave
 - A-Frame trench
 - Igloo

10 minutes: Kitchen Design

- Wind protection
- Counter tops, shelves, 'fridge'
- Sitting areas
- Sump

10 minutes: Fire lighting in a Winter Environment

- Materials
- Lighting techniques
 - Feather sticks
 - Fire bundle
 - Aids to fire lighting
- The platform
- Environmental considerations

Lesson Plan 14 - Menu Planning for a Winter Environment

Goals: Understand menu planning and stove considerations for a winter environment

Time: 45 minutes

Resources: White board or flip chart, computer projector, menu planning sheets (handout), stove and stove repair kit

Outcomes:

- Plan appropriate meals for both single and multi-day winter outings
- Understand stove and fuel considerations for winter use

Itinerary:

20 minutes: Menu planning for a winter environment

- Dietary considerations
- Soups / hot drinks
- Fatty foods
- Appropriate winter foods (i.e. not fresh food – freezes)
- Dehydrating foods
- Commercial dried foods
- Quantities per person

25 minutes: Stoves in a winter environment

- Stove types
 - Advantages & disadvantages
 - Fuel types & amounts
 - Stove boards
 - Stove maintenance
 - Common problems and field repairs
- Vestibule cooking vs. kitchen cooking
 - Ventilation
- Melting snow for water
 - Alternative techniques (creeks, solar stills etc.)

Lesson Plan 15 - Emergency Response

Goals: Effectively respond to emergencies in a winter backcountry setting

Time: 30 minutes

Resources: White board or flip chart, computer projector, first aid kit, communication devices

Outcomes:

- Perform basic wilderness first aid
- Use emergency communications
- Apply basic winter survival skills

Itinerary:

10 minutes: Basic Wilderness First Aid in a Winter Environment

- Brainstorm common basic first aid scenarios & strategy for stabilizing
 - Blisters
 - Cold injuries (feet, hands etc.)
 - Knee / ankle injuries
 - Wrist and shoulder (from falling)

10 minutes: Emergency Communications

- Describe the advantages and disadvantage of various emergency communication devices
 - Cell phone
 - Spot
 - In-Reach
 - Satellite phone
 - Radios
- Describe what you would communicate in an emergency

10 minutes: Basic Winter Survival Skills

- Brainstorm what might constitute a survival scenario
 - Avalanche
 - Injury
 - Miss-timing of trip
 - Lost equipment
 - Others...
- Determine survival priorities
 - Don't make it worse
- Survival options
- Shelters
 - Short term vs. long term (complexity)
 - Tree well, emergency tarp etc.
 - Fires if available
 - Physical and psychological comfort
 - Food and water
- Equipment in your pack to handle a survival scenario

Lesson Plan 16 - Companion Rescue (classroom)

Goals: Effectively manage and execute a companion rescue

Time: 45 minutes

Resources: White board or flip chart, computer projector, companion rescue card, transceivers (different models would be ideal), probe, shovel

Outcomes:

- Ensure group safety during companion rescue
- Determine search pattern to be used
- Use a digital transceiver
- Use effective probing to pinpoint a buried subject
- Use effective shoveling to extricate a buried subject

Itinerary:

20 minutes: Transceiver Searching & Strategies

- Describe the difference between a single, double and triple antenna (digital) transceiver
- Describe transceiver interference
 - Distances from interference devices in 'send' and 'search' mode
- Describe the phases and corresponding speed of a transceiver search
 - Signal search, coarse search, fine search, pinpoint, shoveling
- Searching for single vs. multiple transceivers
 - Individual and with more than one person

10 minutes: Probing and Shoveling

- Spiral probing strategy
- Shoveling strategy (conveyor belt shoveling)

15 minutes: Organization of Companion Rescue

- Organizing a group for companion rescue
 - Leadership, scene safety, head count, search area, turn transceivers to search, hasty search, search patterns etc.
 - Organization of resources
 - Searchers, shoveling, first aid

Lesson Plan 17 - Companion Rescue (dry land)

Goals: Develop a working knowledge of transceiver best practices for single and multiple burials

Time: 90 minutes

Location: Local field near the classroom. Snow is not necessary for this exercise

Resources: Transceivers, companion rescue card, shovel, probe, plastic flower pots (for hiding transceivers) – 10 to 15 is ideal. Flower pots allow for dry land practice in a no-snow environment: searchers cannot follow tracks in the snow

Outcomes:

- Perform a full function check
- Perform a group check
- Demonstrate the steps in a Single Transceiver Search
- Demonstrate the steps in a multiple (2) transceiver search
- Demonstrate the steps in managing a group in a transceiver search

Itinerary:

15 minutes: Full Function Check & Group Check

- Demonstrate the steps in a full function check and why this is important at the beginning of an outing
- Demonstrate the steps of a group check and where this would be used

15 minutes: Single Burial Search

- Demonstrate the steps in a single search
 - Verbalize the steps on the companion rescue card
- Participants practice single search phases up to and including fine search
 - Participants should practice this at least two times

30 minutes: Multiple (2) Burial Search

- Demonstrate the steps in a multiple (2) burial search
 - Verbalize the steps on the companion rescue card
 - Demonstrate marking function (for transceivers with this function)
 - Demonstrate alternative strategies for transceivers with no marking function
 - Three circle
 - Micro strip
- Participants practice this at least two times

30 minutes: Managing a Group in a Transceiver Search

- Demonstrate managing a group for a transceiver search
- Participants practice the leadership role in managing a group for a transceiver search
 - Make use of the companion rescue card

Lesson Plan 18 - Companion Rescue (field training)

Goals: Develop a working knowledge of transceiver search and extrication best practices for single and multiple burials together with first aid management

Time: 180 minutes delivered over the first field outing weekend

Location: This exercise takes place at the trail head, and at the winter camping site (flexible timing)

Resources: Transceivers, companion rescue card, shovel, probe, transceiver targets (up to 4)

Outcomes:

- Perform trailhead transceiver group check
- Manage group safety during all phases of companion rescue
- Demonstrate the steps in a single and multiple transceiver search
- Demonstrate proper probing technique
- Demonstrate best practice organized shovelling techniques
- Manage a companion rescue scenario
- Manage post-extrication first aid requirements

Itinerary:

15 minutes: Trailhead Transceiver Group Check

- Participants employ trailhead range and group check techniques practices in LP 17

15 minutes: Single Burial Search (transceiver buried between 1 to 1.5 meters)

- Review steps in single search
- Demonstrate best practice probing technique (spiral probing)
- Demonstrate shoveling organization and extrication using conveyor belt technique
- Participants practice single search and probing
- Organize participants to practice organized shoveling

30 minutes: Multiple (2) Burial Search

- Demonstrate the steps in a multiple (2) burial search
 - Verbalize the steps on the companion rescue card
 - Demonstrate best practice probing technique (spiral probing)
 - Demonstrate marking function (for transceivers with this function)
 - Demonstrate alternative strategies for transceivers with no marking function
 - Three circle
 - Micro strip
- Participants practice this at least two times

30 minutes: Managing a Group in a Transceiver Search & Scenario Practice

- Review managing a group for a transceiver search
- Participants practice the leadership role in managing a group for a transceiver search
 - Make use of the companion rescue card

Lesson Plan 18 - Companion Rescue (field training - continued)

Itinerary (continued):

90 minutes: Managing a Group in a Transceiver Search & Scenario Practice

NOTE: This will involve setting up several scenarios building in complexity from a single burial to multiple burials (up to 4) and involves all phases of the search from organization to first aid.

The delivery of this is flexible- can be done as a single complete session or spread out throughout the weekend (would be good to have at least one scenario on the second day of the outing)

- Review managing a group for a transceiver search
- Participants practice the leadership role in managing a group for a transceiver search
 - Make use of the companion rescue card
 - Employ best practice organized shoveling
- Practice post-extrication practices
 - First aid
 - Evacuation
 - Emergency shelter

Lesson Plan 19 - Winter Camping & Shelter Building (field)

Goals: Develop a working knowledge of winter shelter and kitchen construction

Time: Delivered over the two field days on the first field outing weekend

Location: Suitable field location with enough snow for snow shelter construction. Distance to site should be reasonably short (up to 2 hrs. of travel time)

Resources: Winter camping equipment (personal and group), snow saws, shovel probe, transceiver.

Outcomes:

- Demonstrate appropriate winter tent camping
- Demonstrate winter shelter construction
- Demonstrate winter kitchen construction
- Demonstrate low impact camping practices

Itinerary:

15 minutes: Tent Platform Preparation

- Demonstrate tent platform preparation
- Have participants prepare and set up their tents
 - Proper anchoring
 - Sitting trench in vestibule

15 minutes: Kitchen Setup and Organization

- While participants are setting up their tent, design and construct a kitchen to be used as a demonstration for participants
- Once participants complete their tent setup, describe the organization of the demonstration kitchen
- Participants design and build a kitchen

15 minutes: Waste Management

- Participants organize a waste management system (trash and human waste) employing environmental best practices

3 to 4 hrs.: Snow Shelter Construction (Day 2)

- Review and describe the concepts of snow shelter construction
- Pre build some snow shelter models (small scale) to physically demonstrate key construction techniques of; Quinzhee, Snow Cave, A-Frame Trench, Igloo etc.
- Describe and demonstrate block cutting (size, and type of snow required)
- Participants build a snow shelter of their choice – encourage a variety of shelters amongst the group (depending on group size)

Lesson Plan 20 - Emergency Shelter Construction (field)

Goals: Develop a working knowledge of emergency shelter considerations and construction

Time: Delivered on day 2 of the first field outing weekend

Location: This will be in close proximity to the winter camping base camp

Resources: Daypack contents, shovel, probe, transceiver, snow/bush saw

Outcomes:

- Demonstrate emergency shelter construction – low and high tech

Itinerary:

15 minutes: Emergency Shelter Considerations

- Briefly review emergency shelter considerations as delivered in LP 13

60 min.: Describe a scenario where the group has a day pack with day touring equipment and is forced to spend the night out

- The scenario ends when there is shelter that will manage the group for the night

15 minutes: Review the strategies used and explore options that might be employed in the future

Lesson Plan 21 - Fire Lighting Skills (field training)

Goals: Develop basic fire lighting skills

Time: Delivered on day 2 of the first field outing weekend

Location: This will be in close proximity to the winter camping base camp in a location that allows for fire lighting

Resources: Lighter, matches, fire lighting aids

Outcomes:

- Demonstrate fire lighting skills using a variety of methods

Itinerary:

30 minutes: Fire lighting demonstration

- Describe the stages in fire lighting (flame, ignition, sustained fire)
- Fire Bundle
 - Describe and demonstrate material gathering, igniting and sustaining the fire
- Using alternative methods
 - Pitch from trees
 - Fire lighting aids (synthetic materials, soaked cotton, etc.)
- Describe and demonstrate fire placement on snow (so it will not sink out of sight)
- Discuss environmental best practices when using fire for convenience and for survival

90 minutes: Participants practice fire lighting skills

NOTE: the order of LP 20 and 21 can be reversed so the emergency shelter scenario can combine both lessons. I.e. after demonstrating fire lighting skills, the scenario can be set up to end when the participants have BOTH shelter and fire

Lesson Plan 22 - Demobilize a Winter Camp (field training)

Goals: Employ no-trace best practices when packing up and leaving a winter campsite

Time: Delivered on the final morning of the first field outing weekend

Location: Winter camp used on the first field outing weekend

Resources: Winter camping equipment

Outcomes:

- Demonstrate no-trace best practices winter camp demobilization

Itinerary:

15 minutes: No-Tracing Best Practices for Winter Camping

- Describe and demonstrate best practices for no-tracing a winter camp

45 minutes

- Participants employ best practice strategies for no-tracing the winter base camp

This weekend ends with a debriefing of skills learned and practiced. It is important to now prepare students for the expectations of the second field outing:

- Participants are to prepare day trip outing destinations and options suitable for the group and conditions (avalanche and weather) and prepare a Trip Planning Form and Checklist as well as route cards, emergency communication plan, participant pre-trip information package. In short, employ all the necessary concepts from the trip planning sessions and have them ready to share and present at the pre-trip meeting the evening before the second field outing. Participants will work in groups of 2 or 3 (depending on group size) as we will have one day trip facilitated by each group (rotating leads) on each day of the outing. If the group is small, they can plan two day trips- one for each day of the weekend outing. This will offer more leadership opportunities (if there are two instructors, groups may be split to allow for this as well).

Lesson Plan 23 - Travel in Avalanche Terrain Preparation

Goals: Apply the theoretical concepts of trip planning, group communication and briefing in a practical application

Time: 90 min

Location: Classroom / meeting room the evening prior to the second weekend outing

Resources: Trip planning form and checklist, route cards, outing information and equipment list, maps, guidebooks, weather and avalanche bulletins and forecast

Outcomes:

- Demonstrate appropriate backcountry trip selection for yourself and your participants
- Demonstrate trip objectives and participant requirements
- Demonstrate and monitor Avalanche and Weather information
- Prepare a contingency plan
- Prepare a Trip Plan
- Prepare a route card
- Communicate and confirm trip details to participants: equipment needs, risk propensity, duration, weather and hazard forecast (or any changed because of hazard forecast), group travel expectations, low impact travel considerations

Itinerary:

Pre Trip Preparation and Communication

- At the end of the previous outing, participants were instructed to prepare day trip outing options suitable for the group and conditions (avalanche and weather) and prepare a Trip Planning Form and Checklist as well as route cards, emergency communication plan, participant pre trip information package.

90 minutes: Participants Deliver Pre-Trip Plans and Participant Briefing

- Each outing group presents their pre-trip information and briefing to the rest of the group
- This is a practical application of lesson plan 6, 7, 8, and 10
- Offer feedback and coaching where appropriate

Lesson Plan 24 - Travel in Avalanche Terrain (field)

Goals: Apply the theoretical concepts of group & risk management and traveling in avalanche terrain in a practical application

Time: Delivered over the two field days of the second weekend outing

Location: Field

Resources: Day tripping equipment for travel in avalanche terrain

Outcomes:

- Demonstrate trailhead transceiver and equipment check
- Supervise and monitor participants
- Demonstrate appropriate pacing
- Demonstrate and manage transitions
- Manage group dynamics
- Resolve group conflicts
- Demonstrate low impact backcountry travel
- Demonstrate fluid movement skills
- Apply interpretive skills / knowledge to enhance participant experience
- Fit and adjust a backpack
- Carry out basic equipment repair and maintenance
- Demonstrate appropriate track setting in avalanche terrain
- Understand the importance in monitoring weather to aid in decision making
- Observe, record and interpret avalanche activity
- Demonstrate and interpret snowpack tests to aid in decision making
- Demonstrate the Avaluator Slope Evaluation Tool to aid in decision making
- Identify factors that compromise group safety
- Identify wildlife hazards
- Demonstrate safe crossing of rivers and lakes in winter
- Demonstrate use of terrain to aid in route finding
- Identify and mitigate Human Factors as a decision-making influence
- Demonstrate topographic map use
- Account for magnetic declination
- Demonstrate compass use for navigation
- Demonstrate altimeter use to aid in navigation
- Interpret map features to terrain and terrain to map features
- Demonstrate resecting one's position
- Demonstrate GPS use for navigation
- Demonstrate whiteout navigation

Itinerary:

- Travel group participants deliver a safe day trip outing
- Coach and demonstrate (where necessary) elements in the 'outcomes' to lead and manage a group as well as hazards in avalanche terrain
 - Demonstrate snowpack tests and have participants practice
- Ensure leads are rotated so each group member has a meaningful lead
- Debrief the day with each group

If a small group, they will then prepare for the next field day. If a large group and two instructors, group should switch instructors.

Lesson Plan 25 - Emergency Bivouac Scenario with Day Tripping Equipment

Goals: Reinforce the minimum day tripping equipment necessary for an emergency bivouac (above or below tree line)

Time: 90 min

Location: Field –towards the end of a travel day

Resources: Day tripping equipment

Outcomes:

- Demonstrate improvisational emergency shelter building skills