NORDIC SKI COURSE
STUDENT INFORMATION

SPECIAL THANKS TO THE EVERETT BRANCH FOR LENDING ALL THEIR GREAT MATERIAL.

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Cross-County Skiing: Kick UP Your Heels! (Borrowed from REI)

Want to add some variety and "kick" to your winter? Cross-country skiing may be just the thing. Unlike alpine skiing, in which your feet are completely secured to your skis, cross-country skiing is "free heeled" – that is, the bindings allow your feet and ankles to flex so you can move forward with a normal stride. Cross-country skiing is not just one, but several styles of skiing that allow you to cover varied terrain and get a great aerobic workout. Cross-country skis can take you anywhere form flat, groomed trails to backcountry powder to steep mountain slopes – and without waiting is lift line!

A Little History:

Cross-country skiing was invented as a means of travel hundreds of years ago in Scandinavia. On long narrow skis, travelers were able to kick and glide from place to place on a gentle terrain. They later learned to descend steep slopes using unique styles of bent-knee turns that became known as telemark skiing. Gradually, these modes of travel developed onto a sport. Trails were built specifically for the new pastime, many of which were groomed to allow smooth, rapid skiing. Telemark techniques, which were developed for crossing rougher terrain, were reserved for backcountry play.

QUICK READ

1. Cross-country encompasses several styles of free-heel skiing, form in-track to backcountry.
2. Sleek, lightweight skate gear is made for aerobic workouts and racing on groomed trails.
3. Touring gear is ideal for day trips on groomed trails. Backcountry touring gear is heavier, more durable and has metal edges for turning, stopping and breaking trail.
4. Telemark and randonee (or AT) gear is the most rugged and is made for navigating steep terrain.

Cross-country Skiing Today

Today, the terms "Cross-country" and "Nordic" are used interchangeably to describe the collection of related skiing disciplines that use free-heeled ski gear. These techniques all have roots in the original striding style of early cross-country skiing, but they also have distinct features that set each of them apart. Because all of the similar ski equipment, it is often possible to enjoy a number of these different skiing styles with a single set of skis, poles, boots and bindings.

Classic Striding: This is the original "kick and glide" technique used by cross-country skiers. It consists of a combination of normal walking steps and long, graceful forward glidesIt's the most popular of the cross-country techniques, probably because it's the most versatile and easiest to learn. Best suited to flat or gently rolling terrain, it can be practiced in groomed ski areas, on snow covered roads or trail, or in the backcountry. Classic striding is the basic technique for all the cross-country disciplines. The stride is also called the diagonal stride due to the limbs diagonal from each other swing in the same direction. There are two main categories within the classic styles:

General Touring: This describes classic kick-and –glide skiing when it's done in a groomed ski area or on maintained roads or trials. Touring on machine-made tracks is typically called "track skiing."

Benefits:

- It's easy to learn o general touring is the style most people learn before venturing into other cross-country disciplines. Following pre-made tracks and maintained trails lets you concentrate in learning and having fun rather than navigating.

- It's excellent form of exercise – striding helps you develop balance, endurance and aerobic capacity, while working muscles in both your upper and lower body.
- It's convenient – skiing in an established ski area doesn't require a lot of extra gear, so you can stuff a few extras in a fanny pack and be on your way.

Backcountry Touring: Think of this style as wilderness exploration on skis. It takes traditional classic striding techniques off trails and beyond flatlands. Backcountry touring often involves up and down travel and officer the chance to learn and practice climbing on skis and making telemark turns.

Benefits:

- It offers variety – it lets you explore a wide range of terrain: plus, you can combine ski trips with winter camping or orienteering.
- It's challenging – it requires physical work and enthusiasm, but rewards those efforts with great views and experiences.
- It lets you "get away from it all" – it allows you to venture into true wilderness, perhaps exploring a mountain bowl filled with fresh powder or making the first tracks across a high meadow.

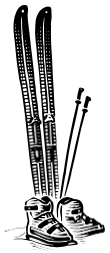
Skating: This style of skiing is for those who want a great aerobic workout! Developed by racers, skating is a dynamic, exciting style that has a motion similar to incline skating or ice skating. Using angled, gliding strides and long, powerful pole stokes, skaters slide across smooth, hard-pack surfaces, usually on trails that have been groomed specifically for skating. This is a fast-moving and fast-growing cross-country style, popular with everyone from professionals to first-timers.

Benefits:

- It's fast – it's the quickest way to slide on Cross-Country equipment, a natural choice for racers, speed-demons and anyone else looking to 'fly' on skis.
- It's unique – skating offers a fun, exciting alternative to traditional striding techniques. It can be enjoyed in established cross-country ski areas or out in the wilderness when conditions are right.
- It's a highly aerobic form of exercise – skating works the entire body, while developing coordination and endurance.

Telemark

This challenging style of fee-heel skiing is used for traveling on steep or uneven terrain. Developed hundreds of years ago in the Telemark region of Norway by the pioneers Sondre Norhien, it combines striding with a distinctive technique for carving turns. Telemark is generally practiced in the backcountry, but can also be done on lifted-assisted ski slopes. This style if skiing has experienced a rebirth in recent years and is growing in popularity across the United States and Europe.



Nordic Ski Clothing

Clothing for Nordic skiing must keep you warm, comfortable, and protected from the elements. The level of protection you need will depend on the kind of skiing you have planned, the expected weather conditions and the length of your tour. Always be prepared for a range of conditions and choose clothing that allows free movement.

General Guidelines

Be Prepared: Weather conditions can change quickly, no matter how short your tour is or how close you are to home. Be prepared for changes every time you venture out.

Dress in layers: The easiest way to stay warm, comfortable, and dry while Nordic skiing is to dress in a series of lightweight, non-binding clothing layers. This will allow you to add or remove layers throughout the day in response to weather and internal temperature changes.

Don't overdress: One of the most common mistakes made by novice Nordic skiers is to wear more clothing than they need. Nordic skiing is an aerobic activity, one that can produce a lot of body heat quickly. Remember – it won't take long to warm up and shake off that early morning chill. Or consider removing a layer and the start a tour a bit cool knowing that you will soon be warm.

Note: Wearing too much clothing can lead to increased perspiration, which can lead to discomfort, chills and even hypothermia.

Basic Layer Tips

Long underwear – the layer next to your skin: Wicking fabrics help keep you dry and warm by pulling the moisture away from your skin and transporting it out into your other clothing layers (where it can evaporate without robbing you of important warmth).

Long underwear is available in a variety of thicknesses or "weights" to provide different levels of insulation. On warm days, light or medium-weight underwear may be enough to keep you comfortable as you ski. In colder conditions you may want something thicker. If you can choose only one pair of long underwear, opt for lightweight and remember your underwear will be the first of several layers (i.e., you will be able to increase your warmth with other layers).

Don't forget to consider your feet when choosing your underwear. A two-layer system works best. The first layer is a thin sock made out of polyester or wool. The inner layer will keep your feet dry and help prevent blisters (though you should still tape hot spots on your feet to prevent blisters).

Long underwear should be constructed out of a synthetic material like polypropylene or a natural fiber like wool or silk. **Do not wear long underwear made of cotton, or any clothes made of cotton.** Cotton does not wick moisture, it dries slowly, and it losesits heat retaining qualities when wet. Being cold in winter conditions isn't just uncomfortable; it can impair your well-being.

An insulating layer provides additional warmth. On most ski tours, you'll need additional insulation on top of your long underwear. When choosing insulation layers, consider the expected weather conditions and how hard you'll be skiing.

In general, you'll want layers that are lightweight, comfortable, and quick drying. Examples of insulating layers include shirts (be sure they're long enough to tuck into your pants), vests, pullovers, sweaters, zip-front jackets, and pants. No matter what kind of insulating layers you choose, make sure they fit well and allow you to move freely as you ski. Trapping air between layers is the key to generating warmth. Clothes that are too tight will not allow for trapped air, and they may constrict blood flow (which will also make you colder) and hamperyour ski technique.

The most popular materials for insulating layers are wool and synthetic fleece. Wool is a traditional favorite because it's natural, durable and keeps you warm even when wet. Fleece is extremely popular because it's lighter than wool, dries more quickly, insulates while wet and is available in a wide variety of thicknesses, styles and colors. There are also insulating layers made from wind-blocking fabrics. These are expensive but are effective in mildly windy conditions. Again, do not choose clothing made from cotton for your insulating layer. Cotton will leave you cold if it gets wet, and this will compromise your safety.

Things to consider when packing insulating layers for a trip:

1. Carry a range of insulating layers. Conditions and your activity level will change during the day. A shirt may be enough insulation while you're skiing, but you may want a jacket, pullover or vest to put on while you stop for lunch.

2. Select items that allow for ventilation. Jackets and shirts with buttons and zippers will allow you to customize coverage and ventilation and thereby increase your comfort as you ski throughout the day.

3. Down is warm and light weight, but it is useless when wet. If you carry a down jacket, be sure to have reliable raingear to keep it dry.

Choose reliable raingear

Rain gear keeps out the rain and wind. Precipitation and wind chill can be problems on any Nordic ski trip, no matter how good the weather looks when you start out. Staying dry and warm is essential to staying safe. Carry some form of protective rain gear with you on all trips.

Be sure to purchase parkas with hoods. Also consider your zipper options. Parkas with full zip fronts and "pit zips" offer more ventilation options, and rain pants with full side zips will allow you to put on the pants without taking off your skis and boots. All seams on your rain gear should be sealed. If this hasn't been done in the manufacturing process, purchase a seam sealer and do it yourself.

Rain gear is made from a variety of materials that vary considerably in cost. Coated nylon is adequate and less expensive than Goretex or other "membrane" laminated fabrics but should be used sparingly since the coated nylon retains perspiration which is chilling. The advantage of Goretex and similar products is their ability to ventilate. If cost is a consideration remember, you can look for a jacket made from a non-porous material that has ventilation options in the form of a full zip front and pit-zips. (If you find such a thing as cotton raingear, put it back on the rack. Remember: cotton will not keep you warm if it gets wet).

If you ski regularly on ungroomed trails, you will want to consider purchasing a pair of gaiters to keep snow out of your boots and your feet warm and dry. High top gaiters are more effective than the low top variety, and make sure to purchase a pair with an adjustable strap or cord at the bottom. This strap goes under your boot and keeps the gaiter in place. Gaiters should be fitted with side zippers and/or Velcro closures. Those with both are most effective. As with rain gear, coated gaiters will retain moisture versus gaiters with a membrane cloth that vents moisture.

Take care of your head, neck, and wrists

Skiers lose the most body heat through their heads, necks and wrists. Make sure that you protect these important areas. Wear a warm hat, warm socks and thick, comfortable mittens or gloves. If you get cold, put on a hat.

Protect yourself from the sun

Remember to protect yourself from the sun. Be sure to have a brimmed hat (like a baseball cap) and sunglasses on hand and be sure to apply sunscreen before you begin skiing. On sunny days the light reflecting off the snow can be intense and obscure your view of the surface of the snow, and prolonged exposure to the sun can cause serious burns and snow blindness. Sunburns are also possible even on cloudy days, so always (yes, always) carry a brimmed hat and protective sunscreen when you tour, as well as reliable sunglasses with good UV protection.

Carry extra layers

Staying dry is an essential part of staying warm and safe. Make sure you have extra socks, extra mittens/gloves and a warm hat nearby whenever you go on a tour. For longer trips and trips further into the backcountry, carry extra insulation layers and extra-long underwear in case your primary layers get wet.

New Equipment and Clothing — Where to Get It

Mountaineering Equipment versus Camping Equipment
Many stores carry outdoor clothing and equipment primarily suitable for camping or light backpacking. While their prices on some items may be less than the specialty stores, these locations mostly do not carry items suitable for mountaineering. This includes Big 5 Sporting Goods , GART Sports, Alpine Hut (Seattle), Sports Authority, and various other department and discount stores.

New Equipment & Clothing
Recommended places to purchase clothing and equipment for skiing, hiking and scrambling are listed below. They have a variety of high-quality equipment suitable for skiing, scrambling and mountaineering. In addition, these stores have more experienced and knowledgeable staff available to give you advice and recommendations — although you may sometimes have to ask for someone *experienced* in the item that you're looking for.

- **Ascent Outdoors** (gear, clothing and rentals) Seattle, ascentoutdoors.com
- **Cabelas**, cabelas.com
- **Campmor**, campmor.com
- **Eastern Mountain Sports**, ems.com
- **Feathered Friends**, featheredfriends.com
- **Mammut**, mammut.com
- **Mountain Gear**, mtngear.com
- **MSR**, msrgear.com
- **North Face**, thenorthface.com
- **Outdoor Research**, outdoorresearch.com
- **Patagonia** (clothing), Patagonia.com
- **Pro Mountain Sports** (Seattle), promountainsports.com
- **Recreational Equipment Inc**., rei.com
- **Sierra Trading Post**, sierra.com
- Mountain Equipment COOP https://www.mec.ca/en
- Skiessentials.com

Cross-Country Ski Rental Information (updated 1/6/26)

Pro Ski and Mountain Service North Bend
112 W. 2nd St.
North Bend, WA 98045
425-888-6397
https://www.proskiservice.com/pages/daily-rentals?srsltid=AfmBOorbHa0x3itAraVOyrl267PeRIEO4oFg_TGMV1Tr-7VmAS6-9ZpU
Rent classic cross-country skis, only 2 classic cross-country skis with metal edges They offer season long rentals.

REI Seattle Flagship Store (rental and purchase)
222 Yale Ave N
Seattle, WA 98109
206-223-1944
https://www.rei.com/stores/seattle/ski-snowboard-shop
Rent classic cross-country skis, classic-cross country skis with metal edges (purchase only)

Mountain To Sound Outfitters (rental and purchase)
3602 SW Alaska St.
Seattle, WA 98126
206-935-7669https://www.m2soutfitters.com/shop/Ski/Skis
Rent classic cross-country skis, classic cross-country metal edge skis (purchase only)

Seattle ski and Snowboard (rental)
14915 Aurora Ave. N.
Shoreline, WA 98133
206-548-1000
Rent classic cross country ski

Ascent Outdoors (rental and purchase)
5209 Ballard Ave. NW
Seattle, WA, 98107
206-545-8810
https://ascentoutdoors.com/search?q=nordic+skis
Rent classic cross-country skis. Classic cross-country with metal edges are for purchase only.

Stevens Pass Nordic Center (rental only)
Mt. Baker-Snoqualmie National Forest
Skykomish, WA 98288
https://www.stevenspass.com
Rent classic cross-country skis

Summit at Snoqualmie Nordic Center
(rental only)
1001 WA-906
Snoqualmie Pass, WA 98068
https://summitatsnoqualmie.com/nordic-skiing
425-434-7669
Rent classic cross-country skis no metal edge

White Pass Nordic Center
48850 US 12
Naches, WA 98937
https://skiwhitepass.com/the-mountain/nordic-center
Rent classic cross-country skis no metal edge

Whittaker Mountaineering Store
30027 SR 706
Ashford, WA 98309
360-569-2142
https://whittakermountaineering.com/pages/winter-rentals
Yes: full metal edge backcountry touring skis (only to be used off trail, too wide for tracks)

Mountaineers
Mountaineers Gear Locker
Cross country skis
https://mountaineers.myturn.com/library/
Suggest you call as the web site is not showing availability .

Used Clothing
Thrift shops are excellent places to obtain used clothing. Look for wool, fleece, and synthetic clothing.

Maps, topographical
The Mountaineers offers both Green Trail and USGS maps. Other good places include:

- REI
- Metsker Maps (Seattle), metskers.com
- Big 5 Sports
- Forest Service offices and Ranger stations (limited supplies)
- University Bookstore, ubookstore.com
- The public library may carry maps as well

Maps can also be printed from on-line resources such as www.caltopo.com or www.alltrails.com

Discounted, Used & Surplus Equipment Many of the larger outdoor shops and local rental shops sell their used rental equipment at reduced prices (Feathered Friends and REI).

Equipment/Clothing Repairs

- Dave Page, Cobbler, (Seattle) davepagecobbler.com
- Chick's Shoes and Service (Mercer Island), chicks-shoes.com/repair
- REI
- Rainy Pass Repair (Seattle), rainypass.com

Special Sales Events

Most swap meets and special bargain events may not happen in time for you to get the equipment needed for this course. Nevertheless, these places can be a good source of purchases and upgrades.

The 10 Essentials

1. Navigation

It's a good idea to carry a map and compass - and know how to use them. USGS, Custom Correct and Green Trails maps all provide useful topographic information, and the latter two show relatively up-to-date trail info. Even if you don't plan on leaving the trail, being prepared is essential.

2. Sun Protection

Sunglasses, sunscreen, and hats are smart items to carry year-round. While the benefits are obvious on a sunny summer day, these items are useful against glare and sunburn while traveling on snow or under cloudy skies where UV rays may still penetrate.

3. Insulation

Pack extra clothing, in anticipation of the worst possible conditions you could encounter on your trip. Weather can change quickly, and it's not uncommon for temperature (and precipitation) to vary significantly between the trailhead and higher elevations. If done smartly, these items won't add too much weight to your pack.

4. Illumination

It can get dark sooner than you think when you're on the trail, so having a flashlight or headlamp is handy. Headlamps also have the benefit of leaving your hands free. When choosing batteries, consider using rechargeable, and always carry extras. Make sure the light won't turn on by itself, and is accessible in case you need to find it in the dark.

5. First Aid Supplies

A good first aid kit doesn't need to be big and bulky, and you probably have many of the basic items around the house. Outdoor stores sell a range of kits that vary from a small "envelope" type kit to the larger "box" kits. Depending on the length of your trip and the size of your pack, you can adjust the contents as needed.

6. Fire

Temperatures can drop significantly overnight, and having a means to start an emergency fire will help ensure you maintain warmth if necessary. Waterproof matches, butane lighters and fire starters (candle stubs, chemical heat tabs, canned heat) should be reliable means of starting a fire. If you are headed where there may be very little firewood, an ultralight stove is a good source of heat.

7. Repair Kit & Tools

Anything to repair the gear and/or equipment you will be carrying. There are a number of multi-tools on the market, along with the standard Swiss army knife. Other items to consider: shoelaces, safety pins, needle and thread, cable ties, wire, duct tape and nylon fabric repair tape.

8. Nutrition

Even if only heading out for a day hike, nutrition is an important factor in your wellbeing. In addition to your lunch and snacks, pack a few extra compact food items in case your trip is unexpectedly extended. Choose no-cook foods: fig bars, cheese, nuts, bagels, candy bars, energy bars or packets, etc...

is unexpectedly extended. Choose no-cook foods: fig bars, cheese, nuts, bagels, candy bars, energy bars or packets, etc...

9. Hydration
Bring extra water with you for the trip. Many people forget that we all need a plentiful supply of water each day, and especially when our body is expending extra energy. 1 liter is a minimum quantity for a short-day hike; 2.5 liters for an all-day excursion. Take hot weather and the strenuousness of your outing into account. More heat or effort means more water. And it's not advisable to rely solely on water sources near the trail. If you must use these, be sure to pack a reliable water purification system

10. Emergency Shelter
Most day hikers shouldn't need to carry a tent with them. However, you should pack an emergency space blanket. Most of these that are commercially available fold down to a wallet sized packet. For the budget minded, a jumbo-sized plastic trash bag can also be used to keep out wind and rain.

Personal Essentials

While these items aren't part of the 10 essentials system, many are necessary, and others will make your trip more enjoyable and comfortable.

Day Pack or Backpack – Your pack should be large enough to hold all the items you'll want to carry. It should also have a hip belt to transfer weight off your back & shoulders and down to your hips and legs. Daypacks with long narrow shape will transfer weight better than short, wide packs. Load your pack with heavier items close to your back and extra clothing & survival essentials in the bottom (except for your first aid kit, which should be on top & easily accessible).

Plastic Bags – Use these to store your gear in. It will keep items dry and organized in your pack.

Sit Pad – Cut off a 2ft piece from a foam sleeping pad. Use this for a seat when you take a break. It will keep you dry and insulate you from the cold. If you don't have a sit pad, you can use your pack.

Maxiglide and Scraper – This is a waxless, anti-icing agent for no-wax skis. It will prevent your skis from adhering to cold, sticky snow. The scraper is used to remove the snow & ice that can build up on the bottom of your skis in colder temperatures.

Toilet Paper & Blue Bag – Sanitation items for packing out solid waste. This can be a couple of plastic bags & a larger, opaque, garbage bag. A double bagging system is safer. Tie used bags to the outside of your pack. Remember, leave no trace!

Athletic Tape – Apply to "hot spots" on your feet before skiing. This will minimize blisters. This is especially important when using new and/or rental boots.).

Car Keys & Lock De-Icer – Car locks can freeze in colder weather. Taking the keys with you, well, that seems obvious.

Sno-Park Permit – Keep your Sno-Park Permit in your car or truck so it's handy when you need it.
Snow Shovel – It's good to have at least one shovel per group. It can be used in an emergency, or to build seats for lunch.

Warm Drink or Soup – On cold days it's nice to have something warm to sip.

Dry Cloths in Your Car – It's nice to have some warm, dry cloths to change into at the end of a trip. Don't forget underwear!

Fellow Skiers – Skiing with others is safer & more fun

Cross Country Ski Guide

Set Your Heels Free
Light-Touring Equipment: Skis
by Rick Lovett and Paul Petersen
W/edits by Richard Babunovic

Skis for use on groomed track are frequently referred to as "track-skiing" or "light-touring" skis. If you go into a ski shop and ask to see equipment in this category, the salespeople will know exactly what you're seeking. Light-touring skis are equally at home on groomed track or off-track on gentle terrain such as golf courses or alpine meadows. They're great for beginners, but they're of no use for ski mountaineering and are cumbersome for Nordic downhill (where their plastic edges won't bite into steep slopes).

To Wax or Not to Wax

Cross-country skis come in one of two ways: waxless or waxable. Waxless skis have a fish-scale or wedge pattern on their base which grips the snow to prevent backsliding but still allows easy forward motion. Waxable skis have smooth bases and get their grip and glide from the application of special ski wax. Depending on air temperature and snow conditions, you apply a different color-coded wax.

Approximately 80 percent of the cross-country skis sold in the United States are waxless, and any skis you rent are likely to be waxless. This doesn't mean waxing is archaic, but it is an advanced skill that most novice skiers would just as soon not deal with. For that first pair of skis, consider buying waxables only if you live someplace where winter temperatures are consistently below freezing. The colder and steadier the temperature where you ski, the more advantages waxable skis enjoy over waxless.
Note: Regardless of the type of kick section (middle of the ski) you should wax the glide portion of your skies periodically to maximize glide and thus enjoyment.

Camber

The camber of a ski makes smooth, efficient gliding across snow possible, and it's a key consideration in finding the right ski for you. To understand camber, stand a pair of skis on end with their bases together. With tips and tails touching, you'll notice a gap between the skis at the middle. This slight bowing in ski shape is the camber. Make the mistake of choosing a ski that has a camber too firm for your weight and the ski won't bite the snow when you press your weight down and attempt to kick. A camber that's too soft will leave you wondering why everyone glides past you on descents. Generally, if you're a more experienced skier, you'll want a firmer camber. Skiers who are thin for their height will want a softer camber than skiers who are heavier.

Buying tip: At the store, squeeze paired skis to find the right camber. If you're a beginner, reject any pair you can't squeeze completely together with both hands. If you can collapse the camber with one hand, then it's too soft and will glide poorly (unless you're a featherweight or have extraordinarily strong hands). Camber can differ slightly even between identical skis, so don't give up on a particular model until you've squeezed all of the skis in the shop.

Buying tip: You can check a ski's gliding potential at the ski shop by standing on top of the skis on a non-carpeted floor and sliding a piece of paper beneath the center of the ski's arch. You'll know you have the right camber if the paper slides freely beneath the entire length of the tread pattern, even when your full body weight is on a single ski.

Ski Length

Ski Manufactures design skis to generally fit a skiers weight; start with their recommendations. Longer skis require greater skill to ski with but provide better glide when sking groomed terrain and better float when touring in deep snow. Length is the other key factor in selecting light-touring skis. Here you have two choices: mid-length or the longer,traditional style. Which one is right for you would depend on the conditions in which you'll be using the skis. (FYI, camber is more important than length, so if you have to fudge a bit on length to find the right camber, do it.)

Mid-length: For most skiers, mid-lengths are the best choice. They turn easily, glide well on packed or tracked snow, and have enough flotation to allow a little venturing off-trail. Mid-length skis should be about head height.

Traditional skis: Due to their better flotation in soft snow, these are the ski of choice for skiers who would rather travel untracked snow than cruise the groomed trails at a ski center. But the extra length makes traditional skis harder to maneuver than mid-lengths. The rule of thumb for fit: The ski tip should reach your wrist when your arm is raised overhead.

Ski Width

Light-touring skis also vary in width to match different snow conditions. Here you have three choices:

Narrow: (20 to 30 percent narrower than medium-width models.) Narrow skis are designed for racing. Buy these only if you intend to spend almost all of your time on groomed track and can find a pair with a relatively soft camber. Narrows skis fit easily within the 72 mm groomed tracks with little rubbing on the side.

Medium-width: Like medium lengths, these designs suit a wide range of uses and skill levels, so they make a good choice for your first ski. These provide good stability while still fitting in the 72 mm groomed track.

Extra-wide: These are designed to provide better flotation on loose snow. They're heavier, harder to tip on their edges, and may not fit perfectly into machine-set track. Pick them if most of your skiing will be off-track

Boots and Bindings

There are a few standards for bindings and how they connect to the boot . It is important to assure your choice of boots and bindings are compatible. The compatablity lists are readily available on line or at any ski shop.

Ski Poles

Cross country ski poles are designed specifically for cross country skiing. Do not try to use Apline Ski Pools or trekking pools. The typical length for a beginner fits just into your armpit while you are standing up. Longer poles are used when doing faster skiing as they allow for a longer pole stroke. We recommend you due not buy longer ski poles.

Light-Touring Checklist

- Choose between mid-length and traditional skis.
- Choose a ski width. Use the terms "narrow," "medium," and "wide" rather than worrying about specific measurements.
- Determine the approximate length in your chosen category that is proper for your weight and height , butdon't be wedded to it.
- Check the available options for camber. Individual skis vary, so just because one pair isn't right,

don't ignore the one next to it.

- Buy a snug-fitting boot with maximum ankle support. Spend as much as you can afford.
- Buy the binding that fits the boot. You'll will enjoy having the step-in style if you have that option.
- Pick poles suitable for your height, skill, and terrain plans. Rent before you buy or try out equipment for free at a manufacturer sponsored "demo day."

Ski Maintenance

A little maintenance can make your skiing more enjoyable. Your waxless skis do not need glide wax, but will work better with some wax on the base. A simple quick waxing will keep your skis in good condition. You can wax after you get home any time before the next ski trip. Waxing at home is easy and more comfortable than trying to clean up on the trail. Also, your waxing will be done better when you can allow the skis time to set with the wax on. It can be frustrating trying to wax your skis on the side of the trail after you have icing problems with snow build up and stuck to the bottom for your skis. It is also difficult to do as good a job under such conditions.

Waxing will protect the bases of your skis. Wax will repel dirt and makes removing dirt easier. Wax will protect against abrasion and scratches. Wax decreases oxidation that can cause the ski base to deteriorate. Glide wax will improve glide. Wax is a good anti-icing protection. All of these will impact ski performance but the one that will have the most obvious impact is icing up the bases of the ski. It is the grip zone with the scales and multiple surfaces that will attract the most icing problems. The grip zone is the most important to keep clean and waxed and the hardest to rejuvenate.

There are some very quick and easy wax systems for waxless ski. Some are Maxglide, Easy glide F4 Swix, Grip and glide Toko. These waxes can be wiped on and then before skiing there are buffed out as thin as possible. A little applied now and then will help keep your skis performing at a high level. Wax should be rubbed into the base and not applied in a layer on the surface.

Some additional information if you are interested.

Waxless Ski Maintenance, part 1 - XCski Indiana. Part 2 and 3 are on the website.
http://xcskiindiana.com/articles/wax1.html

Book – Mountaineers The complete guide to cross-country ski preparation

There are a lot of videos on line showing waxing, but a lot of them are for waxable skis and include a lot of information on grip wax. Here are a few that cover waxless skis.

Video: ‘Waxing waxless skis’ https://www.youtube.com/watch?v=MmEDaRSMK3A
Video: Toko Grip n Glide Wax (same a F4) : https://www.youtube.com/watch?v=E--ZVEAv2Vc

Avalanche Resources

The best place to keep up to date with avalanche conditions is the NWAC website. https://nwac.us/
The Northwest Avalanche Center (NWAC) website is updated regularly during the snow season and should be checked regularly. The site includes avalanche condition reports, forecast information and educational resources. You are encouraged to take courses from organizations such as NWAC and the Mountaineers.

The Canadian Avalanche Center is also a resource: https://www.avalancheassociation.ca/

Mountaineers offer Avalanche Awareness courses

Hypothermia

(Adapted from the Mountain Rescue Council)

Cold kills in two distinct steps:

Step one: Exposure and Exhaustion
The moment your body begins to lose heat faster than it produces it, you are undergoing exposure. Two things happen: (1) you voluntarily exercise to stay warm, and (2) your body makes involuntary adjustments to preserve normal temperatures in the vital organs. Either response drains your energy reserves.

The only way to stop the drain is to reduce the degree of exposure. Part of the involuntary response is shivering. This is a warning to you by your body that you are losing too much body heat. By responding to this warning and following the guidelines below, you can prevent becoming dangerously hypothermic.

Step two: Hypothermia
If exposure continues until your energy reserves are exhausted, the process continues with two more observable responses: (1) cold will reach the brain, depriving you of judgment and reasoning power, and (2) you will lose the ability to move in a coordinated fashion, first losing control of your hands so that fine movements are difficult.

This is hypothermia: he rapid, progressive mental and physical collapse accompanying the chilling of the inner core of the human body. It is caused by exposure to cold and aggravated by wet, wind and exhaustion. Without treatment, it leads to death.

Prevention

Avoid Exposure: Avoiding exposure is your first line of defense against hypothermia. This does not mean you should not go out "into the elements." It does mean that when you do go out, you should be prepared with the proper clothing and equipment.

Stay warm: Dress in and carry clothes you can use in layers. Several lightweight layers you can adjust to temperature and activity are more useful than one "all or nothing" heavy layer. Wear a hat to prevent significant heat loss from your head. Don't tie your bootlaces so tightly that you cut off circulation and your feet get cold. During an outing, put on heavier layers of clothing as soon as you stop for a break. Don't wait until you are shivering.

Stay Dry: When clothes are wet, they lose about 90% of their insulating value. Wool and synthetics lose less. Cotton and down lose more, so do not depend on these. Wear clothes that will retain their insulation, especially in the very wet Northwest. Always carry good rain gear, jacket and pants, with well-sealed seams. When the weather turns nasty, put on your rain gear right away. Don't wait until your insulting clothes are soaked.

Be Mindful of the Wind: A slight breeze carries away heat from bare skin much faster than still air. Wind drives cold air under and through clothing. Wind refrigerates wet clothing by evaporating moisture from the surface. Lightweight, wind resistant clothing can minimize the wind-chill factor. Avoid windy ridges and exposed areas when possible. Sometimes moving just a few feet down or closer to trees can make a significant difference in the degree of exposure.

Understand Cold: Most hypothermia cases occur in air temperatures between 30 and 50° F. Many individuals simply can't believe such temperatures can be dangerous. They fatally underestimate the danger of being wet and tired in even moderate temperatures. Water or sweat running down the neck and legs or cold water held against the body by cotton clothing suck away body heat.

Eat and Drink Properly: Although this does not help you avoid exposure, it helps you to deal with it. You are more susceptible to problems if your body does not have the appropriate fuel. Carry sufficient water and drink regularly to avoid dehydration. Carry extra food in case you do have to stay out in the cold longer than expected.

Terminate Exposure: If you cannot stay warm and dry in existing weather conditions, terminate your exposure. Sometimes this simply means putting on more clothes and getting off the windy ridge for a while. In other cases, this may mean changing your destination, stopping to make camp or simply heading home. Making good decisions and recognizing potential problems before you get cold can save your life. Once exposure gets extreme and hypothermia sets in, you and other in your party may not be mentally or physically capable of taking appropriate action.

Detection

If your party is out in the cold and wet, think about hypothermia and stay alert for its signs.
Watch yourself and others for the following symptoms:

- Uncontrollable fits of shivering
- Memory lapses and incoherence
- Vague, slow, slurred speech
- Immobile, fumbling hands
- Frequent stumbling, lurching gait
- Drowsiness (to sleep may mean to die)
- Apparent exhaustion

Treatment

Although the victim may deny any problem, he/she is in trouble. Believe the symptoms, not the patient. Mild symptoms should be treated immediately, before you have a life-threatening situation.

- Get the victim out of the wind and rain.
- Strip off all wet clothes.
- Get the victim into warm, dry clothes and a sleeping bag.
- Give the victim warm drinks.

If the victim is semi-conscious or worse, further measures must be taken immediately. At this point the body is not able to generate its own heat, so heat must be supplied from an outside source. Without treatment, the temperature will continue to fall until the organs cannot function and death will occur.

- Try to keep the victim awake.
- Get the victim into shelter, preferable a warm building. Make camp and build a fire.
- Use skin-to-skin contact for rewarming. Have another person get into the sleeping bag with the victim. Both need to be stripped of clothing.
- Do not give the victim anything to eat or drink if semi-conscious. Do not give anything until at least partial warming has occurred and the victim is coherent.
- Seek medical attention as soon as possible.

Summary

If you're outdoors for recreation, you don't intend to jeopardize your life. The concept of hypothermia may be new to you, but its dangers are all too real. When you hear of a person dying of "exposure," it means they died of hypothermia. It's the number one killer of outdoor recreationists.

- Choose equipment with hypothermia in mind.
- Take heed of the weather.
- Watch for warning signs in yourself and others.
- Enjoy the outdoors with the confidence

Frostbite

(Adapted from the Mountain Rescue Council)

Frostbite is the freezing of water around cells in the body. It occurs with rapid constriction of surface blood vessels that limit the blood supply to the area, causing rapid cooling.

Superficial Frostbite: involves small patches of surface tissue on exposed body parts. Most frequently affected are the fingers, tip of the nose, earlobes and toes.

Deep Frostbite: is a more serious problem that can result in extensive tissue death. After prolonged exposure, if superficial frostbite is not taken care of and the causes removed, larger areas and deeper tissues become involved.

Prevention

Stay Warm: Protect the most susceptible areas. Use a hat, headband or neck tube to cover the earlobes. A facemask may be needed in extreme conditions. Mittens are better than gloves to keep hands warm. Use extra socks only if they will not constrict feet within boots. Keep legs well covered to prevent loss of heat in blood circulating to the feet.

Avoid the Wind: The wind accelerates loss of heat from the surface of the body. Stay off windy ridges unless well protected. Wear windproof clothing.

Observe Others in Your Party: Watch for noses or earlobes that look white or shiny.

Insulate Yourself from Cold Surfaces: Use mittens or gloves to handle metal. Wrap metal surfaces with tape. Do not touch gasoline, which evaporates quickly, leaving behind frozen tissue.

Avoid Smoking Before or After Exposure: Smoking constricts blood vessels.

Do Not Drink Alcohol Before or After Exposure: Alcohol may make you feel warm, but it dilates the peripheral blood vessels, cooling the blood rapidly, which in turn cools the body's core as it circulates.

Detection

Be alert to frostbite. Observe others in your party. It may be a good idea to use a buddy system. Watch exposed areas of skin. These signs and symptoms indicate frostbite:

- Skin appears white, perhaps shiny
- Skin is hard to the touch; tissue underneath feels solid
- Acute pain, followed by numbness and loss of feeling
- Restricted movement of joints

Treatment

Once frostbite is detected, the utmost care must be taken to avoid further damage.

- Do not rub the injured area
- Terminate exposure to prevent further freezing
- Attempt to thaw the body part only if the frostbite is quite superficial and refreezing can be prevented. Once the area has thawed, it will be very painful. Encourage wiggling of thawed fingers and toes. Place sterile gauze between them and rest hand or foot on sterile cloth

- Do not break blisters
- Seek medical attention as soon as possible

For deep frostbite:

- Keep the frozen part frozen
- Prevent further injury. Do not rub and do protect from further freezing
- Give fluids if victim can swallow
- Do not allow a thawed part to refreeze (freezing, thawing and refreezing increases tissue damage and increases the chance of amputation and permanent disability)
- A victim with thawed feet must be carried out
- Seek medical treatment as soon as possible

Summary

Frostbite occurs frequently, but, like hypothermia, is preventable in most cases by staying warm, keeping out of the wind and avoiding exposure to susceptible areas. Stop and treat minor frostbite before it becomes more serious.

Once frostbite has occurred the affected body part is more susceptible to freezing in the future. Persons who have experienced frostbite must take great care to protect from reoccurrence.

Other Hazards

Although accidents are not always preventable and illness usually seems to come unbidden at the least opportune time, there are usually a number of steps you can take to lessen the chance of having them ruin your trip.

Carry a reasonable first aid kit and know how to use it. Make a point to take a Mountaineer Oriented First Aid (MOFA) course.

If you are subject to a chronic disabling ailment, plan or limit your trip accordingly and make sure someone knows about it and what action, if any, to take.

Stay in good physical condition and know your physical limitations. Sign up only for those trips you know you can handle. You should always ski within your ability to lessen the risk of injury. If you become ill or suffer an injury, let the leader know about it.

Wear and carry adequate clothing, which does not restrict movement or blood circulation. Watch for signs of hypothermia, frostbite, chill or illness in others as well as yourself.

Weather

Weather is an especially important consideration in winter. Storms are more frequent and can appear suddenly. White outs and heavy snowfall can reduce visibility to near zero.

Make it a point to obtain weather forecasts ahead of time and postpone or plan your trip accordingly.

Know where you are at all times to reduce chances of becoming lost or disoriented due to poor visibility.

Don’t be afraid of canceling or altering a trip in progress if bad weather catches you unaware.

Equipment Failure

Ski touring equipment is quite simple and does not require much in the way of maintenance, but since failure of some items could leave you struggling to get back to your car without skis in very deep snow, it is a good idea to treat your equipment with respect and be prepared for repairs.

Check binding, boots, poles and skis before each trip and make sure all screws are tight, poles and skis are intact and boot laces, poles and binding plates are secure.

Carry a few parts and tools and learn how to use them. Some items to consider are: screws to suit your bindings, an extra binding bail or cable, duct tape, wire, screwdriver, small pliers, zip ties and a repair ski tip. Some items carried jointly can serve several people in a group.

Have a safety string tied to the bail to prevent loss.

Terrain Difficulties

The winter landscape presents a number of hazards and potential pitfalls, some of them not readily apparent.

Winter Winds: Strong breezes build drifts of snow, called cornices, on the lee side of ridges and peaks. These cornices are hazardous in two ways. (1) They can fall onto the slope below, burying the unwary traveler or initiating an avalanche, and (2) they can collapse under the weight of a skier traveling on top of them, dropping him/her onto the slope below. Since cornices are not always evident from above, all exposed edges and ridges are suspect and should be approached with caution.

Tree Wells: The bases of trees are surrounded by very soft snow. These wells of snow are usually found around partly buried evergreen trees. These can trip up a skier and make a dangerous trap from which it is difficult to escape when encumbered by skis, poles and pack. Skiers can become buried in tree wells and risk serious injury and death. Buried streams also create hazards; the snow over them may easily collapse and trip up an unaware skier.

Tree Snow: Masses of snow often accumulate in the branches of trees. This snow drops off in significant clumps as the weather warms or the wind blows and can often fall on unaware skiers leaving them cold, wet and miserable. The colloquial term for these well-frosted trees is “idiot maker”.

Getting Lost or Becoming Benighted (e.g. “Losing It”)

Getting lost or finding yourself three or four miles from your car with darkness coming on are serious problems in any season, but the problems become even more serious when they lead to having to spend a cold, snowy winter night outside.

Carry a map and compass and know how to use them. Refer to them as you go along so you know where you are at all times. Even though you are in a group following a leader, check your location independently. It will give you practice and keep you thinking if nothing else.

Preview your route and note landmarks and the lay of the land in your mind. Check yourself as you go along.

Have a timetable in mind and allow yourself time to get back. Don’t be afraid to alter your objectives if time seems to be running short. Allow some time for breaks, adjustments, and emergencies.

Leave a description of your trip plan with someone. Include route, destination and expected time of return. Ideally, leave map of your route as well as the name and number of the authorities to be notified if you do not return.

Carry emergency equipment to suit the trip. Remember, at a minimum, you must carry enough food and clothing to survive a night out in the harshest conditions. It is a good idea to carry at least one shovel per party.

Plan ahead what you would do if you had to spend the night out. In addition to extra clothes and extra food, one of the most important considerations for survival is shelter from the wind and elements. Carry am emergency shelter in the form of a tube tent, bivy sac or large garbage bag. Learn about emergency snow shelters (snow caves, tree wells, trench igloos, etc.)

If, in spite of all your planning, you find yourself benighted, don’t panic. Make the most of your situation and think positively. Work together as a group. Pool your resources and put to good use all that emergency equipment you have carried around for so long!

This list does not pretend to cover all the hazards which might be encountered on ski tours. The main objective is to alert you to the fact that there are hazards, to point some of them out, and to convince you to use appropriate safeguards while having fun.

You are encouraged to read further on the subjects of first aid, hypothermia, avalanches, weather and winter survival, among others. For recommended reading, please refer to the course bibliography. Please also note that the Mountaineers offers more in-depth training in first aid, navigation and avalanche awareness and consider taking these as you move beyond the level of novice skier.

Maximize your winter enjoyment by following the Winter Code of Ethics:

1. I will respect all public and private property and the rights of all winter recreationists to enjoy the beauty.
2. I will park considerately without blocking vehicles or impeding access to trails.
3. I will keep to the right when meeting other winter recreationists and yield the right of way to downhill traffic.
4. I will slow down and use cautions when approaching or overtaking another.
5. I will respect designated areas, trial use signs, and established ski tracks.
6. While stopping, I will not block the trial.
7. I will not disturb wildlife and will avoid areas posted for its protection or feeding.
8. I will not litter and I will pack out everything I pack in.
9. I realize that my destination and travel speed are determined by my equipment, ability and terrain, weather and traffic on the trial. In case of emergency, I will volunteer assistance.
10. I will not interfere with or harass others, recognizing that people judge all skiers by my actions.

Sno-Park Permits

Non-motorized Sports Sno-Park permits (one-day permits, seasonal permits and special groomed trail permits) are available from a numbers of State Parks locations and vendors. One day permits can be purchased on-line. A partial list of State Park offices and vendors are listed below.

Permit Type	**Purchased from State Parks**	**Retail vendor**	**Purchased online**
One-day	$25	$27	$25 (+$2fee PER day)
Seasonal Non-Motorized	$50	$52	$50
Special Groomed Trails	$70	$72	$70

Prices may have changed, please check online

Sno-Park permits are available beginning November 1 through April 30 either online or by purchasing it from one of many permit vendors, including various retail locations; Washington State Parks region offices; Lake Easton, Lake Wenatchee, Mount Spokane, and Fields Spring state parks; Washington State Parks headquarters (1111 Israel Road SW, Olympia, WA 98504); or area U.S. Forest Services offices.

State Parks Permit Purchase Locations…more locations on-line	
Lake Easton State Park 1/4 mile on the south side of exit 70 on I-90 150 Lake Easton State Park Road PO Box 26 Easton, WA 98925	**Lake Wenatchee State Park** 21588-A Highway 207 Leavenworth, WA 98826 Ph 509-763-3101
State Parks Eastern Region Headquarters 270 Ninth St. NE Suite 200 East Wenatchee, WA 98802 Ph: 509-665-4319	**Hyak Sno-Park** 71 Keechless Boat Launch Road, Snoqualmie Pass, WA Ph 509-656-2230

Link to more information on buying passes online or in person:
https://parks.state.wa.us/134/Sno-Park-non-motorized-Permits

Personal Safety Notes

The Rules

Anywhere you ski; obeying these rules is just common sense.

1. Always stay in control, adapt the manner and speed of your skiing to your ability and to the general conditions on the mountain, and be able to stop or avoid other people or objects.
2. People ahead of you have the right of way. It is your responsibility to avoid them. Leave plenty of space when overtaking a slower skier.
3. You must not stop where you obstruct a trail, or are not visible from above, (i.e. base of jumps or knolls).
4. Whenever starting downhill or merging into a trail, look uphill and yield to others.
5. Observe all posted signs and warnings. Keep off closed trails and out of closed areas.

Ski Ranking
Ski slopes and trails are rated by difficulty. As a skier, it is your responsibility to use trails you can safely navigate.

1. Trails marked with a green circle are for novices and have gradual declines and small, easy turns.
2. Trails marked by a blue square are of intermediate difficulty. They have steeper drops and sharper turns.
3. Black diamond trails have the steepest drops and the tightest turns-try them only if you are an expert.

Code of Ethics
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4. I will slow down and use caution when approaching or overtaking another.
5. I will respect designated areas, trail use signs, and established ski tracks.
6. While stopping, I will not block the trail.
7. I will not disturb wildlife and will avoid areas posted for its protection or feeding.
8. I will not litter and I will pack out everything I pack in.
9. I realize that my destination and travel speed are determined by my equipment, ability and terrain, weather and traffic on the trail. In case of emergency, I will volunteer assistance, will not interfere with or harass others, recognizing that people judge all skiers by my actions.

Some Hazards

- Here's a partial list of the hazards and risks of cross-country skiing:
- Falling down onto the snow surface.
- Skiing or falling into an obstacle at speed.
- Skiing or falling over a drop-off or cliff.
- Getting tangled up with skis and poles in a fall or sudden maneuver: resulting in slight or serious damage to bones, joints, connective tissue, skin, bleeding, etc.
- Skiing into the handle of the pole when the tip is stuck.
- Getting hit by another skier.
- Getting hit by a motor vehicle.
- Hypothermia
- Frostbite

- Dehydration and Fatigue
- Getting lost.
- Strains of muscles, joints, connective tissue -- from use, not by hitting something.
- Health emergencies that occur because the skier was previously ill or injured or otherwise not in good health.
- Non-ski-related health emergencies that by chance occur while skiing.

Other Facts

- Most commonly skiers injure their legs and thumbs.
- The environment can cause many skiing dangers. Sunburns, frostbite and hypothermia, which are easily avoided with preparation.
- Don't go alone.
- Tree wells

Deep snow or tree well accident occurs when a rider or skier falls into an area of deep unconsolidated snow and becomes immobilized. The more the person struggles the more entrapped in the snow they become.

If a partner is not there for immediate rescue, the skier or rider may die very quickly from suffocation - in many cases, they can die as quickly as someone can drown in water.

Deaths resulting from these kinds of accidents are referred to as a NARSID or Non-Avalanche Related Snow Immersion Death.

The odds of surviving a deep snow immersion/NARSID accident are low; especially if you are not with a partner. In two experiments conducted in the U.S. and Canada in which volunteers were temporarily placed in a tree well, **90% COULD NOT rescue themselves.**

% of Tree Wells & Deep Snow involved in NARSID cases

http://www.deepsnowsafety.org/index.php/

Prepare for Winter Driving

Protect yourself and your passengers. Allow extra time to reach your destination during inclement weather. It takes only one unprepared or careless driver to slow or stop traffic. (https://wsdot.wa.gov/)

Practice the following:

- Drive for conditions – slower speeds, slower acceleration.
- Check to see if you have traction tires.
- Know what the traction advisories mean.
- Watch a video to learn how to install tire chains.
- Do not use cruise control.
- Four-wheel and all-wheel vehicles do not stop or steer better on ice.
- Leave extra room between your vehicle and the vehicle in front of you. And remember, the larger the vehicle, the longer the stopping distance.
- Slow down when approaching intersections, off-ramps, bridges, or shady spots.
- If you find yourself behind a snowplow, slow down and give the plow a little extra room.

Slow down and be extra cautious near the chain-up and removal areas. There are often people out of their vehicles.

What to Carry in Your Car (pdf 189kb)

What would cause the pass to close?

- **Blocking Vehicles**
- **Avalanche Control**

Avalanche control work is scheduled at night when traffic volumes are low when possible. WSDOT attempts to provide advance notice, but in an emergency, it's not always possible.

- **Road Clearing**

If there is heavy snow in a short amount of time, road crews may close the pass to clear ice and snow from the travel lanes.

Winter Driving Checklist (pdf 214kb)

Trip Planning Tips

Decide where to go:

1. Read over available guidebooks. Websites such as http://skimountaineers.blogspot.com/ have links to ski locations, weather & avalanche conditions.
2. Check highway conditions by contacting: http://www.wsdot.wa.gov/
3. Contact local rangers & park officials for current, specific information about trails in their respective areas. For ranger phone numbers, call the Outdoor Recreation Info Line at 206 470-4060. If skiing in groomed Sno-parks areas, go to: https://parks.state.wa.us/130/Winter-recreation
4. You'll have more fun & greater safety if you pick easier trips and avoid exceeding your ability or conditioning level.

Important things to know before you go:

1. What is the major road access & is it open?
2. What parking is available & what permit are required?
3. What is the level of difficulty of the outing?
4. What topographic map covers the area?
5. What are the specific hazards for that specific trip? (Always phone the local ranger for advice on this matter).

Prepare before you go:

1. Gather & organize your gear in advance of your outing so you can concentrate on getting a good night's sleep the evening before your outing.
2. Make sure your equipment is adequate to ensure your comfort & safety in the worst possible weather conditions.
3. Information should be left in writing with a responsible friend, indicating where, with whom, car description & license plate number, where parked 7 when & whom to contact for rescue in case of no return.

Things to remember during your outing:

1. Staying together is the responsibility of all-party members. Keep an eye on the person in front of and behind you. Let those ahead know if it appears the group is getting split up.
2. Keep your map & compass out. It is very important to know at all times where you are on the map and what direction you should go to get out in case of a sudden storm or white-out or in case windblown snow covers your tracks.
3. Remove a layer of cloths just before starting out to minimize sweating problems
4. Travel slowly. Avoid sweating as this will only lead to rapid chilling later on. Limiting breaks to no more than 5 minutes will also minimize chilling.
5. If feet or hands are cold, put on a hat. Additional warmth can be obtained by doing local isometric exercises with the affected extremity or by using a disposable hand warmer.
6. Be aware of changing weather conditions & turn back if weather or route conditions appear to be hazardous.
7. DON'T FORGET TO HAVE FUN!

References to Classic Techniques and Skills As taught in this Course

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Beginners Guide to Cross-Country Skiing
https://www.youtube.com/watch?v=mjbuwmUzUhQ

What Type of XC Ski Is Best for You?
https://www.youtube.com/watch?v=db1Ow2fGcII

Cross-Country Ski Gear Checklist: What to Bring on Your First Day || REI
https://www.youtube.com/watch?v=3rHuEqZgUMc

How-to Cross-Country Ski: A Beginner's Guide - Part 1 | PSIA-AASI
https://www.youtube.com/watch?v=dj-UJk9FBPA

Classic Cross-Country Skiing for Beginners: Everything You Need to Know to Get Started || REI
https://www.youtube.com/watch?v=SuKn-acPvVk

How-to Cross-Country Ski: A Beginner's Guide - Part 2 | PSIA-AASI (includes hills)
https://www.youtube.com/watch?v=XLrGeEq52gg

Uphill: Learn the herringbone to climb hills in XC skiing
https://www.youtube.com/watch?v=7X4yJxpqcgA

Downhill: descending: from wedge to more advanced techniques:
https://www.youtube.com/watch?v=kmw9LxutG_8

Improving your poling, weight transfer and rhythm:
How to correct common errors in classic skiing- Fixing the Lunge:
https://www.youtube.com/watch?v=GXO9Q3Pf0Sg

To Summarize: A comprehensive guide to XC skiing (30 mins):
https://www.youtube.com/watch?v=Cqo3yu-j890