



INTRODUCTION TO SKI CROSS

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Introduction

Are you looking for new training and competition avenues for alpine ski athletes, or to develop new movement patterns with any ski athlete? Ski Cross is an excellent event option to explore. Ski Cross is quickly gaining popularity and has been approved to move from Freestyle and Freeski to a discipline under Alpine at the FIS level. Ski Cross is an exciting discipline that involves all aspects of ski racing and freeskiing, combined with the added element of racing side by side. Competitors inspect and train the course prior to the event day and oftentimes will have advanced training sessions similar to speed events for FIS events. Competition day training is common at the grassroots (entry) level. In the United States, entry level Ski Cross racing is delivered through the United States of America Snowboard and Freeski Association (USASA). FIS level racing and above is delivered through U.S. Ski & Snowboard.

Ski Cross presents a simple programming opportunity for any club with athletes who like to go fast, rip varied terrain, and will enable them to develop a diverse skill set. Ski Cross can serve as an excellent growth opportunity for any skier and is especially well suited to athletes with an Alpine ski racing foundation. Adding Ski Cross programming to club programs has been shown to increase the retention rate for athletes coming out of youth programs, provide another racing option for athletes in Alpine racing programs, and bridge the gap between Alpine, Freeride and Freestyle.

“By engaging our alpine athletes in Ski Cross last year at the USASA level I saw first hand some new found excitement and energy in our athletes. We were able to develop new skills in an unfamiliar setting and they were smiling the whole time! I feel Ski Cross utilized as a development aspect of alpine skiing fundamentals will lead to a stronger alpine program nationwide. It is exciting as a coach and athlete. The terrain and challenges are varied, and like anything else always relies on solid skiing fundamentals.” - Will Brandenburg; U.S. Ski Team Alumnus, Olympian, Alpine Director (SVSEF) [read more about the SVSEF season here](#)

“After spending most of my youth Alpine ski racing, I was burning out and had my eyes on other aspects of life until I tried Ski Cross. Ski Cross resparked my passion and interest in ski racing, Ski Cross kept me in the sport. Now, I have 7 years of Ski Cross World Cup racing experience, serve as the athlete rep for Ski Cross within the U.S. Ski and Snowboard, and get to share my passion for ski racing as I coach with the Jackson Hole Ski & Snowboard FIS Alpine program. While my time racing Alpine allowed me to develop great skiing fundamentals, Ski Cross kept me in the sport for life.” - Whitney Gardner; U.S. Ski Cross Team Alumnus, Ski Cross National Champion (2019, 2020), FIS Alpine Coach (JHSC)

To get started in Ski Cross, no specialty equipment is required for athletes or clubs beyond what is required for Alpine or Freeski. To learn more about Ski Cross, how to get involved, and integrate Ski Cross training into your Alpine, Freeride or Freestyle programs, see below.

Athlete Development Pathway

Below are some resources with more information on the Ski Cross athlete pipeline.

U.S. Ski & Snowboard Freeski Pipeline: [HERE](#)

Long-term Athlete Development Model: [HERE](#)

U.S. Ski Cross Participation/Results Stats: [2016-2020 stats here](#)

Sport Organizations

The first step in the competitive pipeline is [USASA](#).

About USASA

There are 30-32 different Series each year, each led by a Series Director that works with local clubs and resorts to host events and educational clinics. The Series Directors are the only authorized members to host and sanction USASA events. All events are sanctioned and insured by USASA and officiated and scored by a USASA TS, Tabulator and Jury (similar to a TD, RA and Jury).

Once registered as full member athletes must select a home series to compete in. Athletes may compete out of series and acquire National Ranking points to qualify for the Championships or secure the series title in their home series. Each series is awarded one NC spot per age group, gender, and discipline to the National Championships.

USASA event days are mixed age groups and oftentimes shared with snowboard athletes. Inspection and training are often mixed and organized at the start. Timed runs and heat racing are completed within age group and discipline. The same rules apply for both disciplines.

USASA National Championships- The final event quota per age group for the National Championships is based on a percentage of the total participation per age group nationwide. (top 15-20%) in addition to the series winners.

Criteria: 103.05 [Find a Series](#), [Membership](#)

Athletes wishing to compete must hold a USASA membership. Annual Membership is valid for Regional Championship titles, National Rankings and National Championship invites. One Day Membership is not valid for Member Benefits, Regional Championships titles, or National Rankings. [Age Groups](#) - athletes compete in age groups or can move up to an "open class" group.

About FIS

[FIS Events - listed from entry level to elite level](#)

FIS International - multiple events of this level all over the world every year. This is the first FIS level event an athlete should attend.

World University Games - happens every 2 years. Athletes must be selected to attend.

Continental Cups

NorAm Cup

EuropaCup

South America Cup

Australia New Zealand Cup

Junior World Championships - annual event held once a year. Must qualify to attend.

Youth Olympic Games - happens every 4 years. Must qualify to attend.

World Cup Tour - happens every year all over the world. Must qualify to attend.

World Championships - happens every 2 years. Must qualify to attend.

Olympic Winter Games - happens every 4 years. Must qualify to attend.

[Criteria](#)

Collegiate

[USCSA](#)

USCSA National Championship

World University Games

See Special Events (About FIS)

Competitor Licensing, Registration, and Inscription

USASA

License Requirements: [USASA](#)

USASA Regional Events require that all athletes have either a Full Membership or One Day Membership. One Day memberships *do not* count towards National Championship qualifications

USASA National Championships: Over 1800 athletes compete each year in their respective age groups for national titles in snowboarding and freeskier. Athletes must select a home series to compete in. Athletes may compete out of series and acquire National Ranking points to qualify for the Championships or secure the series title in their home series. Each series is awarded one NC spot per age group, gender, and discipline to the National Championships. The final event quota per age group for the National Championships is based on a percentage of the total participation per age group nationwide. (top 15-20%) in addition to the regional series winners.

U.S. Ski & Snowboard

License Requirement: [U.S. Ski and Snowboard: Freeski](#)

FIS

License Requirements: [U.S. Ski & Snowboard: Freeski](#), FIS Freestyle

Competitors must have a U.S. Ski & Snowboard Freeski membership to purchase FIS Freestyle License. FIS Freestyle License is required, FIS Freestyle License is purchased through the U.S. Ski & Snowboard.

Registration and Inscription: To attend any foreign FIS level event you must request inscription through the U.S. Ski & Snowboard. Please contact elise.saarela@usskiandsnowboard.org.

Domestic FIS Events: [Holeshot/NorAm Events](#)

International FIS Events: [See criteria here](#) for Junior World Championships, Youth Olympic Games, World Cup, World Championships, and Olympic Winter Games.

Coach and Officials Education and Requirements

Coach Requirements

USASA - All coaches need to meet all compliance requirements and will also need at a minimum a level 100 coach certification in order to access the Field of Play at any USASA event. There is reciprocity between the U.S. Ski & Snowboard and USASA. Valid U.S. Ski & Snowboard memberships are required at FIS level events.

Officials

USASA: [Coaches and Officials Information](#)

FIS: [ICR](#) (220)

Rules, Regulations, and Race Format

Refer to Rulebooks

[USASA](#)

[ICR](#)

[CoC Rulebook](#)

[World Cup Rulebook](#)

[FIS Points Rulebook](#)

[Freestyle Glossary of Terms](#)

Ski Cross Training Elements

Developing a Ski Cross training program involves lots of elements that are already in place! Anything from freeskiing, alpine training, start section training, & terrain park skiing are all part of what can contribute to a Ski Cross training program

Freeskiing

Freeskiing is an important aspect of skiing development to expose athletes to a variety of terrain, encourage athletes to learn terrain management, body positions, and develop a diverse skill set on both natural and manmade terrain that is already on your mountain. Technical Freeskiing is also essential to skill development; including drills focused on overall skiing fundamentals and terrain management fundamentals encourages athletes to diversify skill and apply intentional movement patterns to their skiing tactics and techniques. [Here](#) is a library of drills to incorporate into training.

Alpine

Alpine gate training and racing also encourages athletes to develop skills in inspection and visualization; essential aspects of mental and physical performance, course memorizing, execution, and personal safety.

GS training develops technical skiing fundamentals with speed and turn radius comparable to ski cross.

Super G and Downhill training develops technical skiing fundamentals and the higher speed encourages athletes to be more comfortable on their skis, manage terrain, and learn how to use terrain and jumps to generate speed and acceleration.

Slalom promotes technical fundamentals, agility, and balance.

Ski Cross Start Training

Example of club-level training start section [HERE](#)

Start Techniques:

The goal of a ski cross start is to generate maximum power and acceleration out of gate and through start features so an athlete can get out in front as soon as possible. There are a variety of techniques and body positions based on start features. These features include: flat versus steep start technique (different power trajectory) and start features following the gate (flatter or rolling features versus steep wutang or another steep, vertical feature). The start gate is the *only* consistent feature in a ski cross course and repetition and experience volume is essential to mastering a fast start. Experience and comfort decreases likelihood of injury while increasing agility, mobility, coordination, and athleticism. Remember that different athletes' bodies and/ or abilities require trying different strategies to generate maximum power and acceleration out of the start gate and through start features.

Strategy is important to ski cross; since there is a wide variety of factors, athletes must be mentally flexible and strategically have several “backup” plans.

Multiple line choices are necessary when head-to-head racing because another racer ahead of an athlete may be in the way, or in their line of choice. Every athlete should have a plan A, B, C, etc.

Line blocking or strategic “line protection” is a tactic athletes may take to protect their line and/ or avoid being passed by racers behind them.

Passing requires athletes to be confident and tactical in terms of where, when, and how to pass on a course. Factors of passing include: wind draft, knowing and utilizing personal strengths of each athlete, knowing opportune locations on a course where passes can be made, and being able to make rational decisions in the moment and under pressure.

Use Your Mountain's Terrain

Terrain parks are often already built at many ski resorts. Utilize terrain parks to practice inspection and visualization, then air awareness to improve balance, aerodynamics, ability to judge speed and trajectory, and to increase confidence and comfort in a variety of types of terrain (i.e. small jumps, side hits, larger jumps, and varied trajectory of jumps).

Jump Techniques include:

Take-offs- Press, absorb, pop, pre-jumps, cowboy, various types of jumps and dynamic movement to control air time.

Landings Physics of maximum acceleration upon landing (and on downslope) “Matching” of landing transition for smooth return to snow and maximum glide. ie. ski angle lands at the same angle as landing slope. Absorb force of landing to create less friction and encourage more acceleration

Course Information

Course Types:

Permanent courses are often open to the public and training for the home club or for surrounding clubs. Semi-permanent are typically built for competition and training prior to competition; the home club can invite teams to train on the course prior to official competition training for more exposure and to offset building and operation costs. Ski Cross courses can be used for a variety of purposes and levels with modifications including club training, entry level events, and public use.

Course Features Explanation:

Start Section

Purpose: Series of sharp terrain features right after the start to separate competitors prior to the first turn

Start Feature Examples:

WuTang- A sharp almost vertical face that requires athletes to utilize dynamic movements and hip mobility to get over. General seen in start sections where speeds are slower.

Rollers- Used to separate athletes in the start or in higher speed sections to test athletes timing, movement and on snow contact. Often times will be placed in packs of two or three to offer several different combinations to maneuver.

Step-Up- A jump that has a moderate that requires athletes to pop or fly over or onto a section above the takeoff.

Step-Down- A jump that has a flat takeoff with a downhill landing.

Butter Box- A take off gapping to a flat deck on top and a jump off to a landing transition

Aztec- A complex feature that combines step up and step down features.

Body of Course

Feature Examples:

Natural Hill Characteristics- use the natural characteristics of the hill to help inspire features and course build.

Bank Turn- skiers use the interior line of the bank.

Fall-Away, Off-Camber, Negative Turn- skiers use the exterior line of a built bank or a natural fall-away turn.

Banks can be built to use both the interior or exterior line for more course options; this is ideal for a variety of training options.

Rollers

Single Roller- single standing roller.

Roller Pack- Double, Triple, etc.: clearing or jumping over roller(s).

Dragon's Back- Pyramid shaped roller pack with rollers building up to an apex, then back down.

Level or Off-Camber Roller- rollers can be built level with or off-camber; one side of the roller being bigger or taller than the other.

Off-Camber rollers are built for Ski Cross only (not Snowboard)

Jump Types

Step-Up- landing is above takeoff

Step-Down- landing is below takeoff

Step-Over- jump with mandatory gap between takeoff and landing

Table- takeoff and landing are in same or similar plane

Butter Box- A take off gapping to a flat deck on top and a jump off to a landing transition

Hip or Corner Jump- off camber takeoff and/or landing

Variables (including and not limited to):

Speed

Skill

Design

Snow condition

Finish Line & Finish Area (Finish Corral)

Finish Line marks the end of the course defined by two vertical markings and a marked straight line on the snow.

Finish Area or Corral must be completely fenced off with an opening only accessible for skiers to exit.

See Rules, Regulations, and Race Format handbooks for more resources and specifications. See [ICR](#) Section 5100 for more details on FIS Ski Cross technical specifications and rules.

Start Commands

USASA Start Command- After racers are positioned in the gate and 30/15 second warning is given. Start command- Racers ready, "attention"- Non verbal gate drop 1-5 seconds after "attention."

FIS Start Command- "We are ready for the next heat, proceed to the StartGate", "Enter the start gate" (30 seconds before start command), "Skiers Ready", "Attention", (starter waits between 1-4 seconds), (Non-verbal gate drop - no verbal command).

See FIS Start Command Guidelines [HERE](#) (5610.3.2)

Equipment

Clubs:

Start Gate

2-4 person gate for training

4 person gate if hosting competitions

Start Gate Specifications [HERE](#)

Start gates can be made of 4x4 posts with handles at a regional level.

Bungee start or verbal “go” command may be used with Disqualification (DQ) for movement when no drop gate is available.

Shaping Tools

Scoop Shovel

Transfer Shovel

Push Shovel

Shape tool

Drill (auger bit)

Timing Equipment

Alpine Training Equipment

Gates and gate-like items (brushes, stubbies etc.)

Ski Cross Gates (same as Snowboard Gates)

One Stubby gate and one alpine gate with a triangular panel.

Ski cross color bibs- used to easily distinguish racers at the finish. Colors assigned to bibs before each heat and relayed to finish.

Example: “12 is wearing red, 6 is yellow, 15 is Green, 9 is black.”

Athletes:

Youth:

Skis

GS Skis or similar (no size or radius restrictions)

Other requirements:

Helmet mandatory

Speed suits not permitted, regular outerwear suitable

FIS: (Based on the [Specifications for Competition Equipment Edition 2019/20](#))

Skis

GS Skis (no size or radius restrictions)

(2.4) Two pairs of skis allowed for competition

(3.4) Binding Height 50mm (FIS, ENL, U14, U16)

Boots

(4.0) Boot Height (“thickness”) Restriction: 43mm

Ski Cross Suit

Custom Suits: [One Studio](#)

See Requirements, Restrictions, and Specifications (6.1)

Helmet

(7.1) model must fulfil ASTM 2040 and EN 1077 (class A) (i.e. Alpine GS/SG/DH Standard with FIS approval label)

Other Recommended Protection

Back protection (Section 9)

Mouth Guard

Safety Guidelines

Events

- Course construction should be built for middle third of the competition field
- All protection should be installed prior to inspection and testing
- It is recommended that open gates (gates without features) be used to control speed and guide athletes on course.
- Negative turns (fall away) may be used at all levels.
- All organized training on course must have section chiefs and eyes on course from start to finish.
- Inspection and training protocols must be adhered to and approved by the jury before inspection
- No outside movement on course once training begins

Training

Youth Level - USASA Events

No mandatory airs, just air options

Informed Athletes

Rules & Regulations regarding contact, line disruption, etc.

Coaches must be informed and pass the info to athletes

Sportsmanship

Contacts

U.S. Ski & Snowboard

Ashley Diebold - Snowboard/Freeski/Freestyle Sport Development Senior Manager -

ashley.deibold@usskiandsnowboard.org

Elise Saarela - Snowboard/Freeski/Freestyle Sport Development Coordinator -

elise.saarela@usskiandsnowboard.org

Alexis Williams - Ski cross/Snowboardcross Team Manager -

alexis.williams@usskiandsnowboard.org

U.S. Ski & Snowboard SX Sub Committee

Chair - Gillian Esson - skykomishskiteam@live.com

Athlete Representative - Whitney Gardner - whitneykgardner@gmail.com

Coaches Representative - Morgan Haymans - alpinexheadcoach@alyeskaskiclub.com

U.S. Ski & Snowboard Representative - Ashley Diebold -

ashley.deibold@usskiandsnowboard.org

USASA Representative - Mike Mallon - mike@usasa.org

Officials Representative - Jeff Lange - jefflange@aol.com

At Large Member - Todd Johnson - tjohnson@gocva.com

Liaison to Alpine Community - Will Brandenburg - wbrandenburg@svsef.org

FIS

U.S. FIS World Cup Athlete Representative - Tyler Wallasch - tylerwallasch@gmail.com

USASA

Executive Director - Mike Mallon - mike@usasa.org

Clubs and Programs with Known Ski Cross Programs

Looking for a club? You can use the U.S. Ski & Snowboard [FIND A CLUB](#) feature.

The following clubs have known Ski Cross programs, however this list may not be all inclusive as Ski Cross programs continue to be established across the U.S. Please note the list of clubs below should not be considered an endorsement and is here for informational purposes only.

Clubs

[Alyeska Ski Club](#), Alyeska, AK

[Blue Mountain Ski Team](#), Blue Mountain, PA

[Carrabassett Valley Academy](#), Sugarloaf, ME

[Gould Academy](#), Sunday River, ME

[New York Ski Education Foundation](#) - Whiteface, Gore Mountain, Belleayre

[PAFreestyle](#)- Seven Springs, PA

[Sierra at Tahoe Ski Team](#), Sierra at Tahoe, CA

[Skykomish Ski Team](#), Skykomish, WA

[Squaw Valley Ski Team](#), Squaw Valley, CA

[Sun Valley Ski Education Foundation](#), Sun Valley, ID

[Team Summit](#), CO

[USSX](#), CO

[Winter Park Ski Team](#), Winter Park, CO

Camps

Project Gold Camp, **Mt. Hood**, OR (Invitational - U.S. Ski & Snowboard)

[Windells Ski Cross Camp](#) (Summer), **Mt. Hood**, OR (Ages 9 and older)

Background & Explanation of Ski Cross

1998 X Games was the birthplace of Ski Cross on a world stage

2004 Ski Cross became FIS sanctioned

2006-07 season Ski Cross World Cup was created

2010 Vancouver Games Olympic debut

What is Ski Cross?

Ski Cross World Cup Trailer [HERE](#)

USASA Ski Cross Trailer [HERE](#) and [HERE](#)