Fallen Hiker

This course concentrates on four aspects of a fallen hiker situation.

1. Risk assessment prior to forming a plan of action

2. Skills training without ropes,

3. Use of ropes and knots

4. Rope-working skills including safety-line belays.

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Disclosures and rules

I am not professionally trained or certified in anything, so learn at your own risk
I am not sponsored by any organization, so don't blame them for what I teach
I teach in concepts and understanding.
If you don't understand, you won't remember.
If you don't understand, then I'm not doing my job….ask more questions.
I teach rules of thumb
They apply only 99 percent of the time
Rules can be broken only if you understand why you need to break it and accept the consequences
Before you disagree or ignore what I teach, have the patience to listen to and understand the reasoning behind it before you make up your mind.
What I teach is not absolute. You change it to suit your needs.
There is no "the only right way"…. It all depends on circumstances

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Specific considerations for this course

The skills covered here are not standard rock climbing skills. If you need them, learn elsewhere.

Presuming that you will neither remember nor practice much after the course…
Only the most basic skills are taught
Only the minimal resources will be used
Only simple techniques will covered
Improvisation, versatility and adaptability will be emphasized

Assessing the situation after a hiker falls:

If there are major injuries or unconsciousness:
Call 9-1-1 and wait for the rescue squad
If needed, send down first aid supplies

If the hiker is in an unsafe or unstable position:
Have hiker move to a more stable position
Lower a rope down - or send someone down to stabilize him.
If it is too hazardous, wait for rescue squad

If there are no major injuries:
If needed, send down first aid supplies
Able to climb up/down easily – do it
Able to climb up/down, but may need protection (rope)
Need help to climb up/down
Only if it safe to send someone down to help

If it is too steep or hazardous
Call 9-1-1 and wait for rescue squad

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Factors to consider:

Injuries / consciousness
Time-critical injuries such as heavy bleeding, etc.
Hiker's capabilities
Time of day
Weather
Personnel resources (helpers)
Experienced helpers (climber, belayer)
Supplies (ropes, etc), first aid supplies
Safe work platform, anchor

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Other considerations

Do no harm – do not worsen the situation
Know your limits of knowledge, capabilities, experience
Stop, think, observe and plan before acting (S.T.O.P.)
Assess risk vs. gain (low/low, low/high, high/low, high/high)
Assess the supplies available (ropes, etc.)
Assess number of helpers, skill level, knowledge
Double check everything, especially knots, anchors, etc.
Have someone gather information (see below)

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Gather information

Have someone record on paper –
Date of fall
Time
Location (GPS coordinates would be nice)
Name of hiker
Gender
Age
Phone contact / home
Injury, if any
Medical/physical disabilities/needs
Witnesses
History of event (what happened)
Time of 9-1-1 call (if any)

If needed

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Contact family
Contact organization responsible party

If unable to contact via cell phone or radio
Send at least two persons out (in case one get hurt)
Send a copy of info sheet with them
Ensure they have appropriate phone numbers (and coins)
Ensure they can return (mark trail, etc.)

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Skills - Basic climbing skills

Maintain 3 points of contact. Two feet, one hand – or – two hands, one foot
Keep the center of gravity over your feet to prevent slipping
Use either edge of boot or flat sole of boot
Edge to dig in to create a small platform for support
Flat foot to maximize friction for a good grip

Finger to Finger Grip

Gripping the other's fingers or Finger to Finger Grip depends on both grips not to fail. If one fails, the hand can slip through the other hand, especially if one hand is sweaty or tired. There is no jamming effect.
DO NOT USE this technique.

Bucket Hand

When you reach down to help, form a Bucket Hand by keeping your fingers together, curl the four fingers to form a "J" with the thumb pressed against the side of the palm.

The other person reaches up and forms a bucket hand in reverse and "hooks" his hand into yours.

The advantage is the hands are less likely to slip or open under pressure. Both persons must know the skill.

Acrobatic Wrist Grip

This acrobatic grip combines the strength of both persons.
Each person holds onto the wrist of the other person, essentially jamming the circled hand against the fist of the other. It is more reliable because if one fails, the other still holds.

Say "**grab my wrist**" and cock your hand out to expose your wrist to the other person

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At some point, you may have to decide whether to go to the fallen hiker to provide aid. Should you go?

Factors to consider.

What is the risk / gain ratio?

Do you or someone else have the experience / skills to provide aid?
Do you or someone else have the experience / skills to climb safely?
Do you have an available belayer for fall protection?
Do you have the necessary tools/supplies (ropes, etc.)?
Do you have the knowledge to use the ropes safely?

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Rope

Strength should be 2,000 lbs (9 KN) or more. (FYI: 1 KN = approx. 225 lbs)
Working strength is about one quarter of the maximum strength
Stretch – dynamic vs. static
Material - Nylon/Dacron (polyester)
Diameter – ¼ to 3/8 inch / 6 to 9 mm
Type – laid/kern mantel/tape (5/16 inch or more)
Length 20 feet or more (30 feet of 5/16" web would weigh approx 9 oz)
Weight
Color

DO NOT use cotton clothesline, polypropylene (slick, often yellow), fuzzy rope.

Cotton, hemp, sisal, jute, manila, polypropylene, polyethylene are much weaker than either Nylon or Dacron.

Fuzzy rope is usually made of short fibers which break much easier.

DO NOT use "super" fiber ropes such as Kevlar, Spectra, Dyneema, Technora, etc. These are much stronger than Nylon, but tend to not hold knots well, and break fibers when flexed too often. Wonderful stuff, but it has too many potential difficulties for a basic user.

DO use climb-rated ropes.

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Preventive Rope Use (Safety Line, "Pro"(tection))

This is the most frequent use of a rope.
Tie the rope around an anchor (tree, etc) using a girth hitch, rewoven figure-eight, bowline, etc.
Toss rope down for others to use as an aid for climbing up.
Wrap rope around forearm and grasp with hand to increase friction and reduce slippage.

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Tossing the rope (heaving)

To avoid snags and tangles, start at one end, pile the rope loosely on the ground by running it through your hand untangling as you go.

To toss, do not coil the rope. This will cause a spiral tangle.

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Slowly form large zigzag loops back and forth (Z-folds) in the throwing hand.
When you have enough rope in hand, toss it straight out away from you so it falls out and down to the target. The rope will fall without tangles or snarls

Be sure to anchor or hold onto the other end of the rope.

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Knots

Rule: easy to tie, does its job, easy to untie. Better to know one knot well.

Overhand knot – the basic knot – can jam under load.

Figure-Eight knot – overhand knot with a twist. – Easier to untie.

Overhand around a rope

Fisherman's Knot – the "gold standard" to join ropes / even for different diameter ropes.
Reliable, strong, can't slip - similar to wrist-to-wrist grip
Tie each rope with an overhand around the other rope and pull tight

Double Fisherman's Knot – tie with overhand wrapped twice.

Girth Hitch – simple hitch around an object

Munter Hitch – high friction knot for belaying

Bowline Knot – is hard to remember for casual users. Better to use a rewoven Figure-Eight Knot.

No Square Knot – it can fail if the tail is pulled or caught.

Join two ropes with a Double Fisherman's Knot.

Form a loop with a Figure-Eight Knot on a bight or reweave it.

Always leave a long tail 4 inches plus or tie a security Overhand Knot.

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Rope usage

Form 6 inch loops at both ends of rope –with overhand or figure-8, leave 4 inch tail
Large enough to slip a hand through

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Join 2 loops by slipping first rope loop over second rope loop, then threading first rope end through second rope loop forming square knot or join 2 ropes with a Fisherman's Knot

End loop can be used for hiker's wrist
Anchor – around tree - use Girth Hitch or Figure-Eight

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Belay – control a line tied to climber for protection against falling
Belay around tree - simplest
Body belay – around body – last resort – friction burn
Maintain a stable position. Sitting is safer.

Tie loop around tree – clip carabiner to loop – use Munter Hitch.
Use Munter Hitch to add friction to prevent a "run" on the rope.

Never let go of the rope at any time – always keep one hand on rope.

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Harness – tie around climber for protection and belay

Simplest is rope/web around body – can slip and hurt.

Diaper seat – Seat sling – reduce slippage – around body and legs. Made from 8-10 feet web tied in a loop with fisherman's knot

How to use a seat:
Place knot in back.
Pull left, right, to front, form loops and hold.
Pull rest between legs to front, forming a diaper. Thread bottom part through the left, right loops.
Snug up and tie bottom loop (over left, right loops) to itself, locking all three parts together.
Attach another rope to bottom loop using a rewoven Figure-Eight Knot. Or use locking carabiner.
Test for close fit.
Slide back loop high up on waist for balance

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Carabiner
Useful, but not essential
Use only screw-locking carabiner. Simplest mechanism.
Always lock the carabiner

Use only a climb-rated carabiner rated at 4000 lb (20 KN) or more
Typical lock carabiner weight – 2.5 to3 oz. (75 – 90 grams)

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Aid roping.

Using rope as a step
Secure rope/web belt around waist
Thread rope with loop down under belt,
Wrap rope from inner thigh, back of leg, front of shin to feet
Attach to feet using Girth Hitch around instep
To use, raise foot, take up rope, step up and reposition body
Repeat

You can use two aids to act like left-right steps.

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