College Courses
at the Peaks Ice Arena

Lecture Packet

Brigham Young University
Department of Student Wellness
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STAC 152  STAC 153

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PARKS
RECREATION
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Safety and Equipment

- Always stay within your own ability limits.
- High-speed skating or tricks can lead to injury.
- If at any time you are hurt in class, no matter how minor the injury is, you must report it to your instructor.
- Remember to be considerate of others and be careful.
- Stay with your class and instructor. When practicing, stay within the flow of traffic on the ice.

Clothing:

Wear warm clothes (layers are best) that will allow you to move freely. A light jacket, sweater or sweatshirt is ideal. Gloves or mittens are highly recommended while participating in on-ice instruction or practice. Inappropriate attire includes clothing that is too tight, dresses, long scarves, heavy winter coats or shorts. Please keep in mind that BYU students must follow the BYU honor code.

Equipment:

Skates will be provided for students during class times. If you have your own skates, please show them to an instructor to insure that they are a proper fit and provide stability. Students in the hockey class will be provided with a helmet and protective gear. All skaters in the hockey class are required to wear a helmet and gloves while on the ice. Hockey sticks are available for purchase at the front desk.

Skating Safety:

- Please do not use the toe-picks of figure skates to stop your forward movement.
- If you feel like you are going to fall, try to fall to the side.
- Do not hang on to another skater if you think you are going to fall.
- Skate only at a speed that you can control and that is safe for everyone around you.
- Skate in a counter-clockwise direction around the rink, (no weaving).

How to Lace Skates (demonstration)

How to tape/wax a hockey stick (demonstration)
History of Ice Skating

Origins

Skating began as a form of transportation in Northern Europe more than 2000 years ago. It was done using bones for blades. Poles were used to propel a skater, similar to cross country skiing. Skaters glided across the ice instead of cutting into the ice.

Using iron blades, the Dutch traveled by skating on canals. These blades included sharpened edges on the bottom to aid movement by allowing skaters to cut into the ice.

The popularity of skating spread to Britain in the 1600's and the sport was enjoyed by many prominent figures, including numerous members of royalty.

American Jackson Haines is known as the founder of modern figure skating. His efforts to spread and progress the sport in America and Europe led to the creation of the International Skating Union in 1892, the first international ice skating organizations.

1840 -- E.W. Bushnell organizes the first U.S. club in Philadelphia.
1854 -- The first covered indoor ice rink, skating club house is built.
1858 -- The first covered rink in North America is made in Quebec City.
1896 -- The first official world figure skating championships are held in Leningrad.
1908 -- Figure skating receives Olympic status in the Summer Games in London.

A Scene on the Ice
Hendrick Avercamp
c. 1600

Jackson Haines
Types of Skates

**Medieval Bone Skates:**
- Display at the Museum of London.

**1833 Made of Wood and Steel:**

**Steel Blade Ice Skates:**
- With wood soles, brass upper support plates, and leather strap uppers with black-painted steel buckles.

**Speed Skate:**
The boots are lightweight and low cut for a fast forward motion rather than for support. The blades are the thinnest of the three blades since they do not require much strength but do require speed. The blades are very long and not very maneuverable. The "clap" skate has revolutionized the sport of long track speed skating and have been key in breaking world records.

**Figure Skate:**
The boot should be made of leather with a leather lining, a padded tongue and ankle, and a highly treated leather sole. Figure skates are designed for support and come about ¼ inch above the anklebone. They are generally very stiff and take awhile to break in. The blade is the strongest of the three. It is designed for the impact of landing jumps. The toe pick of the skate is used for jumping and spinning.

**Hockey Skate:**
The boot is usually made of molded plastic, leather (often synthetic), and ballistic nylon with a hardened toe-cap, interior padding and a high-extended back. The skate is designed for sharp turns and mobility. The boot allows the skaters leg to bend and move to give additional stability.
The Zamboni

Frank J. Zamboni

An ice resurfacing machine is responsible for maintaining the ice and creating a smooth surface. The most common ice resurfacing machine brand is Zamboni. In 1949 Frank Zamboni invented the Model A Zamboni in Paramount, California. Zamboni ran an ice factory in the 1920's, but when home refrigeration became available, people no longer needed to buy ice. In order to make a living he decided to come up with some new ideas. He opened his own ice rink and after seeing that it took several workers hours with shovels to resurface the ice, Zamboni began working on the idea of an ice resurfacing machine. It was during the 1960 Olympics that a Zamboni was seen on television for the first time.

The Zamboni has three main purposes:
1. The Zamboni has a long razor-like blade that shaves off the surface of the ice. These shavings are taken to the dump tank through a series of conveyors.
2. The ice is then cleaned using nozzles that shoot warm water. This happens inside the “conditioner” or back black part of the machine that sits on the ice. The excess water is sucked back up and recycled by the wash water system.
3. Finally, a layer of hot water is laid down. This water is usually 160-180°F. This water is smoothed out by a towel to make it uniform and to remove air. The amount of water laid can be regulated by the operator and depends on ice conditions.

- A Zamboni can weigh anywhere from 7000-9000 pounds.
- The price of a Zamboni is about $85,000.
- The Zamboni tops out at about 9 miles per hour. It is powered by a Volkswagen 1.8 liter, 4-cylinder engine.
- There are seven different models of the Zamboni, including a model that will suck up water off turf fields.
- The tires on the Zamboni have metal spikes that prevent the Zamboni from losing traction. The Zamboni has the capabilities of running on four different types of fuel: propane, unleaded gasoline, electricity and natural gas. Natural gas is used at The Peaks Ice Arena.
Careers

Careers in Ice Skating

Teaching
  Group Lessons
  Private Lessons
  Teams
  Seminars

Show Skating
  Disney on Ice
  Ice Capades
  Cruise Ships

Professional
  Stars on Ice (for World or Olympic Champions)

Careers in Hockey

Professional Hockey
  Player
  Officiating
  Front Desk/Administration

Local Rinks
  Rink Management
  Recreation Coordinator

Instruction
  Coaching
  Tournament Organization
  Scouting Services
Ice Rink

Sizes of ice rinks:
- Olympic/International rinks: 100 x 200 feet
- NHL/Professional rinks: about 85 x 200 feet
- Community rinks: 65 x 165 feet

An ice sheet has a slab of cement directly under the ice. The cement slab is poured all at once (monolithic pour). The monolithic pour gives the cement slab the strength to withstand the freezing process and not crack. The freezing coils run inside the cement. There are 18 miles of 2-inch piping laid every ¾ of an inch in an Olympic size rink. There are over 3,500 gallons of calcium chloride (brine) at 14-18 degrees pumped through these pipes.

Two layers of foam, similar to Styrofoam, are laid as interlocking bricks under the cement. One piece lays over the next for strength. This is an insulation layer and prevents the loss of cold downward away from the ice. Under the foam is a 3-inch layer of sand. There are heating coils located in this layer of sand. There is precipitation in the ground naturally. Over time, this precipitation begins to freeze and expand in the ground. As it expands, the frost action begins to lift the building and crack the foundation. The heating floor is located under the ice and insulation layers and prevents the ground and precipitation from freezing.

Below the 3-inch layer of sand with heating coils, is a 6-inch layer of sand and 6 inches of fine gravel to provide even more insulation. The depth of the ice is generally an inch to an inch and a half thick. The ice temperature is maintained at somewhere between 18-22 degrees depending on usage. Hockey ice is generally harder (best for fast turns and movement) so it is maintained at a lower degree while figure skating ice is generally maintained at a higher degree that is better suited for jumps (so we don’t take chunks of ice out on pick assists, and it’s much easier to spin on). The Peaks Arena has two Olympic/International rinks and room for a third, NHL-sized rink.

North Rink

South Rink
Making the Ice

The cement floor is cleaned and the surface temperature is cooled to about 14 to 16 degrees. The temperature of the cement is dropped very slowly to prevent cracking and the building temperature is brought down to 55 to 65 degrees.

Three light floods of water are sprayed to cover the cement. This layer is only about 1/16 of an inch thick. The ice is then painted with three coats of white paint. The paint makes the ice appear white and prevents the gray cement from being visible. The white color helps keep the ice frozen by reflecting heat from the lights and it also gives the ice a better cosmetic appearance. The paint is then covered with ten coats of water as a sealer.

The logos are either hand painted on the ice or can be purchased as preprinted vinyl. When the logos are hand painted, the workers start with a pattern made from paper with holes in it. They transfer the design to the ice by putting chalk through the holes onto the ice. They then connect the dots and fill in the spaces with paint. Vinyl graphics are more expensive but much easier to install. Logos are placed sealed in with a hose.

The lines are then painted. Blue and red yarn is used to create the outline of the blue and red lines and the inside is painted in with a hand brush or a roller.
Making the Ice (cont’d)

The long process of flooding then begins until the ice has reached its desired thickness. The Zamboni is driven over the ice around 100 times, adding another layer of water with each pass.
Figure Skating

Jumps
Almost all jumps are landed on the right back outside edge. There are toe jumps and edge jumps. Listed below are the common jumps in skating.

- Waltz Jump (½ rotation)  Take off from left forward outside edge.
- Salchow (1 rotation)  Take off from left back inside edge.
- Toe Loop (1 rotation)  Take off from right back inside edge, left toe pick assist.
- Loop (1 rotation)  Take off from right back outside edge.
- Flip (1 rotation)  Take off from left back inside edge, right toe pick assist.
- Lutz (1 rotation)  Take off from left back outside edge, right toe pick assist.
- Axle 1½ rotation  Take off from a left forward outside edge.

Spins
There are forward spins as well as back spins. Forward spins are done on the left back inside edge. Backspins are done on the right back outside edge. Listed below are some of the standard spins. Some that are not listed are the lay back, flying camel, flying sit spin, etc.

- One Foot Scratch Spin
  The right knee is in front and the right foot is touching the left leg.
  The right leg is extended to the side, then the right foot crosses in
  front of the left knee, then pushes down till the feet are in a side
  by side, crossed position.
- Sit Spin
  This spin is done in the sitting position with the right leg extended to the front.
- Camel Spin
  This spin is done with the right leg raised behind and the body is parallel to the ice. (Same as spiral)

*** (All of this information is for right handed skating. Left handed skating is done the same except on the opposite leg.)

Competitions:  Pre-preliminary, preliminary, pre-juvenile, juvenile, intermediate, novice, junior, and senior

Adult Test Levels: Pre-bronze, bronze, silver, and gold

Competitions: Non-qualifying competitions, non-qualifying regionals (pre-juvenile & open juvenile), regionals, sectionals, nationals, Worlds (seniors only) and Olympics (seniors only)

Categories: Singles, pairs, dance, and synchronized skating. Judged on artistic presentation and technical merit.
Ice Hockey

Ice Hockey is a fast-paced game, consisting of three periods. Goals are scored by getting the puck into the opposite teams 4’x 6’ net. The first pucks were made of froze cow droppings. Each team has 6 players on the ice: 1 center, 2 wingmen, 2 defensive players, and 1 goalie. Officials typically include 1 referee and 2 linemen.

The Stanley Cup is given to the team that wins the National Hockey League playoffs. The Championship team needs to win 16 playoff games to win the Stanley Cup.

Equipment:
- Ice, nets, puck, sticks, skates and padding

Shots:
- Slap, wrist, backhand and snap

Penalties:
- Penalty names are as follows: game misconduct, major penalty, minor penalty, elbowing, slashing, hooking etc. When you swing your stick, not attempting to hit the puck, and hit the body of the opposing player, the call is slashing. After tripping an opponent, a player would sit in the penalty box. A penalty shot is awarded if a skater is pulled down when approaching the goalie with no defender obstructing his path to the goal.

Terminology:
- Icing: Intentionally shooting the puck from behind the center red line over your opponent’s goal line

- Off Sides: When a player precedes the puck into the offensive zone.
Organizations

Figure Skating
The International Olympic Committee or IOC organizes the Olympic Games and is the recognized governing body to establish the basic structure for competition in figure skating.

The International Skating Union or ISU recognizes two branches in the United States for recreational and competitive skaters. The two branches are described below.

United States Figure Skating (USFS)
Emphasis: competitive skater
Path to Worlds and Olympics
Member of ISU or International Skating Union

Ice Skating Institute (ISI)
Emphasis: recreational skater
No path to Worlds and Olympics
Not a member of ISU or International Skating Union

Other Figure Skating Organizations

Clubs and Rinks
Beginning skaters usually skate in rink sponsored skating schools or in a Learn to Skate (USFS) or WE Skate (ISI) program. When skaters have advanced beyond the basic levels of skating instruction, they may join a skating club. Skating clubs have an affiliation with a National Governing Body which coordinates the activities of club.

Professional Skaters Association (PSA)
PSA is an organization of ice skating professionals engaged in the instruction, training and performance of figure skating. Membership in PSA is available to all figure skating instructors and PSA provides seminars and classes for instructors, manages a "rankings and ratings" system whereby instructors can receive certification to teach at various levels and offers insurance for professionals to teach on and off the ice.
Organizations (cont’d)

Hockey Organizations

The International Ice Hockey Federation (IIHF) is the worldwide governing body for ice hockey. It is based in Zurich, Switzerland, and has 70 members. It is responsible for the management of international ice hockey tournaments and maintains the IIHF World Ranking.

Despite its worldwide authority, the IIHF has little control of hockey in North America, where the National Hockey League (NHL) is the highest hockey organization. The IIHF’s base of power rests in Europe with the respective national governing bodies and leagues. Canada (Hockey Canada) and the United States (USA Hockey) are the only members who have their own rulebooks.

National Hockey League (NHL)

The NHL is an unincorporated, not-for-profit association which operates a major professional ice hockey league of 30 franchised member clubs, of which seven are currently located in Canada and 23 in the United States. Headquarters are located in New York City. The NHL is considered to be the premier professional ice hockey league in the world. The Stanley Cup, the oldest professional sports trophy in North America, is awarded annually to the league playoff champion at the end of each season.

Organizations to Remember

IOC - International Olympic Committee. Governs all Olympic sports and games including both hockey and figure skating.

ISU - International Skaters Union. Governing body for recreational and competitive skating programs around the world.

USFS - United States Figure Skating. Recreational and competitive skaters may test and compete. This is the only organization that provides the path for competitive skaters in the United States to advance to Worlds and Olympics.

ISI - Ice Skating Institute. Recreational skaters only. No test or competition track for skaters to advance to Worlds or Olympics.

PSA - Professional Skaters Association. Membership for instructors desiring to advance professionally. Includes seminars, classes, rankings and ratings.

Clubs - Most rinks offer a “club” to provide skaters membership in USFS.

IIHF - International Ice Hockey Federation. Governing body for all international leagues.

NHL - National Hockey League. All United States and Canadian leagues that play professionally belong to this association. The premier Ice Hockey League in the world.
Benefits of Ice Skating/Hockey

- Improved circulation
- Greater lung capacity
- Increased metabolism
- Stronger and thicker bones
- Increased flexibility
- Stronger heart Muscles
- Lowered blood pressure
- Improved digestion
- Helps you lose fat and maintain muscle tone
- Appetite naturally suppressed
- Helps to maintain proper weight
- Improved mood and self-esteem
- Less anxiety
- Increased energy levels
- Improved concentration and alertness
- Reduced levels of negative stress
- Stimulates creativity
- Increases the immune system
- Helps promote better rest and sleep
- Reduced risk of osteoporosis
- Reduced risks of certain cancers
- Reduced risk of diabetes
- Lower risk of heart disease
- Longer life expectancy