

Student Manual

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Welcome

Welcome to the Mountaineers and the Tacoma Branch Basic Snowshoe Course. We're excited to have you join us this season for a series of lectures and field trips where you will gain the experience to enjoy the outdoors in a very special way during the winter months.

During this course, students will have the opportunity to learn basic snowshoeing techniques, methods to stay warm through proper layering, basic equipment needed for typical snowshoe activities and how to stay safe in cold weather.

Students will also be exposed to a basic overview of wilderness navigation and avalanche awareness.

Please review this student manual prior to the lecture and prepare yourself to have fun in the snow with us.

Graduating The Course

Successful graduation earns the member the privilege to participate in any Mountaineers Basic Snowshoe activity.

- Attend classroom lecture
- Complete Basic Snowshoe Coassemble Course
- Participate in the field trip
- Complete one Mountaineers snowshoe trip
- Completion of free, online Low Impact Recreation eLearning course
- Completion of free, avalanche awareness seminar
- Obtain a Stewardship Badge on your Mountaineers' profile page
- Send [graduation request](#) to Tacoma Snowshoe Committee

Students must complete the lecture, online course, and field trip during the first year. Completion of the lecture and online classroom materials is required to attend the field trip. There will be a \$50 administrative fee charged to second year students needing to make up lecture and field trip activities. Students may take up to two years to complete the Avalanche Awareness, Mountaineers' snowshoe trip, Low Impact Recand conservation requirements.

Snowshoes

Consider renting different styles and brands of snowshoes before purchasing them. Get snowshoes for the Pacific Northwest. Our snow is famous for its water content so you won't need snowshoes to displace as much snow as you might if you were snowshoeing in drier conditions. The metal frame snowshoes are used widely here. Most snowshoers in the Northwest use the 8"X24" size; if you are very heavy (combined body weight and pack weight), you might get the next larger size. For most snowshoers, the energy required to lift a longer snowshoe is much greater than the minor improvement in flotation that the additional length provides. Whatever kind of snowshoes you select, be sure that the bindings on your snowshoes hinge up and down freely, yet allow little to no lateral movement of your boot. The binding should grip the boot firmly to keep it from shifting forward.

Be sure your snowshoes have traction devices (a traction device under the heel and a crampon or claw under the ball of the foot). Traction devices must be effective in all directions so they will hold when going straight up or down the slope, traversing or angling uphill. If snow freezes to the metal claw, you can attach a piece of tough plastic, vinyl fabric or the universal fixer, duct tape, to the claw to reduce the tendency for the snow to stick.

Inspect your rental snowshoes for wear before walking away from the store with them. Look for frayed laces or straps, for loose screws or bolts, and for pulled-out eyelets, hooks or rivets. Check the hinge mechanism to ensure that it pivots freely but does not wobble side-to-side.

Snowshoe Techniques

Basic snowshoe technique on flat terrain is not much more difficult than walking, once you get used to having feet that are 8 inches wide and 24 inches long. On steeper terrain, there are a few techniques that you should practice to travel successfully.

The first step is getting them on. Many snowshoes have no left or right shoe. Step into the snowshoe and align the ball of your foot with the axle of the traction device. Tighten up the heel band just above the lip where the sole of your boot meets the heel counter. Then tighten the bands across the top of the snowshoe snugly. Be sure to get the excess strapping out of your way so you won't trip on it. Follow the manufacturer's instructions in putting them on. Now you're ready to venture forth. You'll find that a rolling gait with the tips of the shoes lifted slightly upward with each step is the easiest way to walk. You may need a slightly wider stance to walk without stepping on the other snowshoe, but you'll probably find this comes without much effort.

Since Northwest snow conditions vary widely - sometimes from step to step - the snowshoer must work to maintain good balance with the weight centered over each foot. Sliding strides sometimes helps, but try to keep your weight centered. On hard or icy surfaces, you'll have to plant each foot firmly to help set the traction device of the snowshoe.

Walking and Pace

The basic skill for snowshoeing is a simple act we all do every day; walking, putting one foot in front of the other and a little bit higher. But just as the ability to write doesn't mean you are a writer, the ability to walk doesn't mean you are wilderness-ready walker. To walk efficiently in the mountains, you must take into account the varied terrain, the weight of your pack and your physical condition.

One of the most valuable techniques in wilderness walking is setting the right pace. Beginners often make one of two mistakes: they walk faster than they should or slower than they could.

The most common mistake is walking too fast, perhaps out of concern for the long miles ahead or from a desire to perform well in front of companions. But why wear yourself out on the first mile of a ten mile outing if the whole day happens to be available for the walk? Take your time and enjoy it. A simple test will reveal if your pace is too fast: if you cannot sustain it hour after hour, you are going too fast.

The other mistake is walking too slowly. Your body complains long before it is hurt. Your muscles may ache but still have 10 miles left in them; your lungs may gasp but be able to go on gasping for another 3 hours. Fatigue is not just a function of how far or fast you have gone but also of how long you have carried the weight of your pack. A degree of suffering is inevitable on the way to becoming a good long distance walker.

The most desirable walking speed varies during the day. Get ready for a long trek by stretching your legs, hips, back and shoulders. Walk slowly at the start, letting the body become aware of the demands to come. Then start striding out, using will power to get through this period of increasing work until your body experiences its "second wind". Physiologically, this means your heart has stepped up its beat, your blood is circulating more rapidly, and your muscles have loosened. Psychologically, it means that you feel happy and strong.

Turning

Changing directions on the switchbacks requires a turning technique. Swing your downhill foot perpendicular and ahead of your uphill foot. Pivot your body weight onto your front foot and bring your other foot around. You are now ready to begin going the other way! If the terrain allows, the turn can be wider (with more steps involved) or tighter (by doing a 180 degree kick step turn).

Rest Step

The rest step is an essential uphill technique for delaying the onset of fatigue on long strenuous trips. Stamp the forward foot into the snow, straighten the rear leg, lock the knee, pause, breathe deeply, relax the thigh, and then repeat with the other leg.

Breaking Trail

The first person in the party has the task of finding the route and setting steps in the snow, often a tiring activity if the snow is heavy or deep. Each person in the party should take a turn as leader for a set amount of time or number of steps; he/she then steps to the side, lets the party pass, and takes up position at the end of the line. This conserves the strength of the party and allows everyone the fun of route finding. In deep snow, with a large party, sharing the leadership can make the difference between getting to your goal and having to turn back early, before it gets dark. The second person in line always should improve the leader's steps; and each other party member should do the same in turn. If you should break out a step, trail etiquette calls for you to kick a new step for the people following you.

Uphill Travel

On gentle uphill slopes, you can climb straight uphill. Stay an adequate distance from the person in front of you to keep from getting a face full of snow or a facial restructuring from the snowshoe above. As the hill gets steeper, other techniques need to be used.

Steeper snow calls for kick stepping if the snow is deep enough. Kick steps by pointing your uphill toe down and in firmly, then flattening your foot to compact the snow under the foot. The next foot repeats the process, creating a set of steps that the next person follows, deepening and improving the step.

Downhill Travel

Going downhill is more difficult than one might suppose. The snowshoes take on a life of their own, slipping and sliding out from under one's feet. The best rule of thumb is to take small enough steps to keep your weight centered on the snowshoes. Do not lean backward as that actually will tend to push your feet out from under you. A quick shuffling step will keep your weight centered and will decrease the chance of slipping. Fresh snow often is easier to descend than using someone else's footsteps, as it provides more traction. Sometimes traversing down the slope is the best choice. Another option is plunge stepping (see below). Downhill technique in snowshoes often provides a new set of challenges on a trip. As with other winter travel, be aware of what is above you and what the run out is like, adapting the technique to fit your ability and the terrain.

Plunge stepping is one technique to use in downhill travel when the snow is relatively soft. Take long steps with the knee initially stiff, heel down; then, as the heel strikes, relax the knee, keeping the toe turned up. A bouncing or slightly jumping step can help.

Traversing

Another technique for traveling uphill or downhill is to traverse the slope. The leader makes switchbacks across the slope by firmly placing the snowshoe while pushing the uphill edge into the slope and keeping the platform as flat as possible. Keeping centered on the snowshoes and staying in balance, followers improve the steps of the leader with a similar technique.

Gear Selection

Clothing

Snowshoeing is one of the more strenuous exercises you can engage in in the mountains; particularly when you are in the front of the group breaking trail. Your clothing can become saturated with moisture from profuse sweating, even in winter. If wet, you will chill down very quickly as soon as you stop for a break or move to the back of the group. To manage this, you need to learn how to stay dry and warm without overheating. Avoid excessive sweating by adjusting the amount of clothing you are wearing frequently and by adjusting the pace as necessary.

You can combat heat loss through radiation by remembering, if your feet are cold, put on a hat (this applies equally to the rest of your body). It's much easier to put on a hat than add another layer of clothing. Keeping your neck warm by putting on a fleece neck gaiter or putting on your jacket hood is also very helpful. Conduction occurs when you sit on cold surfaces during rest breaks. Use an insulating foam sit pad during breaks or sit on your pack to avoid direct contact with cold snow, rocks or tree stumps. Winter campers often find that it helps to put a foam pad under their feet, as well.

Layering

Layering fights convection and evaporation. In the Northwest you will need at least three layers for winter activities: a base layer to wick away moisture from your body, an insulating layer to retain body heat and a shell layer for wind and rain protection.

Base Layer

You will work up a sweat when you snowshoe. As evaporation removes the sweat, your body cools. For this reason, synthetic materials, such as polypropylene, polyester or acrylic, will wick away sweat from your body (so will silk and wool). **Do not wear any cotton during winter activities.** Once cotton is wet, it is worthless as an insulating layer and will actually cool your body too quickly. The base layer for snowshoeing is usually long underwear (tops and bottoms) made of synthetic material, wool or silk. Long underwear is available in a variety of weights, but lighter weights are usually preferable for aerobic activities like snowshoeing. Bring an extra underwear top to put on if one gets wet.

Insulating Layer

You can wear a single heavy layer or several light layers. Wool or synthetic materials (i.e., fleece or pile) work best for our damp climate. If they get wet you can just shake them out and they will still insulate you and dry very quickly. Down is generally a poor choice for snowshoeing in the Pacific

Northwest environment because it is nearly impossible to keep a down garment dry while snowshoeing. When down gets wet, it is useless as an insulating layer. However, some people like to put on a down vest or jacket when they stop for breaks or make camp. If you can keep a down garment dry under your shell, it can't be beat for compressibility, lightness and warmth.

Shell Layer

Shell Layers have two purposes: defending you from wind, and protecting you from rain and snow.

The stronger the wind, the more heat you will lose through convection. In keeping warm, wind protection is as important as adequate insulation. When it is windy, wear a wind-resistant jacket and pants. Cover your head with a hat or hood. Often, a thin wind-resistant layer will maintain warmth more effectively than a thicker layer that the wind penetrates. Wearing several layers of lightweight clothing will trap more warm air near your body than a single bulkier layer of clothing will. A lightweight vest will provide torso warmth without restricting arm movement.

Wet clothing is dangerous. It can extract heat from your body 24 times as fast as dry clothing. When it is raining or snowing, wear densely woven waterproof jacket and pants. Coated nylon works well but tends to trap your body's moisture causing underlying layers to become damp. Breathable waterproof fabrics, such as Gore-Tex®, are more effective, but they aren't perfect.

Wind Chill

Be sure to bring a hat, mittens, jacket and pants to protect you from windy conditions in the mountains. Although the temperature may feel tolerable while out of the wind, body temperature drops quickly. When adding wind to exposure the tolerability becomes much less and can be dangerous.

Adequate Layers

In a bivouac situation, you must remain warm enough to survive without danger of frostbite or hypothermia and, preferably, you should also be warm enough to sleep. Layering and insulating principles apply. You must bring enough clothing to remain warm during low levels of activity, and you must remain dry because wet garments conduct your body heat away from you into the cold air or cold ground next to you. Don't forget that you may get clothing wet from perspiration as well as from snow or rain. Wet boots and socks can cause your feet to become extremely cold. Dry socks and boots and/or standing on a piece of closed-cell foam pad will help keep you warm by limiting the conductive flow of heat away from your body. Extremities such as head, hands and feet pass off large amounts of body heat if not insulated. Put on a warm cap and mittens before you become chilled. The first principle of survival is to

avoid situations in which the survival issue arises. Physical conditioning, trip planning, route finding, competent leadership, and adequate equipment all can help you to avoid ending up in a survival situation.

Clothing Checklist

Below is a typical packing list for basic snowshoe activity. Extra items should be packed into waterproof bags to ensure they remain dry throughout the activity. Material should be breathable or manageable to reduce the accumulation of sweat.

Upper Body Clothing

- Base Layer Top, quantity 2 (wear one/pack one) (wool or synthetic)
- Lightweight Synthetic Top
- Mid layer Top, quantity 1 (fleece or wool)
- Shell Jacket with Hood (Gore-Tex® or equivalent)
- Insulating Jacket with Hood (Down or Synthetic)

Lower Body Clothing

- Synthetic Underwear
- Base Layer Bottom, quantity 2 (wear one/pack one) (wool or synthetic)
- Synthetic Climbing Pants
- Shell Pants with full side zips (Gore-Tex® or equivalent)

Head, Hands and Feet

- Warm hat
- Sun hat
- Liner gloves, quantity 2 pair (wear one/pack one)
- Mid weight glove
- Insulated glove
- Liner socks, quantity 2 pair (wear one/pack one)
- Outer socks, quantity 2 pair (wear one/pack one)
- Waterproof Alpine Hiking Boot
- Gaiters

Ten Essentials

The Ten Essentials must be carried on all Mountaineer activities.

1. Navigation: Map & Compass (with declination set for the area)
2. Sun Protection: Wrap around sunglasses (preferably glacier rated glasses or goggles) and sunscreen, lip sunscreen
3. Insulation (extra clothing)
4. Illumination: Flashlight or headlamp, with extra batteries/bulb (unless LED)
5. First Aid Supplies: See note below
6. Fire: Candle or other fire starter and matches in waterproof container
7. Repair Kit and Tools
8. Nutrition (extra food)
9. Hydration (extra water)
10. Emergency Shelter

First Aid kits can be made from home supplies – it is not necessary to go out and buy an expensive commercially prepared kit. A typical kit may consist of: 1" tape – large roll, Pain med – anti-inflammatory preferred, Ace Wrap, Gloves (non-sterile), Gel type dressing for blisters, Pencil for making notes in event of accident (pens freeze), Gauze pads (clean bandana works great), Band Aids® (large type), Moleskin, Instant Hand Sanitizer, Full-size SAM splint (for immobilizing sprains, broken bones, stabilizing neck injuries).

You may want to include Money as the 11th essential!

Boots

Most snowshoers wear a waterproof leather hiking boot with stiff uppers so the binding does not constrict foot circulation. Snowmobile or rubber-type boots don't work because the snowshoe binding cinches too tightly against your foot. Select a boot with a moderately stiff sole that you can walk in when not wearing your snowshoes. In the winter a boot that is too tight will produce cold feet.

Trekking Poles

Trekking poles with baskets are optional for snowshoeing. Most people find them indispensable, especially when descending steep slopes. Of course, you will want to learn to snowshoe in balance and not rely on poles all the time. Sectioned poles that you can collapse when not using them can be conveniently stored on your pack and give you a low profile for ducking through brush and trees. Be aware of the different section locking systems and be sure to choose one that allows for adjustment in the snow with cold gloved hands.

Navigation

Get a textbook;

Wilderness Navigation, 3rd edition, Burns & Burns

Mountaineering: Freedom of The Hills, 9th edition, Mountaineers Books

Get a compass. <https://tinyurl.com/tacoma-navigation>

Get a map. <https://tinyurl.com/paradise-topo-map>

Get a GPS App for your cell phone;

Avenza Maps: www.avenza.com/avenza-maps/

Gaia GPS: www.gaiagps.com

Take a navigation course. <https://tinyurl.com/tacoma-navigation>

Avalanche Awareness

Although beginning snowshoers generally stick to flat or fairly flat terrain, it is not unusual for you to find yourself having to pass below a snow slope that might be prone to avalanche. Here are some things to think about when planning “where and if” you are going to go:

- Avalanches can be deadly
- Avalanches are caused by unstable snow, snow that has not bonded to underlying layers or to a hillside
- Most avalanches that impact the backcountry traveler are triggered by your own party
- Watch the weather! Rapid changes in wind, temperature and snow/rainfall may affect snowpack stability. Cold temperatures are more of a problem than warm temperatures, as they maintain an unstable snowpack
- A high percentage of avalanches occur shortly before, during, or after a storm
- Rapid snow accumulation increases danger; also, a foot or more of new snow is a concern
- Rainfall weakens or overloads layers and encourages them to slide

Check the avalanche forecast at Northwest Avalanche Center before you leave on your outing to obtain the current avalanche conditions. Other sources of current information are NOAA weather radio, the Forest Service, or a local ski area. Depending what the hazard is, find another destination (see Places to Snowshoe in this syllabus) or stay home!

If other than a Low Avalanche Hazard exists, it's best to pick a safer route - one on a ridge top and slightly on the windward side, away from cornices. Or, travel out in a valley far from the bottom of slopes. Avoid slopes with cracks (avalanche fracture lines) or areas where you hear a "whumpf" sound.

Avalanches most often occur on slopes of 30 to 45 degrees, but be suspicious of any slope between 25 and 65 degrees. Convex (curving outward) slopes are generally more dangerous, but they can occur on concave slopes also. Leeward slopes, north-facing slopes, and in the spring south-facing slopes can all be dangerous. Some avalanche slopes are obvious - they may have debris that is noticeable from previous events and may be devoid of trees. In general, slopes with large rocks, trees and heavy brush are less avalanche prone, as these things help anchor the snow.

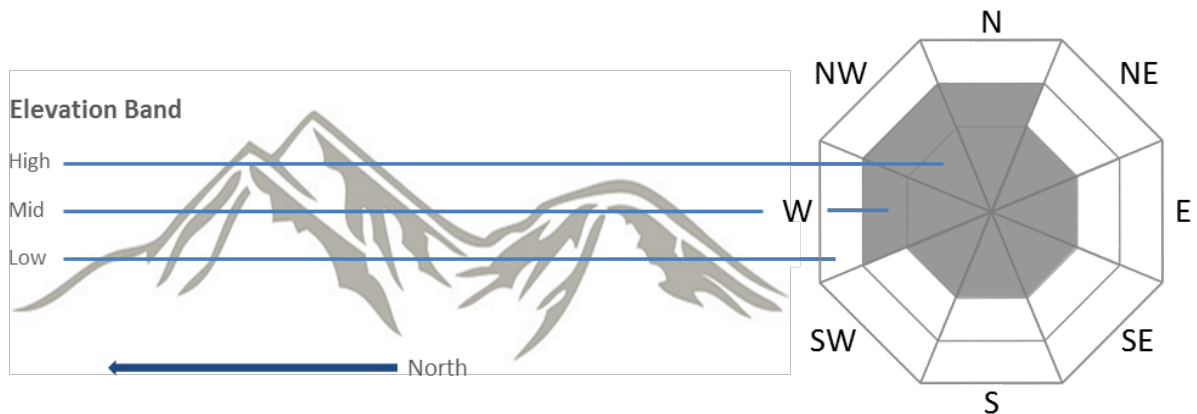
Should it be necessary for you to cross a potential avalanche slope, have the party cross one member at a time. Loosen your pack waist belt and sternum strap and remove ski pole straps so you can easily discard them if you get caught. Make swimming motions and try to stay on top of the moving snow as you work your way to the side of the slide. As the snow comes to a stop, try to make an air pocket in front of your face with your hands and inhale. Also, try to stick a hand or foot out of the snow; it might make you visible to rescuers.

The Avalanche Danger Rose

Location of the Avalanche Problem: Specialists develop a graphic representation of the potential distribution of a particular avalanche problem across the topography. In the following example, the diagram indicates that a particular avalanche problem is thought to exist on all high elevation aspects and on north to west-facing mid elevations (colored grey), and that it is less likely to be encountered on other aspects and elevations (colored white)

Source:

avalanche.org/avalanche-encyclopedia/avalanche-problem/



Danger Scale Legend

The United States and Canada use a five-category estimation of the avalanche danger: Low, Moderate, Considerable, High and Extreme.

North American Public Avalanche Danger Scale		
Avalanche danger is determined by the likelihood, size and distribution of avalanches.		
Danger Level		Travel Advice
5 Extreme		Avoid all avalanche terrain.
4 High		Very dangerous avalanche conditions. Travel in avalanche terrain not recommended.
3 Considerable		Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.
2 Moderate		Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.
No Rating		Watch for signs of unstable snow such as recent avalanches, cracking in the snow, and audible collapsing. Avoid traveling on or under similar slopes.
Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.		

The North American Avalanche Danger Scale is a tool used by avalanche forecasters to communicate the potential for avalanches to cause harm or injury to backcountry travelers.

Source: avalanche.org/avalanche-encyclopedia/#danger-scale

Winter Hazards

Weather

Before setting out on any trip, try to collect as much information about the weather as possible. Remember that weather predictions are never completely reliable. Be prepared for the worst

weather. Watching the clouds and noting the direction of the wind can provide useful indications of what the weather is doing. In western Washington, winds from the south or southwest usually indicate deteriorating weather; winds from the north usually indicate fair weather. Remember that valley and mountain winds and clouds can be a local phenomena. It is the higher winds that count; note the direction of the highest clouds that you can see. Weather can change rapidly in Washington. Weather systems can move through the mountains within hours. At one place in the mountains it may be 15°F., clear and still at 8:00 AM, and 40°F. with heavy rain and high winds by 2:00PM.

The Internet, newspaper weather maps, radio and TV reports all are useful. You should check these resources for the latest information prior to departure.

Driving

Not all of the winter skills you'll use involve snowshoes. Just to get to the trailhead you may need to know how to drive on snow and ice on mountain roads. Sooner or later, whether it's on a Mountaineer's trip or a trip of your own, you're likely to encounter snowy roads. Since Puget Sound's rare snowfalls don't give a driver much of a chance to practice, it may help to read about some basic techniques for winter driving before you find yourself on that patch of ice on I-90. Although the Washington highways are repeatedly dozed/sanded/salted, a few situations warrant special attention. Changing lanes should be done carefully on snowy roads because you may have to cross snowy patches to get into the next lane. Always reduce speed when approaching a curve or turn in the road. Of course, be sure to use your signals.

Getting There and Home Safely

Oftentimes you'll encounter different road conditions on the way back home, when you're tired. Warming temperatures or even the heat generated by traffic tires can cause water to sit on top of compact snow. This can be very slippery. Melting can occur on the road during the day then refreeze the moment the sun goes down. Black ice can look just like a bare road surface but is extremely treacherous. It can occur at altitudes and temperatures where the snow has turned to freezing rain or drizzle - or any place where melted water has frozen on the road surface. Remember that ice at 32°F. is twice as slick as ice at 0°F. Be alert and be prepared for sudden changes in road conditions.

Vehicle Preparation and Helpful Hints

Make sure your car is in good working order. In particular, check all fluid levels, tire condition and tire pressure. All-season or Mud/Snow tires are generally preferable. Tread depth should be at least one-eighth inch for it to grip in the snow. You should also have chains along on your travels. Wiper blades should be in good condition. Spraying a shot of dry lubricant into door latches will help keep them from freezing up. You may wish not to set your parking brake when you leave your car or it may freeze

solid while you are gone. Keeping a lighter or match with you (not in the car) can be helpful when you get back to the car: If the lock does freeze, try heating the key before inserting it into the lock. The key should warm up the lock enough for it to work again.

What is the definition of a traction tire?

An approved traction tire, whether on a four-wheel/all-wheel drive vehicle or a standard vehicle, must have at least an eighth of an inch of tread and be labeled M&S, All Season, or have a Mountain/Snowflake symbol. These tires can be used year round. When you install approved chains, any tire becomes a traction tire.

Source: <https://www.wsdot.wa.gov/winter/tiresidewall.htm>

Chaining Up

Mount Rainier National Park Tire Chain Requirement: All vehicles are required to carry tire chains when traveling in the park during the winter season (November 1 - May 1). This requirement applies to all vehicles (four-wheel/all-wheel/two-wheel drive), regardless of tire type or weather conditions. Law enforcement officers check for chains at the park. Source:

<https://www.nps.gov/mora/planyourvisit/tire-chain-faq.htm>

Chains not only provide better traction when climbing hills, they also help provide the necessary drag for better control when descending hills. Don't just have chains ... know how to properly install them. All chains come with instructions. Read them ahead of time, practice putting the chains on your tires and be sure to keep the instructions with the chains in the car. Be sure to put the chains on the tires for your drive axle. On a front-wheel drive car, that would be the front wheels and on a rear-wheel drive car that would be the rear wheels. On four wheel drive vehicles, it is usually the rear wheels that get the chains unless manufacturer's instructions are different. Having a pair of pliers and a screwdriver is also handy to accompany your traction devices. A bag of sand or clay type (non scooping) kitty litter is often handy to gain traction out of an icy spot.

Driving

Drive slowly and take your time. Patience pays off in safety. Don't follow too closely and resist the urge to travel too fast while in snowy/icy conditions. It takes much longer to stop your vehicle while driving on snow and ice. Accelerate and brake gently. Avoid accelerating and braking while on ice – if at all possible utilize bare patches to assist you in keeping your vehicle under control. Bare patches in the road allow the tires a place to grip but remember they may be covered with a layer of ice. Roadside reflectors can assist you in identification of the edge of the road. Always travel with your headlights on and in low beam.

Getting Stuck

If your car does get stuck in the snow and help is not within certain reach, it is usually safer to stay in your car until help arrives or until the weather changes than to wander out in the environment. Use some of the emergency items listed in the following checklist to keep you comfortable. If you run your engine for the heater, do so only for a few minutes at a time, saving on gas and being sure to ventilate the car.

Parking

Keep in mind that most winter parking areas require a SnoPark permit. Be sure that you have parked in a legal area as designated in the SnoPark brochure. Recreational parking is not allowed on highways, off-ramps, interchanges, or under overpasses. If possible, park your car facing downhill, and back into your parking place. If your battery should die, it will be much easier to jumpstart if the engine is accessible to the rescue vehicle. It is easier to get out of a parking place if you can put your car in Drive rather than in Reverse. Select a parking place where others are not likely to slide into it.

Equipment Checklist for Winter Driving

- Spare tire, in good condition and properly inflated
- Lug wrench & Jack
- Tire chains or cables (Practice beforehand, and make sure these fit.)
- Stout wire and pliers (for repairing chains)
- First Aid kit
- Shovel
- Flashlight with spare batteries and bulb
- Extra shoes or boots & Clothes
- Spare keys for car
- Coffee can filled with sand/clean cat litter; old rug; board or wire mesh screen (for traction)
- Windshield scraper
- Food and water
- Blankets or sleeping bag
- Jumper cables
- Extra money for pay telephone or emergency expenses

Fitness

Conditioning

The most important piece of equipment you have is your own body. Muscles and bones are created for work and will increase in capacity to handle the load asked. This is the basis for body conditioning and must be done or the penalty can affect the individual and party to the point of being a considerable hazard. Physical fatigue not only spoils the fun of an activity but may also create danger by impairing perception and judgment. Good physical conditioning is the best safeguard against emergencies. It allows you to recognize your limits and you are less likely to make fatigue-induced errors.

Getting in shape for snowshoeing consists mainly of improving your aerobic fitness. In addition, some basic strength and balance exercises can be helpful. Problems that may be associated with inadequate conditioning are: feeling winded, muscle soreness, kneecap area pain, shoulder, back and neck discomfort and falling. If you are in good condition you can reduce the likelihood of developing these problems and increase your enjoyment of any outdoor activity.

Aerobic Fitness

The major cause of muscular fatigue is the inefficiency of the circulatory and respiratory systems. Contributing causes may include dehydration, change in body temperature and depletion of energy sources. The bulk of muscular fatigue is traced to a lack of cardiovascular fitness. Energy expenditures may be nearly identical for all members of a Mountaineer party on a particular trip; however there may be wide variations in their available aerobic power - their body's ability to absorb and use oxygen. The amount of oxygen a person can use to do muscular work depends on age, sex, and training. An individual's maximum oxygen consumption is the amount of oxygen used to work oneself to exhaustion (the point where muscle biochemistry will not allow any further work). Thus, the length of time the expenditure of energy is required is significant. The experienced hiker sets the pace using a proportion of his available power so that he is capable of continued exertion to achieve the destination, return safely, and drive home. If you have less aerobic power than the other members of the party, you will be using a much greater proportion of your total aerobic capacity. The greater proportion of your aerobic capacity you use, the more you have to push to keep up and the sooner you will become exhausted.

Specific training activities for snowshoeing include step aerobics classes, stair climbing, using treadmills, walking, jogging, bicycling and hiking. The goal of your aerobic program would be to achieve a distance and elevation gain within 60-75% of those expected to be experienced on an activity. It is important to remember that you need to work up to this level gradually. The activity should be prolonged enough to

warm the muscles, produce a sweat, and induce mild breathlessness. To be of aerobic value, exercise should be 30 to 45 minutes in duration three to five times per week. Increase the length of your workout each week by 10 percent. Remember, the best way to keep yourself in condition for any activity is by doing that activity.

Strength Training

A strength-training program can help keep you well-toned and make your activities more enjoyable with less effort, less muscle soreness and lower risk of overuse injuries. Common muscle imbalances for snowshoeing are inadequate strength in the quadriceps and lower legs. The hamstrings may be weaker than the quads. The hip, especially those muscles on the front and inner groin, and buttock muscles are often not strong enough. Specific target areas should include the arms, shoulder girdle, posterior back, the quads, hamstrings and the abdominals. Because you are working on the endurance aspect of strength training your exercises should be done in 2-3 sets of 15-20 repetitions.

Stretching

Stretching is an important part of any physically demanding sport. Proper stretching not only reduces the chance of injury, but also improves performance by increasing flexibility. Flexibility training helps increase both circulation and range of motion in joints. A flexible joint can move farther with less energy, which is a definite benefit when hiking.

The first step is to make stretching a regular part of your conditioning program. Second and just as important is to include some stretching in your trips. Early morning stretching can be difficult because your muscles have not had a chance to warm up. Special care should be taken when stretching stiff or cold muscles. Some people prefer to do a little stretching after they have been hiking 10 to 15 minutes or during their first break when their muscles have had a chance to loosen up. A little stretching before, during, and after a strenuous trip can greatly reduce muscle stiffness. During your trips try to hold each stretch for at least 10 seconds. In training sessions, increase it to 60 seconds for each stretch. The main thing to remember when stretching is that it should never be painful and one should never bounce.

Balance

Your fitness program should include exercises to improve balance and agility. These exercises should be started within 4-6 weeks of your outdoor activity. They can be done as part of your strength-training program, with or without a pack, at least two times a week lasting 5-10 min.

Exercising In The Cold

Proper Warm-up

In cold weather it is more difficult to warm up the muscles. Therefore, it is essential to begin each outing with simple calisthenics or walking and stretching. Once begun, continue the warm up activity until the outing begins.

Wear Appropriate Clothing

Select clothing that will maintain comfort during the activity. There is a tendency to over dress, which can lead to sweat accumulation in clothing and loss of body heat. Be sure to stop 10 - 15 minutes into the activity to adjust your clothing layers. Hint: Start Cold!

Avoid Rapid Cooling

Add clothing when taking rest breaks or completing the outing to avoid post-exercise hypothermia.

Lactic Acidosis

During any intense exercise, like sprinting or lifting heavy weights, your body requires more energy than normal to keep the muscles functioning. In this case, the body metabolizes glucose to deliver energy to the muscles.

The metabolized glucose, called pyruvate, is converted into lactate. When lactate accumulates at high levels in the blood and muscles, it creates acidity called lactic acidosis, which causes muscle fatigue and at high levels can interfere with muscle recovery. The accumulation of lactic acid can cause burning sensations that can disturb your athletic activities.

While the most common symptom of lactic acid buildup is fatigue and a feeling of tiredness, there are a few harmful symptoms that can occur as a result of lactic acidosis.

- General weakness
- Yellowing of the skin and/or eyes
- Experiencing shallow or rapid breathing
- Fast heartbeat
- Muscle cramps
- Abdominal pain and discomfort
- Headaches
- Appetite problems
- Diarrhea, nausea, and/or vomiting

Experiencing normal fatigue shouldn't be anything to worry about since it goes away on its own. It just takes a good sleep or a few hours rest to get rid of

fatigue. However, too much lactic acid can cause lactic acidosis which needs to be taken care of.

There is a solution to almost everything and lactic acid buildup can be tackled easily. Here are some precautions you can take to reduce the buildup of lactic acid.

Drink water or an electrolyte-replacement drink, which can play a vital role in preventing buildup of water-soluble lactic acid. Don't wait until you feel thirsty. By then, you're likely already dehydrated.

The key to healthy and beneficial exercise is maintaining consistent activity. If you want to be physically fit, you need to exercise frequently. This will make your body adaptive to additional energy production and you will require less glucose to burn for energy, which eventually means less lactic acid buildup.

While it is true that keeping yourself motivated to exercise on a daily basis is the key to a healthy lifestyle, forcing your muscles beyond their capacity can produce negative results. Excessive workouts every day without any routine or cycle can cause severe muscle soreness. Make sure to stay challenged, but don't increase intensity too fast or all at once. Add weight, repetitions, minutes or miles gradually over a set period of time to maintain healthy levels of lactic acid.

Although there is an emphasis on consistent workouts and keeping yourself motivated enough to bring out desired results, you must know when to back off. As you start to feel your muscles burn or you struggle to breathe, slow down until you catch your breath, so your body can deliver more oxygen to the muscles. Moreover, alternate periods of activity with periods of active and inactive rest as appropriate.

Stretch immediately after your workout. Stretching after a workout helps release lactic acid and gives an immediate relief to your muscles preventing them from lactic acid buildup and muscle soreness. Lactic acid can take around 30 minutes to an hour to disperse post-workout, so make sure to cool down appropriately and stretch right after.

Apart from above-mentioned steps, including certain foods into your daily diet can help control lactic acid buildup to avoid lactic acidosis. Foods and vegetables with magnesium, fatty acids, and B vitamins are recommended. Foods rich in Vitamin B are leafy green vegetables, cereals, peas and beans, fish, beef, poultry, eggs and dairy products. Vegetables such as Spinach, collard greens, turnip greens, navy beans, kidney beans and seeds such as pumpkin, sesame and sunflower seeds are great sources of magnesium.

Nutrition

Maintaining your health and energy in the winter environment is not tremendously different from what you do everyday - you need to eat, drink, and stay warm. However, it does require a little more effort and planning ahead.

On short trips, your biggest concern will be getting plenty of water and high-energy foods to boost you up to your goal. Obviously, the lighter the food the less weight you have to carry on your back. At the same time, it's not a good idea to shortcut on needed calories, electrolytes and especially not on water. Energy requirements (i.e. calories) will vary somewhat depending on an individual's conditioning and metabolism, as well as on the length and effort of the trip.

Carbohydrates, fats and protein all yield energy. Fatigue, poor recovery and aching muscles reflect a lack of critical nutrients. A balanced diet of 55% carbohydrates, 30% fat and 15% protein is recommended daily. Carbohydrates however, are the main emphasis for endurance exercise.

Complex carbohydrates such as dried fruits, whole grain breads and pasta, and brown rice digest fairly easily, which makes them good for quick energy and high altitudes. For cold environments, foods high in fats are needed, such as butter, nuts, cheese and chocolate. Unfortunately (especially if you love chocolate) these foods do not digest as easily as carbohydrates and thus are not as good in high altitude situations.

Food Planning

Try to take foods that are simple to prepare and require minimal clean up. Pre package/repackage your food to save on bulk and weight. Carbo-loading will give you a head start on your energy needs. Overall, you should expect to expend between 3000-5000 calories per day on an average outing in the Cascades. Plan your food accordingly!

Fluid Consumption

Even in cold weather, you need to avoid dehydration by maintaining your fluid level. The average adult loses 1.5 to 2 liters (1.5 to 2+qts.) of water from his or her body each day. "Sensible loss", which is water excreted by the kidneys ranges from 1 - 2 liters a day. "Insensible loss", through perspiration (even in cold weather) and evaporation from the lungs (to moisten air that is inhaled) accounts for one-half to one liter daily. Failure to replace normal water loss (through the kidneys, skin, or lungs) or abnormal losses results in dehydration. The subsequent reduction in blood volume affects circulation increasing your risk of developing hypothermia or frostbite.

With mild exertion, water intake should be at least 2 quarts per day. With heavier exertion or at high altitude, 3 - 5 quarts are needed. Thirst alone is not a reliable indicator of the need for water. In cold weather, we don't crave cold drinks. You need to make a conscious effort to consume fluids and maintain hydration. Hint: Drink before you are thirsty, and drink often.

Fluid Guidelines

Pre-hydrate before you begin your trip. Lattes do not count! Carry two 32 ounce water bottles. Drink at every opportunity during the outing. Water is the fluid of choice, as it is most easily absorbed by the body. If you are out more than two hours and really exerting yourself, you may consider adding an electrolyte powder to your drink.

When the trip is over, rehydrate with fluids containing sodium. You are less likely to blunt the "thirst drive" and adequately rehydrate your body.

When Nature Calls

Go pee when you need to... and when you don't - Your body has to burn calories to keep urine warm, so it's better in the long run to just deal when your bladder calls. By emptying your bladder, your body needs to use a little less energy to stay warm.

For ladies it's your choice if you prefer to drip dry, use a pee rag or pack out your toilet paper. Pee rags can dry when hanging on the outside of your pack or inside your tent at night. Pee funnels are a great way to maintain privacy, and keep your bum warm throughout the day's potty breaks.

If you are menstruating, another way to keep what you need to pack out to a minimum and make your travels easier is a menstrual cup. The menstrual cup is also useful on outings because you can leave it in place longer than tampons. Usually 12 hours for a menstrual cup, instead of 8 for a tampon. Menstrual cups need to be cleaned when emptied, but since they do not need to be changed as often as tampons, this can usually be done in camp instead of on the trail.

When on the snow we can't dig a cat hole and bury our business. This too needs to be packed out. Here is where you can use a trusty blue bag. Do your business on the snow, collect the waste using the blue bag like a glove. Turn the bag inside out and secure. Then place it in another bag. Deposit the bag in blue barrels at the trailhead (Camp Muir/Sherman). You can also use a WAG bag or other poo kit, which comes with two tear resistant bags, pooh powder, toilet paper and hand sanitizer. The non-toxic Pooh Powder waste treatment treats up to 32 ounces of liquid and solid waste allowing for multiple uses and turns liquid waste to a solid for hygienic and spill proof transport. The Pooh Powder waste treatment controls odors and contains a decay catalyst that breaks down solid waste.

Cold Weather Injuries

Most people snowshoe because they enjoy the beauty and serenity of the mountains in winter. But this environment can also be hazardous. To cope with the hazards, you must know what this winter environment is like and how your body responds to it. Typically, the environment is cold, wet and windy. Travel in deep snow is

often slow and strenuous. Trails that can easily be followed in the summer are hidden by snow. Winter days are shorter than summer days. All of these factors can make it easy to become exhausted, lost or caught by darkness in the mountains.

Staying Warm and Dry

To fully enjoy the winter environment, and to be comfortable and safe, you need to stay warm and dry. Being cold and wet is not only miserable, it is dangerous. Hypothermia is a condition in which your body's internal core temperature is low enough to cause illness. Hypothermia can occur without warning and can affect judgment and reasoning rather quickly. Unless treated, hypothermia leads to apathy, collapse, and eventually death.

Your Body Gains or Converses Heat In Four Ways

Digestion of food produces heat to maintain normal body temperatures. External application of heat (sun, fire, and warmth from another body) warms your body.

Muscular activity by deliberate exercise or involuntary shivering warms your body. Reduction of blood flow near the surface of your body constricts surface blood vessels, reducing circulation in your skin and keeping blood nearer your body's central core for use by your brain, heart and lungs.

Your Body Loses Heat In Four Ways

Evaporation causes a large loss of thermal energy as water changes to vapor. Examples are perspiration from your skin and exhaling moisture from your lungs during breathing.

Conduction transfers heat by direct contact. Contact with anything cooler than skin temperature contributes to heat loss. Examples are sitting on the snow, touching cold equipment and being rained on.

Radiation is the emission of thermal energy and causes the greatest heat loss from uncovered surfaces of your body. Your head and neck, areas where large blood vessels come close to the surface of your body, are particularly susceptible to radiation heat loss. Your unprotected head may lose up to 50% of your body's total heat production at 40°F.

Convection facilitates heat loss by movement of air or fluid. Your body continually warms a thin layer of air next to your skin. If this warm air stays close, it insulates you; but if air currents remove warm air, your body cools at a much more rapid pace. This is why the wind can chill you so quickly.

Eating and Drinking to Help Keep Warm

Since you will sweat while snowshoeing, you must drink fluids to avoid dehydration. Plan on at least two liters of water for an all-day outing. Don't drink a lot at

any one time. Instead, drink a little, but drink often even if you don't feel thirsty. Cold decreases your thirst even as your need for water increases.

Your body burns fuel to stay warm and to work your muscles. You may use up to 6,000 calories on a one-day outing. You must replace these calories to stay warm and keep going. Snack often and primarily on easily digestible, high-calorie carbohydrates. Pack foods that you know you will eat.

All this exercise produces fatigue by-products that can be remedied through rest. Keep a slow, steady pace and rest about 5-10 minutes every hour.

Hypothermia

Although not a condition of cold weather alone, hypothermia is a continuous threat to snowshoers. You need to know how to recognize, prevent and treat this illness. If your body loses more heat than it gains, your body core temperature will decrease progressively until hypothermia results. Exposure to cold constricts the blood vessels in your skin and then the deeper lying tissues. The effect is to decrease the amount of heat transported by your blood to your skin so your skin temperature becomes lower.

Preventing Hypothermia

- Prevent Heat Loss
- Control evaporative heat loss by regulating clothing to prevent excessive sweating.
- Cover your head, neck and hands. Put on a hat.
- Wear layers of clothing that help maintain a layer of warm air next to your body.
- Use insulation between your body and cold objects. Wear pile or fleece. Wear a wind or rain jacket and pants in windy or wet weather. Exchange wet clothes for dry ones. Don't wear cotton. Use a sit pad during rest breaks.
- Wear clothes that insulate when wet or that wick wetness away from the body.
- Cover your mouth and nose with wool or insulating material.
- Drink water and eat food high in carbohydrates, fats and sugars.
- Keep continuously active to ensure adequate heat production.
- Terminate Exposure
- Get out of the wind, rain and snow. Find shelter. Bivouac early before your energy is exhausted and your coordination and judgment are impaired.
- Put on your wind and rain clothing.
- Use your emergency blanket for shelter or an additional clothing layer.

- Detect Hypothermia Early

Anytime you are exposed to wind, cold or wetness, watch each individual for the signs and symptoms of hypothermia. Treatment of early hypothermia is relatively simple compared to the efforts needed to deal with a severely ill individual. The individual may deny having any problems. Believe the signs and symptoms, not the victim.

Signs of Hypothermia

Mild Hypothermia

- Complaints of Cold
- Shivering
- Difficulty using hands
- Core temperature above 90° F (32° C)
- Psychological changes, withdrawal and apathy

Moderate to Severe Hypothermia

- Lethargy, mental confusion
- Refusal to recognize the problem
- Uncontrollable shivering
- Slurred speech
- Stumbling
- Core temperature 90° F (32° C) or lower

First Aid

- Get the patient out of the cold and wet.
- Replace wet clothes with dry; add insulation to clothing
- Place the patient in a warm environment
- Offer warm liquids or food if the patient is conscious and able to swallow.
- Rehydration is dramatically effective in treating mild hypothermia.
Dehydration is a strong contributing cause of hypothermia.

Frostbite

Frostbite is caused by constriction of surface blood vessels in conjunction with exposure to cold. Your hands and feet are affected most commonly, but your nose, ears and face are also particularly susceptible when it is cold. If the temperature continues to drop, circulation will almost completely cease in the affected area and frostbite will occur.

Preventing Frostbite

- Wear enough clothing.
- Wear a hat, balaclava or hood; mittens rather than gloves; extra socks if they won't make your boots too tight; wear a facemask in strong, cold winds. Exercise your fingers and toes to maintain adequate circulation.
- Don't wear constricting clothing or boots.
- Don't touch cold metals with bare skin.

Activities and Rating System

Activity listings are found online at www.mountaineers.org. Each activity will include the trip difficulty rating, location, applicable map details, trip leader information, registration dates, and any other trip specific instructions. Some trips may require a SnoPark Permit for trailhead parking. Confirm with your leader what permits or passes may be needed and location to obtain one.

Rating System

Trips will be rated in terms of both technical difficulty and strenuousness. Both ratings must be available to participants when they sign up.

Technical Rating System

The technical difficulty of a trip is specified as one of the following three values: Beginner, Basic, or Intermediate. Each value has a specific meaning defined as follows.

Rating	Description	Prerequisites
Beginner	Terrain is flat or gentle with minimal avalanche danger. Limited to Easy and Moderate routes.	Open to all properly equipped members and non-members of The Mountaineers.
Basic	No exposure to steep terrain which would require the use of an ice axe with minimal avalanche danger. Route can be of any strenuous level.	Must be a student or graduate of Basic Snowshoeing, and students must have successfully completed the field trip prior to sign-up.
Intermediate	Exposure to terrain that may require the use of an ice axe and/or the use of avalanche tools: beacon, probe, and shovel. Route can be of any strenuous level.	Must be a student or graduate of Intermediate Snowshoeing, Alpine Scrambling graduate, or Basic Climbing graduate. Intermediate Snowshoeing students must have successfully completed the field trip prior to sign up.

Strenuousness Rating System

The strenuousness of a trip is classified as one of the following four values Easy, Moderate, Strenuous, or Very Strenuous. Each value has a specific meaning defined as follows.

- **Easy:** Up to 750 ft. elevation gain, and up to 6 miles round trip. Most likely on an established trail or road.
- **Moderate:** Up to 1,500 ft. elevation gain, and up to 8 miles round trip.
- **Strenuous:** Up to 2,500 ft. elevation gain, and up to 10 miles round trip.
- **Very Strenuous:** Over 2,500 ft. elevation gain, or over 10 miles round trip.

Gear Information

While rental and purchasing information changes from year to year and the research put forth into this Appendix usually occurs before the start of the winter season. Please be sure to call ahead to the company listed to confirm rental and/or winter gear is still offered.

Gear Rental Information

Snow Links		https://tinyurl.com/tacoma-snow-links	
Miyar Adventures	425.749.9549	miyaradventures.com/gear-rentals/	20% discount
REI (Seattle store only)	206.223.1944	rei.com/stores/rentals	
Wilderness Outdoors	206.780.8527	wildernessoutdoorstore.com/gear-rentals/	
Whittaker's Mountaineering	800.238.5756	https://whittakermountaineering.com	

Retail Stores Offering Mountaineers Member Discounts

Backcountry	Internet	backcountry.com	15% discount ¹
ExpertVoice	Internet	expertcity.com	Up to 70% discount
Miyar Adventures	Redmond	miyaradventures.com	15-20% discount
Mountain Hardwear	Seattle	mountainhardwear.com	15% discount
Outdoor Research	Seattle	outdoorresearch.com	10% discount
Wilderness	Bainbridge Island	wildernessoutdoorstore.com	10% discount

Other Retail Stores

Alpine Ascents	Seattle	shop.alpineascents.com/shop/
Arc'Teryx Outlet	Marysville	arcteryx.com
Ascent Outdoors (new/used)	Seattle	ascentoutdoors.com/
Dick's Sporting Goods	Various	dickssportinggoods.com
Feathered Friends	Seattle	featheredfriends.com

¹ Add items to cart and then email William Bowen at wbowen@backcountry.com to apply discount on full priced items. Be sure to identify yourself as a Mountaineers member in your email.

REI Co-Op	Various	rei.com
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Online Retailers

Amazon	amazon.com	Various
Everest Gear	everestgear.com	New
Moosejaw	moosejaw.com	New
Mountain Steals	mountainsteals.com	Discounted New
Sierra Trading Post	sierratradingpost.com	Discounted New
Steep And Cheap	steepandcheap.com	Discounted New

Mountaineers Sources

Gear Grab	Multiple Times Per Year	Various Branch Locations
Mountaineers Gear Trade, Swap and Sell	Facebook Group	Member Sales
Mountaineers Marketplace	Facebook Group	Member Sales

Easy Snowshoe Trips

The following suggested tours are almost all on roads, so that it is hard to get lost. It is still important to carry a map and compass in case of severe weather. Always carry the "ten essentials", try to be with 2 other people and make sure someone knows your plan.

- Hwy. SR7, Ashford-Copper Creek Hut, MTTA map
6+ miles roundtrip, elev. gain 900'. This trail is maintained by the Mount Tahoma Trails Association(MTTA). Huts are for overnight or lunch. Buy the map at MTTA HQ. behind Ashford Fire Station or at Whittaker's Summit Haus. Snow Park pass required. Buy it at Ashford gas station.
- Hwy. SR7, Ashford-Snow Bowl Hut, MTTA map
9 miles roundtrip, elev. gain 1900'. This road trail is on the south side of Hwy. Try Copper Creek Hut first.
- Hwy. SR7, Mount Rainier National Park-Paradise, GT Paradise No. 270S.
Roam around the open meadows above and below the parking lot. Be careful, a whiteout condition can confuse you just a few feet from the parking lot. The Visitor Center has food and water.
- Hwy. SR7, Mount Rainier-Reflection Lakes, GT Paradise No. 270S
6-7 miles rt, 500'. This nice, easy tour starts at the east end of the parking lot. The 500' climb is on the way back up the road.
- Hwy. SR7, Mount Rainier-Narada Falls, GT Paradise No. 270S
5 miles roundtrip, 400'. This lower parking lot has a warming hut with bathrooms. Walk to Reflection Lakes or to Paradise. Cross river to trail which is sometimes marked.
- Hwy. SR7, Mount Rainier-Ricksecker Point, GT Mt. Rainier W No. 269
1 mile rt., 100'. Roam around Cougar Rock Campground or cross the road and take the trail to the point.
- Hwy. SR7, Mt. Rainier-Ashford-Glacier View Vista, MTTA or GT Mt. Rainier W No. 269.
This easy tour is 5-6 miles with a 1000' gain. Road 59 is your route. It is no longer plowed so park at the snowline or below.
- Hwy. SR7, Ashford-High Rock Trailhead, GT Randle No. 301
0-12 miles rt, 0-1200' gain. Road 84 is your route. Park at the snowline or below.
- Hwy. SR12, Packwood-White Road Snow Park, GT White Pass No. 303

7 miles, 500'. Easy road tour on Road 1284, located 0.7 miles west of White Pass. Snow Park pass required. Formerly called Yellow Jacket Road.

- Hwy. SR165, Wilkeson-Mowich Lake, GT Mt. Rainier W No. 269
0-16 miles, 0-1700'. SR165 is not plowed. Sometimes, there are jeeps on the road. Park at the snowline.
- Hwy. SR165/Road 78, Wilkeson-Coplay Lake, GT Mt. Rainier W No. 269 & Enumclaw No. 237. This tour covers 0-10 miles and 0-2000' gain or Road 7810. Park at snow. Hwy. SR410, Sun Top/ Huckleberry Cr., GT Greenwater No. 238, 0-12 miles, 0-3000'. Snow Park pass is required. Lot is 1.4 miles down Road 73. Steep trail to Sun Top Lookout or go up easy Road 73. Snow is early and reliable on Sun Top trail.
- Hwy. SR410, Corral Pass, GT Lester No. 239, Greenwater No. 238 and Mt. R-E No. 270.
Park at snow level or below and go up this very steep road 0-10 miles with 0-2700' gain. Notice Sun Top appears just as steep.
- Hwy. SR410, Road 70 or 74, GT Greenwater No. 238.
There are many road options, but lots of snowmobile traffic. Try Road 7430 to Clear West Peak Trail parking lot.
- Hwy. SR410, Crystal Mountain Ski Area, GT Bumping Lake No. 303.
Stay on the fringes of the ski runs & off the groomed snow.
- Hwy. I-90, Stampede Pass, GT Snoqualmie Pass No. 207
0-12 miles, 0-1300' gain. Park at Crystal Springs Snow Park on Road 54, exit 62. This area connects to the Iron Horse Trail. Road 54 may have snowmobile traffic. Best Monday thru Friday.
- Hwy. I-90, Gold Creek, GT Snoqualmie Pass No. 207
0-8 miles, 0-1500' gain. Park at Gold Creek SnoPark on road 144, exit 54. No snowmobiles here.
- Hwy. I-90, Kachess Lake Road, GT Snoqualmie Pass No. 207
0-16 miles, 0-2000' gain. Park at Kachess Lake Snow Park on Road 49, exit 62. Go on Road 4948. There may be snowmobiles. Best Monday thru Friday.
- Hwy. SR101, Olympic National Park/Hurricane Ridge, GT Mount Olympus
0-16 miles. Park at Hurricane Ridge lot and follow the road towards Obstruction Point up to 1000' gain. This road trip is for advanced skill level except on exceptionally good weather days.

Reading and References

The following books provide good sources of information relating to all aspects of snowshoeing and winter mountain activities. Most books are available at [The Mountaineers Bookstore](#), REI and Amazon.

- Mountaineering The Freedom of the Hills, 9th Edition by the Mountaineers
- Wilderness Navigation by Bob & Mike Burns
- Mountaineering First Aid, 4th edition – published by The Mountaineers
- Snowshoe Routes – Washington by Dan Nelson
- Snowshoeing Routes – Oregon by Shea Andersen
- Snowshoeing: from Novice to Master, 5th edition by Gene Prater
- Snowshoeing: A trailside guide by Larry Olmsted
- 100 Best Cross Country Ski Trails in Washington by Vicky Spring & Tom Kirkendall
- Conditioning for Outdoor Fitness by Musnick and Pierce
- Snow Sense by Jill Fredston & Doug Fesler
- Staying Alive in Avalanche Terrain, 3rd Edition by Bruce Tremper
- The ABC's of Avalanche Safety – 3rd edition by Ferguson & LaChapelle
- The Avalanche Handbook, 2nd edition by McClung and Schaerer
- Avalanche Safety for Skiers, Climbers and Snowboarders, 2nd edition by Daffern

Information Sources

— The Mountaineers	mountaineers.org	206-521-6000
— National Weather Service	weather.gov/sew	206-526-6087
— Northwest Avalanche Center	nwac.us	
— Mount Rainier National Park	nps.gov/mora	360-569-2211
— Washington State DOT	wsdot.wa.gov/traffic	888-766-4636
— Backcountry Information / Permits		
Mount Rainier National Park		360-569-2211
Olympic National Parks		360-452-4501
Washington State Parks Info		800-233-0321
North Bend Ranger Station		425-888-1421
Mt Baker Ranger Station		360-856-5700
North Cascades National Parks		360-856-5700
Skykomish & Stevens Pass Ranger Station		360-677-2414
Hoodsport Ranger Station		360-877-5254
— Alpine Snow Phones		
The Pass		206-236-1600
Stevens Pass		206-634-1645
Mt Baker		360-671-0211
— Road Conditions		
National Weather Service		206-526-6087
WSDOT		511
— Weather Broadcast Stations (Continuous 24 hour)		
KHB-60		162.55 MHz
WXM-62 NOAA Weather Radio		162.475 MHz

Graduation Requests

The graduation process requires two items; stewardship verification and the graduation request form.

If your stewardship was completed with the Mountaineers, then that will show on your profile and nothing more in that regard is needed.

If you completed your stewardship with a different organization, then print the [Stewardship Activity Verification.pdf](#) and have the organization/leader sign it.

The graduation request form can be filled and submitted online. There is an option to upload your signed Stewardship Activity Verification if needed.

Stewardship Verification Form: https://www.mountaineers.org/locations-lodges/tacoma-branch/committees/tacoma-snowshoeing-committee/graduation-requests/Stewardship%20Activity%20Verification.pdf/at_download/file

Graduation Request Form: <https://www.mountaineers.org/locations-lodges/tacoma-branch/committees/tacoma-snowshoeing-committee/graduation-requests/basic-snowshoe-graduation-request>

Stewardship Activity

Tacoma Mountaineers Stewardship Volunteer Activity Verification

On _____, _____ participated as
DATE VOLUNTEER NAME

A volunteer at _____ and
ACTIVITY SITE

Performed assignments that aided the environment and its positive effects on the local community.

SIGNATURE OF VOLUNTEER COORDINATOR