

Ski Mastery Method

Ski Courses - Level I

Backcountry Basics  
A Week Of Backcountry Skiing I  
Introduction To Alpine Touring

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## Ski Equipment

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In the Adirondacks, thick trees on steep slopes are common, and when our objective involves this type of terrain we use snowshoes. But when open slides, trails and glades with well-spaced trees are on the menu, we'll choose skis with a smile every time because skiing, when it's good, is one of life's great joys!

We provide packs and accessories for use during our ski programs – or bring your own if you prefer. You need to provide appropriate ski equipment (skis, boots and poles), clothing, and personal accessories. For overnight trips, we provide all group gear such as tents, stoves, cook sets and emergency equipment; you will need to provide your own sleeping bag, pad and pack.

In some mountain environments, clothing can be as important to your safety as a rope. Please visit our [Equipment page](#) for an in-depth discussion of technical clothing. Included are topics on: heat and moisture management, outdoor fabrics, fit considerations for clothing and footwear, purchasing suggestions, and much more. If you are not very familiar with specialized outdoor clothing we suggest you carefully review this page.



*The right equipment makes all the difference*

In the section below, we have tried to give you a range of choices to help guide you in the acquisition of equipment and specialized clothing. There is no one “best way” to outfit yourself and cost will inevitably enter into your purchase decisions. Our opinions regarding equipment and clothing for any given purpose are based upon our experience using the equipment extensively in the Adirondacks. When we travel away from this area our choices are sometimes different. If you have questions, please do not hesitate to [contact us](#).

### Equipment & Clothing Lists

[Clothing for Backcountry Skiing](#)

[Equipment for Backcountry Skiing](#)

#### Clothing For Backcountry Skiing

Backcountry skiing clothing systems must perform effectively across a wide range of activity levels and in environments that can range from invitingly comfortable to brutally extreme. If you pay close attention to our clothing suggestions you can expect to be reasonably warm and comfortable as you learn about your own personal clothing requirements. Clothing requirements for backcountry skiing are the same whether you are on nordic or alpine touring equipment – it's all skiing. The key to versatile and effective dressing in the winter is layering and that is how the following list is arranged. If you have any questions please don't hesitate to [contact us](#).

#### **APPROPRIATE CLOTHING IS ESSENTIAL FOR YOUR COMFORT & SAFETY!!!**

##### **Wicking Layer**

The synthetics used in long underwear have made a big difference in comfort and they are the only intelligent choice if you need to purchase this layer. The many available high-tech fabrics are a vast improvement over the original polypropylene. We like medium weight zip turtlenecks on top and medium weight long johns on the bottom but other combinations work too. Wool is a very poor substitute for synthetics when skiing. Cotton is useless – in fact, when wet, it will make you colder than no underwear at all! Leave it home.

### **Insulating Layer**

Synthetic polyester materials (fleece) are much better than wool although wool is a barely-passable substitute if you don't mind smelling like a sheep when you get wet. Fleece material comes in several weights and types. Stretchy fleece is a vast improvement and well worth the extra cost. Windproof fleece works well in some situations but it is not as breathable as regular fleece so it does better as an outer layer. We mix types and weights of fleece according to conditions. We also use extra wicking layers to fine-tune our insulating system.

Because skiing is a stop-and-go activity, you will be adding and subtracting layers fairly frequently. Many people find a light fleece pullover or a soft shell is all that is required over a wicking layer during active skiing. A down (or synthetic) jacket is great for warmth during lunch and at other inactive times. An extra fleece layer, stuffed into your pack, provides more options for comfort as conditions and activity change.

### **Outer Layer (Shell)**

The ideal outer layer would be totally waterproof yet pass all body moisture under even the heaviest activity. This material has yet to be created; we're not even close. Moisture management is a big concern for skiers so we use a two-tiered approach for the best results.

**SOFT SHELLS:** We usually wear soft shell tops and pants over a wicking layer when skiing. Most of the time these comfortable, and very breathable, garments are sufficient on their own as outer layers. They do a great job of protecting against wind, snow, and light rain, but they are neither water "proof" nor wind "proof". When it's really nasty we will, reluctantly, wear our hard shells over our soft shells to keep the elements at bay. Many companies manufacture soft shells and several fabrics are now used in addition to the original one made by Schoeller. These garments are available in light and heavy weights. For skiing, we find the lighter weights to be more versatile. Hoods are nice for extra warmth but not required. Soft shells offer a big improvement over other outer layer options but get ready for sticker shock – comfort comes at a price.



*Soft Shell for comfort*

**HARD SHELLS:** These will protect you under the harshest conditions. We use hard shells only when we must but we carry them in our packs most of the time just in case we need to wear them over our soft shells. There are many waterproof-breathable, hard shell garments on the market and most work quite well. We like the lighter weight fabrics for skiing. We prefer an anorak (pullover with a built-in hood) on top and pants (not bibs) on the bottom. Jackets and bibs are satisfactory but may be less comfortable for skiing. Side zips are a convenient feature on pants, but not required. Coated, or non-coated, nylon jackets and pants are passable substitutes if you need to save a significant amount of money. A ski jacket and pants will also work as a last resort.



*Hard Shell for protection*

### **Head and Hands**

A lightweight fleece hat will keep your head and ears warm. A fleece headband is great on warmer days. A fleece neck gaiter adds extra

warmth without the hassle of adding a whole layer. Heavy hats generally promote overheating but when it's really cold we wear a fleece balaclava. Face masks are needed only for extreme environments and conditions so we do not normally carry them. Ski goggles may be useful for long descents.



*Lightweight ski gloves*

When you are actively skiing, a light to medium weight ski glove will usually keep your hands warm while providing good dexterity. In colder conditions a heavy ski glove will provide the required additional warmth. Mittens, although warm, can compromise dexterity to the point where skiing becomes awkward because you can't control your ski poles effectively. To be functional in really cold conditions, gloves need to be large enough so they can become a makeshift temporary mitten to warm your fingers – without removing them. This is accomplished by sliding your fingers back into the palm area of the glove and forming a fist so your fingers can warm each other. Gloves need to be large enough so you can do this without difficulty. Insulation technology is less important to warmth than the ability to ball your fingers up and warm them.



*Heavy/modular ski gloves*

We rely exclusively on gloves for skiing but carry spares in our pack. We usually have extra light/medium gloves and a really warm modular ice climbing/ski glove in our packs.

### **Personal Accessories**

This category tends to get out of control but there are some important items to remember:

- Sunglasses and Retaining Strap – a good hard case is a smart investment.
- Sunscreen & Lip Balm – SPF 50 or more is a good idea
- Camera – small digital cameras fit almost anywhere and we usually have one when we climb. We suggest an “elephant’s trunk” type case on a belt for larger cameras. We will be happy to take pictures, using your camera, of you skiing. We can also provide duplicates of photos we take of you.
- Multitool – with a knife, screwdriver and other blades these are very handy
- LED Headlamp (with fresh batteries) – winter days are short
- Butane Lighter/Waterproof Matches – a basic outdoor necessity
- Glide Wax/Scraper – useful for all skis
- Kick Wax Kit – if you use waxable skis (two tins of wax are all you need)
- Map/Compass/GPS/Smartphone – navigation tools and skills are important
- First Aid/Ski Repair Kit – guides carry these (every group needs one of each)

### **Substitutions**

When you've added up the prices on all the items we suggest, you will quickly realize that clothing for backcountry skiing can involve a substantial investment. Much of this clothing can be used for other mountain activities such as rock and ice climbing and this knowledge may help you rationalize the investment. If the costs are insurmountable substitutions are possible but, if you stray too far from the list, contact us to be sure your substitutions will work. You can't learn if you're uncomfortable so be sure to err on the side of having too much clothing available rather than too little. You can always leave a layer behind, or take it off if you are too warm.

## **Equipment For Backcountry Skiing**

If you are just getting started in backcountry skiing don't worry too much about ski equipment. As long as you are not skiing on very lightweight equipment you will probably be okay. Part of our [Backcountry Basics](#) and [A Week Of Backcountry Skiing I](#) courses deals with helping you understand the types of equipment available and how to make good equipment choices for your anticipated needs.

If, on the other hand, you are considering one of our more advanced programs be sure your equipment is adequate; the wrong equipment can make it difficult or impossible to learn. In either case, please call us if you have equipment concerns – we'd be happy to help you sort things out.

Along with the information below, you might also wish to look at “[Skiing Evolution and Terminology](#)”. We prepared this document to help skiers understand where modern skiing technology came from, to help them maintain sight of the big picture, and to remind them that, even though it may not seem so, it's all really just skiing! More importantly, understanding how the sport of skiing has evolved may lead you in new directions with the evolution of your own skiing. More options, more fun!

Locating a good selection of equipment can be quite a challenge in some areas and internet purchases only make sense if you know exactly what you want and fit is not critical. Fitting ski boots requires careful comparison of different boot sizes and models until the best fit becomes apparent. Without a well-stocked inventory of boots at hand this is not possible. Poorly fitted ski boots always make skiing less pleasant than it should be. Call us if you are unsure about your equipment needs or where to find what you want.

There is no one single set of equipment that can meet all the needs of every backcountry skier. In the information below, we have tried to provide a range of choices to help guide you in the acquisition of equipment. If you already own some equipment, you may find it's adequate to get you started. Rentals and demos are a great way to find out if you like a particular ski or boot before you buy, and many shops will apply demo fees toward a purchase. In any event, don't rush right out and spend a lot of money on gear until you are fairly sure how you expect to use it. Also, be aware that beyond technology, ski equipment is sold based upon fashion, sex appeal and a whole lot of other factors that will not help one bit with your skiing! There's nothing wrong with looking good, just don't let it get in the way of choices that will help you ski well.

We encourage you to seek the advice of a knowledgeable salesperson. Take this list with you and you should be able to get most of what you need at a well-equipped ski shop. All of the equipment listed is available in our area if you are unable to obtain it elsewhere.

[Backcountry Ski Equipment – The Big Picture](#)

[Backcountry Skiing Equipment Choices](#)

[Backcountry Ski Boots](#)

[Backcountry Skis](#)

[Ski Equipment Rentals](#)

[Suggested Reading](#)



*Too many skis!*

## **Backcountry Skiing Equipment – The Big Picture**

There seems to be no end to discussion about skiing equipment. Here's a little secret: It's ALL skiing! With sufficient skill, a wool sock stapled to a 2 x 4 will do the job! By the way, all 2 x 4's are the same (no alpine or nordic versions – yet) although pressure treated wood might last longer and some socks might hold staples better than others. Seriously though, there are now so many ways to slide around on snow that it is difficult to even generalize about equipment, much less to make specific suggestions. That said, the following may help you to wade through some of the marketing hype.

Over the years we have been fortunate to ski it all (well, most of it anyway)! We've skied everything from 120cm to 220cm; waxable, waxless; single and double cambered; fat, thin and everything in between; soft, stiff; and we've skied it in all sorts of conditions; forwards, backwards; and on one ski or both. Then there are the bindings and boots... RL's current ski "quiver" includes more than a dozen pairs of skis and six pairs of boots! NOBODY needs this much equipment!

Here's the good news: ski equipment of all types keeps improving and the choices available today are much better than what was available 20 years ago. The bad news is that the choices are myriad, often confusing, and sometimes rather insignificant, despite claims to the contrary. If you listen to the manufacturers and retailers you might end up owning a dozen pairs of skis but that would be a mistake. Even so, get ready to be a bit confused and to spend some money on these new toys.

What's a skier to do? Most folks getting into backcountry skiing need to decide between a nordic (free-heel) system and an alpine touring (fixed heel for descents) system. If you are already a skilled (advanced or expert) alpine (downhill) skier, an alpine touring (AT) setup may make sense for you. This is especially true if you aspire to get into ski mountaineering where most of your focus will be on steep ascents and descents. On the other hand, if you are relatively new to skiing, if you are already an experienced nordic skier or, if your aspirations are more focused on gentler objectives, you will likely be better served with nordic gear. Neither alpine nor nordic is better, they just do different things better. Backyard skiers have very different needs from

those seeking wild, big mountain snow.

Some serious backcountry skiers own both nordic and alpine touring equipment but many do fine with just one or the other. If you are unsure, we suggest going with a nordic setup because it is more versatile. That said, nordic gear requires better technique, skill, and tactics on terrain near the limit of your ability. And, if you have knee problems, alpine touring gear can allow you to ski where nordic gear might prove problematic. The telemark turn is not much fun when your knees are screaming in discomfort. Older and injured skiers take heed.

Again, rolling and gentle terrain is ideal for nordic gear. Steep terrain calls out for alpine touring gear. If you aspire to complete a Haute Route in the Alps, alpine touring gear will likely serve you better. If you expect to ski gentler terrain, nordic will be your best bet.

One solution to the equipment dilemma is to own an alpine touring setup plus a nordic setup (maybe two). This allows skiing over a wide range of terrain and conditions without trying to stretch gear beyond its limits. Serious backcountry skiers often go this route eventually.

## **Backcountry Equipment Choices**

Because there are so many considerations and because there are no widely-accepted categories of backcountry skiing equipment in the ski industry, it can be difficult even to know where to start. Part of the problem lies in the fact that 'backcountry' is often interpreted very broadly and thus really light or really heavy equipment gets suggested when in fact it has extremely limited application for most backcountry skiing. We have defined some categories of our own to help narrow down the choices. Boots, bindings and skis are each grouped according to their suitability for different backcountry skiing situations. Keep in mind that these categories are just guidelines and their boundaries are not intended to be precise. We hope this helps. Also keep in mind, our category descriptions will differ from others' and that is not likely to change – skiers are in independent bunch!

## **Backcountry Ski Boots**

Adirondack winters are cold and wet! Appropriate footwear, that fits well, is absolutely essential for an enjoyable skiing experience. When it comes to ski equipment, it all starts with boots.

### **Fitting Boots**

We fit all our ski boots wearing a single heavy sock, and we specifically suggest you avoid using liner socks. Darn Tough, Thor-Lo, SmartWool, and other companies make socks that both wick and insulate well. With just one sock there's no liner to slip down and wrinkle, causing discomfort and possibly blisters. Crumpled liner socks are a major cause of blisters! Clean, dry socks are important too. If we plan to be out for more than one day, without changing socks and thoroughly drying our boots, we use a vapor barrier sock – but otherwise we avoid them because they are not particularly pleasant to wear.

Once you have decided on the type of boot you need (see below) you should try boots from at least two different companies to get a sense for how boot shapes can vary. You'll be amazed at the differences. We wear the same thickness and type of sock in all of our winter footwear, so fit is not altered by the "wrong" sock – and we never add socks to adjust fit.

Fitting ski boots can be a challenge. Boots that are too tight will be cold because they will limit blood circulation in your feet. Boots that are too loose will flop around and ski poorly – and may cause blisters. The 'size' of the boot is just the tip of the iceberg. You need to find a boot that is the right SIZE, but more importantly it must also fit the SHAPE of your foot. Feet have multiple dimensions and boots need to fit them all. Heel-lift and pressure points are indicative of a bad fit, as are boots that are too wide or narrow. Sometimes insoles can be used to adjust fit effectively but once you get a good fit you should not have to mess with it again. Don't settle for a poor fit!

Expect to spend a minimum of one hour fitting boots, much longer if your foot shape is at all challenging. A skilled ski boot fitter can provide invaluable advice and solutions to fit problems. Unfortunately, many sales people simply do not have the expertise or experience required to do a good job so be careful who you choose. There are no 'best' boot brands! Don't be swayed by gimmicks, personal opinions or even price; buy the boot that fits the best. You'll be glad you did when your feet are warm and comfortable five miles from the nearest road.

Avoid the temptation to go with a lighter nordic boot because it's easier to fit and feels better in the store. Nordic boots that are too light will impair your ability to control your skis in the backcountry. It's better to err on the heavy side when it comes to nordic backcountry ski boots. On the other hand, with alpine touring boots for the backcountry, it's better to err on the light side.

### **Lightweight Backcountry Nordic Boots**

This category is suited for people who plan to ski only easier backcountry terrain and are not concerned about skiing steeper slopes. Although these less-supportive boots will control a telemark turn on gentle terrain in cooperative conditions, they are inadequate when the going gets rough. The boots in this category use synthetic fabric or leather in construction and are designed to keep cost to a minimum while still providing basic performance and light weight. Boots in this category use the NNN-BC binding system which, by virtue of its limited support, makes backcountry skiing difficult on steeper terrain and challenging conditions. Although these boots are widely sold, we find them inadequate for many backcountry skiing situations in the mountains and we suggest you go with a heavier boot.

Other light boot and binding combinations, including the lightweight SNS and NNN systems, can be used on gentle backcountry terrain but they have very significant limitations and they will leave you wanting when downhill control is essential. Keep this much lighter equipment for quick trips to the local ski touring center, park or golf course.

### **Mid-weight Backcountry Nordic Boots**

Nordic boots in this category are likely to be your best choice. For us, the defining characteristic for these boots is that they are torsionally stiff and will fit into a 75 mm nordic norm 3-pin binding. They will all fit cable/hardwire bindings too. Although they are heavier than boots for the NNN-BC system, the additional support and control they offer is a wise trade-off in mountainous terrain. These are the boots most serious nordic backcountry skiers choose for the majority of their skiing. They will handle all but the most desperate downhills (if you're good enough they'll even handle slopes most skiers wouldn't try on alpine equipment!) and, if they fit well, you'll find even long, easy tours are enjoyable. Leather 75mm, 3-pin boots manufactured by Merrell and Asolo once dominated this category but advances in synthetics and plastic boot technology have changed that.

Nowadays many skiers select 75mm, nordic norm 3-pin boots from companies such as Alpina, Black Diamond, Crispi, Fischer, Garmont, Rossignol or Scarpa. There is quite a range within this category and the lighter end of this range is great for less aggressive backcountry objectives. If you intend to do some lift-served skiing, or you expect to ski difficult slopes or conditions in the backcountry, we suggest you purchase boots at the heavier end of this range.

We, and a whole lot of other backcountry enthusiasts, ski on Garmont's Excursion boot most of the time although the Scarpa T4 is comparable if it fits your foot better. These are warm, supportive, two-buckle plastic boots that will control most skis in most conditions. They are on the heavy end of this category but, if they fit well, most skiers find them comfortable even on long tours. If you ski mountainous terrain, these may be the only nordic backcountry boots you need.



**Foreground: SNS system boot is too light for the backcountry**  
**Background: 75mm nordic norm boot. This old-style Asolo leather boot is sufficient for easier tours.**



**Light mid-weight nordic backcountry boots. Alpina BC 1575**



**Mid-weight nordic backcountry boots. Rossignol BCX 675**

### **Heavyweight Backcountry/Telemarking Nordic Boots**

This category includes the numerous beefed-up boots, with three or more buckles, designed primarily for lift-served telemark skiing, very challenging descents and conditions of extreme cold. If you need a pair of these boots you should already know exactly why, otherwise don't even consider them. In the backcountry, these are special purpose boots that will not be comfortable for most skiing. For us, alpine touring equipment has mostly replaced this category of boots in the backcountry. If we want that much much control, today's lightweight AT gear does a better job for less weight. Unless you are a true telemark evangelist we recommend this approach.

### **Lightweight Alpine Touring (AT) Boots**

If you are considering alpine touring boots for backcountry use we suggest getting a lightweight boot that is compatible with Dynafit's lightweight binding system. Dynafit compatible boots can usually be used in other binding as well. Manufacturers include Dynafit, Garmont, Scarpa, Black Diamond, K2 and a few others. Alpine touring boots were, for a long time, too heavy and clunky for anything other than short jaunts into the backcountry. New designs, materials and the Dynafit binding system changed that and these boots now create a viable option to nordic setups for the most challenging backcountry skiing. These boots usually have two buckles. Some of these boots also work fairly well for climbing with crampons and thus they have replaced climbing boots for some ski mountaineering.

The featherweight, two-buckle, Dynafit TLT5 Mountain has a super-comfortable walk mode, skis beautifully and is our current favorite in this category. Paired with Dynafit bindings and light skis it is a dream come true!

### **Heavyweight Alpine Touring (AT) Boots**

This category is best suited for sidecountry skiing from a downhill ski resort. Supportive and fairly heavy, like a regular alpine ski boot, but usually with some sort of "walk mode", these boots are designed for challenging terrain that isn't too far away. Using climbing skins with these boots is only tolerable most of the time but once you get where you are going their support lets you ski your best. These boots usually have three or more buckles. Boots chosen for sidecountry skiing are often more concerned with support than weight so Dynafit compatibility is less beneficial but, still not a bad idea.

The four-buckle Dynafit Titan is on the light end of this category but it offers all the support we need for any type of skiing.

### **Gaiters**



*Heavy mid-weight nordic backcountry boots. Garmont Excursion*



*Scarpa T1 4-buckle boot. Too heavy for most backcountry!*



*Heavy and light AT boots*

Gaiters are useful to keep snow out of ski boots if your pants do not incorporate a gaiter in their design. It is important that gaiters fit the boot properly to keep snow out. There are two types of gaiters; supergaiters are similar to an overboot and they fit over the entire boot upper, covering down to the welt. These can be insulated or un-insulated and they are warmer than conventional gaiters which cover the top of the boot only. Gaiters for backcountry skiing should cover the lower leg up to the knee to keep deep snow out of your boots. If you tend to get cold feet we suggest an insulated supergaiter. Another option is to wear overbooties on cold days. With warm plastic backcountry boots and pants with their own gaiter, you may not need separate gaiters at all.



*Insulated supergaiter*

### **Backcountry Ski Bindings**

Simple, rugged bindings are important in the backcountry. An unreparable binding in deep snow, way out in the backcountry, is not just an inconvenience! Basically, nordic boots require nordic bindings and alpine touring boots require AT bindings although it's not quite that simple – a few boots can use either system.

#### **Lightweight Nordic Bindings**

These bindings, like lightweight backcountry boots, use the NNN-BC system. Although they are popular, their inherently limited support will discourage you from tackling anything other than fairly easy backcountry terrain in cooperative conditions. They are also more prone to breakage than heavier bindings – not good. We suggest you limit your backcountry binding choices to 75mm, nordic norm models.

#### **Mid-weight Nordic Bindings**

This category includes the ruggedly built 75mm nordic norm bindings that are the choice of most serious backcountry skiers. On the lighter end of this category, standard 3-pin bindings are still fine for a lot of backcountry skiing. However, many skiers today choose cable or hardwire bindings, especially if they mostly ski steeper terrain and challenging conditions. A few bindings allow 3-pin, cable/hardwire or both types together. With the freedom of 3-pins on the flats and uphill, plus the control of cables or hardwires on descents, these bindings are quite versatile and popular. Voilé and Rottefella offer a good selection of binding in this category.

#### **Heavyweight Nordic Bindings**

These are the beefiest of 75mm nordic norm hardwire bindings, really designed more for lift-served tele skiing than the backcountry. These bindings may have a free-hinging mode, like an AT binding, to allow easier skinning or they may include a release mechanism. Like heavyweight boots, these bindings have limited appeal for most backcountry skiers although they work well for the sidecountry. AT equipment is usually a better option if you are seeking this much control in the backcountry.

#### **Lightweight Alpine Touring (AT) Bindings**

The lightweight Dynafit system is very popular and a proven performer in the backcountry. Other systems by Fritschi and Marker are heavier, feel more like an alpine binding and are



*NNN-BC nordic binding*



*75mm nordic norm 3-pin binding*



preferred by some skiers when weight is less important but, in the backcountry, Dynafits rule! The Dynafit binding is made by Dynafit and G3.

*75mm nordic norm cable binding*

### **Heavyweight Alpine Touring (AT) Bindings**

For sidecountry many skiers like the Marker AT bindings. The Marker F10 and F12 (or the Fritschi Diamir) are great for longer sidecountry jaunts and for skiers who are willing to carry the weight, the Baron and the Duke offer full alpine binding performance and a high DIN setting for cliff jumps and other aggressive skiing. Silvretta makes a binding that will accept a mountaineering boot for ski mountaineering. All of these bindings are significantly heavier than Dynafits which will become apparent before you have skied very far on the flats or uphill, especially if they are paired with beefy boots.



*AT bindings, left to right: Marker Tour F12, Marker Duke, Dynafit TLT Vertical ST, Dynafit TLT Speed*

### **Mounting Bindings**

Binding position has a big effect on how a ski performs. Bindings on single-cambered skis are usually placed at the mid-cord position. For double-cambered skis, balance-point mounting usually works best. Sometimes it makes sense to mount somewhere between these two points. A knowledgeable ski technician can help you make a good decision about mounting. Voilé (and others) make an adaptor allowing release for nordic bindings. This device has some disadvantages so few skiers use them in the backcountry but some skiers like them for lift-serviced or sidecountry skiing with beefy tele gear.

### **Backcountry Skis**

#### **Nordic Backcountry Skis**

There are two major decisions you must make when buying a pair of nordic backcountry skis. Edged vs. non-edged and wax vs. waxless are the big questions. Beyond these questions you must decide if you want a general purpose ski or one that will excel in some situations but not in others. You can't have it all!

Although they're fine for touring centers and golf courses we find very little reason to buy any ski without full metal edges for the backcountry. Edges are a real asset in the difficult conditions encountered in the backcountry (especially in the East where ice is common) and we consider them essential.

Waxing is usually simple and skiing on a wax base is more efficient than on a waxless base in cold conditions, but climate change means we are skiing in warmer conditions more often every season. Waxless skis make sense more often than they once did. Owning a pair of waxable and a pair of waxless skis is ideal but if you have to pick just one, waxless is probably your best choice. This was not our advice several years ago but a string of warm winters, along with improvements in waxless skis have changed our thinking. Nowadays, most of the better backcountry skis are waxless although good waxable skis can still be found.

#### **Lightweight Nordic Backcountry Skis**

Skis in this category are great for kicking and gliding on rolling



*Madshus Glittertind Lightweight*

hiking trails in cooperative snow conditions. These skis are all double-cambered to facilitate kick and glide, and we suggest you limit your choice to models with a full metal edge. Skis in this category are best suited to longer, gentler backcountry adventures on trails. Although you could use NNN-BC boots and bindings on these skis, we suggest you go with 75mm nordic norm 3-pin boots and bindings for better control. These relatively narrow skis are designed to be skied in traditional longer lengths.

Representative skis from this category include Madshus's Glitterand, Fischer's E99 Crown, Alpina's Red Tail and Rossignol's BC 65/70.

### **Mid-weight Nordic Backcountry Skis**

Most backcountry skiers who ski in the mountains will be well served by skis from this category. These are all-around backcountry skis; they will all allow you to ski most terrain and conditions reasonably comfortably. Skis on the lighter end of this range are happiest on longer tours and gentler terrain but they are not out of their range on steeper terrain or challenging snow. As you move to the heavier end, skis in this category will handle steeps and deeps better at the cost of somewhat decreased touring performance. Because of their versatility, skis from this category are very popular in the Adirondacks and other backcountry areas.

Representative skis from lighter end of this category include Madshus's Eon (formerly the legendary Karhu XCD-GT), Fischer's S-Bound 78/88, Alpina's Odyssey Edge, Rossignol's BC 90.

Skis from this heavier end of this category include Madshus's Epoch (formerly the Karhu 10th Mountain Tour), Fischer's S-Bound 98, Alpina's Lite Terrain, and Rossignol's BC 110.

### **Heavyweight Nordic Backcountry Skis**

These are the skis to choose for steep climbs and descents, and for skiing off-trail in challenging conditions. These skis are all single-cambered, with plenty of side-cut for quick turning and most are quite wide and rockered for flotation in deep snow. Some of these skis are actually modified telemark skis, designed for lift-serviced and sidecountry skiing. While they are great going downhill, these skis are not well-suited for kicking and gliding on gentle terrain. A supportive plastic, 75mm nordic norm boot with two buckles (maybe three) and a hardwire/cable binding will provide the power required to turn these big skis. They really come into their own for powder and spring conditions. If you need much more ski than this in the backcountry it's time to start thinking about alpine touring equipment. These fat skis are usually designed to be skied in shorter lengths.

Representative skis from this category include Madshus's Annum (formerly the Karhu Guide), Fischer's S-Bound 112, Alpina's X Terrain, Rossignol's BC 125, and Voilé's Vector.

### **Alpine Touring (AT) Skis**

The choice mostly comes down to light weight for the backcountry or enhanced skiing performance (and weight) for sidecountry. AT skis are evolving rapidly and they have drawn from regular alpine ski designs, telemark ski designs and completely new designs.

### **Lightweight Alpine Touring (AT) Skis**

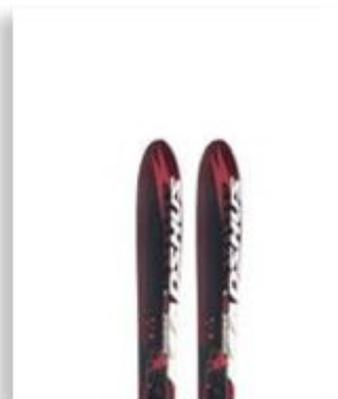
For the backcountry most people want lightweight, maneuverable skis and that usually means a short and fat profile. Some skis are designed for powder, others for spring conditions, and still others for a bit of everything. Keeping weight down is important but the



*Madshus Eon  
Light Mid-weight*



*Madshus Epoch  
Heavy Mid-weight*



*Madshus Annum  
Heavyweight*

latest super light AT skis can be difficult to control and don't last long.

Skis from this category are becoming very popular and most alpine ski companies have at least one or two models. Our favorites include Dynafit's Manaslu for softer snow, and K2's Backup for spring/all-around snow. Both ski beautifully.

### **Heavyweight Alpine Touring (AT) Skis**

Ideal for sidecountry, this category can include almost any alpine ski. Usually lighter than true alpine skis but heavier than backcountry models, these skis are frequently optimized for particular snow conditions. Powder skis are the most popular, but there are models optimized for nearly any situation you can think of. Mounted with a rugged AT binding, these skis allow you to ski in bounds or in the sidecountry and, for many alpine skiers, they eliminate the need for a traditional alpine setup.

This category is where much of the latest, cutting-edge ski design is taking place and it has exploded in popularity. K2's Coomback is a great, all-around ski on the lighter end of this category. Skied on the short side, they turn on a dime and will handle almost any conditions. The K2 Sidestash is a joy in any kind of deep snow, especially if you like to ski 'in' the snow rather than 'on' it.



*AT skis, left to right:  
K2 Sidestash, K2 Coomback,  
Dynafit Manaslu and K2 Backup*

### **Sizing Skis**

Ski length is mostly determined by your weight but, like everything else about skis, it's partially a matter of personal preference. Camber, stiffness, rocker, profile and numerous other factors can be adjusted to design skis that ski best long, short or in between. Use the manufacturer's recommended length for your weight as a starting point. Demo skis are a great way to see what length you like best.

Although we use equipment from all of the above categories, if you are like most people, one set of skis is already too expensive! If this is the case we suggest you just start with a nordic setup from our mid-weight category. Equipment in this range is about as close to all-around as you will find and it has a place in every skier's collection.

Many backcountry skiers have moved to fatter skis and, if you expect to ski challenging terrain and conditions, this makes sense but there is still a place for an all around ski like the Madshus Eon or Epoch in every backcountry skier's arsenal. Of course you could just buy a setup from each category above. Go ahead, sell your car – and your house! Skis are clearly more important! Or maybe not.

### **Ski Poles**

In stark contrast to all the categories above, one pair of adjustable poles is adequate for all backcountry skiing! Aluminum is our choice for material because you can straighten it after an unplanned encounter with a tree, but carbon will work as long as you don't break it. If you buy a fixed length pole (we still use these for nordic skiing sometimes) we suggest getting a pole slightly shorter than normal for nordic skiing. The most versatile solution is to get an adjustable length aluminum pole. A breakaway grip (so you don't leave your arm on a tree if your pole catches as you ski by) is a very sensible feature. Poles that can be fashioned into avalanche probes are OK but, where avalanches are common, a dedicated probe is still important. Two-section adjustable poles have fewer problems than those with three sections and twist-lock adjustments have mostly been replaced by the more-reliable snap-locks on newer poles. A comfortable grip and strap are important.

### **Wax and Skins**

Waxing is not difficult as long as you are skiing on fresh cold snow. You don't need to measure snow temperature, buy lots of different waxes or spend more than about 2 minutes waxing your skis – we balk at a wax job requiring more than 30 seconds per ski! We use a two-wax system and it works as well as or better than all those colors! Two tins of wax and a scraper will take you anywhere wax makes sense. In warm or recrystallized snow condition waxless skis have an advantage. Actually, waxless skis work pretty well in all conditions.

Keep in mind that all skis benefit from glide wax, even waxless ones. When skiers refer to 'waxable' skis they are actually referring to skis that require 'kick wax', as opposed to waxless skis which achieve kick with a patterned base.

When the climbing gets too steep for wax (or waxless bases) to hold, climbing skins are the answer. Skins are needed for all of our ski programs except Backcountry Basics. Strap-on skins are annoying at best so limit your choices to the glue-on models and don't bother with kicker skins – they are almost useless. Don't cut your skins short as suggested in some information sources. Make sure you get tail attachments for a solid system that will not come undone.



*Assorted climbing skins*



*Ski poles, left to right: fixed length, two section and three section adjustable*



*Simple backcountry wax kit*

### **Ski Pack**

Most day packs will work, but there are many packs available with very nice features specifically for skiing. Good ski packs will not interfere with movement while skiing, have a convenient system for carrying skis, avalanche gear and other equipment, and have a way of easily separating wet and dry clothing. Hydration systems are convenient but may freeze in really cold conditions. 25 to 30 liters is big enough to carry extra layers, a thermos, avalanche gear, personal accessories and lunch with a bit of room to spare. Some ski packs incorporate avalanche airbags or Avalungs and, while we do not find these features useful in the Adirondacks, skiing in areas with frequent avalanches may justify their high cost and weight. You might also want to get a small fanny pack to carry just the essentials on a short ski.

### **Ski Helmet**

Like avalanche gear, there are times and places where helmets make sense and others when they are mostly extra weight or wishful thinking. Hitting a tree is one of the most likely ways to get injured while skiing in the Adirondack backcountry. Hitting a tree with your head is an especially bad idea! For gentle terrain, where speeds remain low, few skiers use helmets. On open slides where a long fall is possible, and on steep and/or narrow trails where hitting a tree or other obstacle is a real risk, helmets make sense. The hassle of carrying a helmet needs to be weighed carefully against its potential benefits. This is a personal choice.

### **Avalanche Equipment**

Most skiing in the Adirondacks is free from avalanche hazard. Open slides and other areas are occasionally subject to avalanche conditions and every once in a while they pose a serious avalanche hazard. Compared to many places in western North America our avalanche situation is benign but... you only need to get swept away and buried once to get killed. It is not common but it has happened in the Adirondacks.

A shovel, avalanche probe and avalanche beacon are essential tools in avalanche areas. An inflatable flotation pack and/or an Avalung may also be worth considering. We carry avalanche gear whenever there is a real threat of avalanche, which usually means on slides, steeps and other locations when there is a chance of unstable snow. Carrying avalanche gear on most gentle valley tours where there is virtually no risk of avalanche in any snow conditions loads you down unnecessarily. On the other hand, not carrying that same gear on slopes where avalanche hazards do exist is foolhardy.

Too often, the decision to carry avalanche gear is guided either by wishful thinking or hubris rather than an informed understanding of things. If there is no chance of an avalanche you do not accumulate brownie points by carrying a shovel, probe and beacon! You just schlepp useless weight. If you do not know if there is an avalanche hazard, find out before you go! Don't assume that \$500 worth of the latest gear will somehow make you safe. It won't. If there is a serious hazard, carrying avalanche gear is NOT the right course of action. Not going there at all is the smart choice. On the other hand, if you enter avalanche terrain without the right gear you will not be able to effectively assist an avalanche victim so, no matter how lucky you feel, carry the gear and know how to use it if there is a chance it might be needed.



*Dakine Sidecountry Pack*



*Osprey Backcountry Pack*



*Avalanche gear*

Our [introductory backcountry skiing programs](#) do not normally enter avalanche prone areas so there's no need to carry avalanche gear. Our alpine touring, advanced nordic and climbing programs occasionally enter potential avalanche areas but before that happens we will spend plenty of time discussing the risks and make sure we have appropriate gear. In stable snow conditions the risks are usually negligible but in the kind of conditions that make this stuff fun they may be greater. Forthright discussions are the only way to decide if the risks are worthwhile.

There are two huge problems when it comes to avalanches. First, the science used to evaluate the snowpack is not precise and even experts can't forecast accurately. Forecasts usually involve a greater margin for error than people think, despite efforts by forecaster to explain this. And just because it's safe over here does not mean it will be safe over there, even if 'over there' is just ten feet away! The vast majority of people have only a vague notion of how avalanches work and what they can do.

The second, and in many ways the bigger problem with avalanches, lies in the 'grey zone' where there is some hazard but the snowpack is not obviously unstable. Nobody sensible will intentionally enter an area with a high risk of avalanche but the lure of fresh powder is a legitimate justification for skiers to take some risk. Unfortunately, people get excited and increase their willingness to take risk in the face of a fabulous run in fresh snow. The already limited objectivity and margin for error of snowpack evaluation gets nudged closer to risks we might not accept were it not for the promise of something really special. Our emotions influence our rational selves. Sometimes it's hard to accept what we're getting ourselves into.

Moderate to considerable avalanche danger is usually the trickiest because the risks are not extreme but they are still there to some degree and, without obvious consequences, it's easy to rationalize decisions. Frank, consequence-aware discussion and analysis are the best tools for making these decisions.

### **Ski Equipment Rentals**

Most participants in our skiing programs have their own equipment. If you need to rent equipment we suggest you try to do so near your home so you can make sure you get what you need ahead of time. Often rental fees can be applied toward an equipment purchase.

Rental equipment is available in our area however, demand can be high during busy periods so advance reservations are required (allow at least two weeks). Rarely, people reserve rental equipment, expecting to have what they need, and then find boots don't fit, skis are not what they expected or the gear they reserved was not returned and thus not available. Because these types of concerns can not be quickly solved, and because equipment plays such an important role in skiing, we suggest you avoid relying on appropriate rentals being available if possible. If you have equipment concerns of any type please call us so we can help you sort things out well in advance.

### **Suggested Reading**

There are no required texts for any of our courses, but "Mountaineering: The Freedom Of The Hills", published by The Mountaineers is as close to an alpinist's bible as it gets, and anyone with mountain aspirations of any type should read this book! This comprehensive mountaineering text covers rock, ice and snow climbing along with glacier travel, navigation, basic first-aid and many other topics.

"Backcountry Skiing: Skills for Ski Touring and Ski Mountaineering", also published by The Mountaineers, covers skiing specifically and does it very well.

We maintain a small selection of [books available for sale](#), including this one.

One of the more interesting of the many backcountry skiing websites is [WildSnow.com](#).

Several informative movies can be viewed at [ORS Cross Country Skis Direct](#). These movies compare various backcountry boots, bindings and skis.



*Beacon, probe and shovel – avalanche essentials*

~ *Mountain Adventures In the Adirondacks Since 1985* ~

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