



Level 5: Advanced Swiftwater Rescue Skills Course

Skills Course Overview

This course is designed as a short program emphasizing safety, enjoyment, and skill development. The skills and knowledge gained through this course can set the stage for a lifetime of exploration, adventures, a healthy lifestyle, appreciation of water and the natural world, lasting memories with family and friends, and a rewarding experience for all - we paddle because it is fun.

ACA's Safety and rescue courses teach recognition and avoidance of common river hazards, execution of self-rescue techniques, and simple rescues for paddlers in distress. Emphasis is placed both on personal safety and simple, commonly used skills. Fundamental and more advanced techniques for dealing with hazards that carry greater risks for both victim and rescuer, such as strainers, rescue vest applications, entrapments, and pins also are practiced. Scenarios will provide an opportunity for participants to practice their skills both individually and within a team/group context.

Skills Course Prerequisites

- Acknowledgment of personal compliance with the [ACA Essential Eligibility Criteria \(EEC\)](#).
- Completion of an ACA, Rescue III, or similar swiftwater rescue course within the last 3 years
- Participants should be in good health and overall fitness, possess solid swimming ability, and be comfortable swimming in moving current during river drills

Course Duration

2 days (16 hours) or more.

Course Location / Accessible Venues

Sections of rivers rated up to class II-III, where maneuvering in current is required to avoid obstacles. *A rapid class includes rapids at the lower and upper ends of the difficulty range, designated “-“ and “+” respectively.*

A deep chute of water with well-defined eddy lines and no immediate hazards or risks below. Protected space is needed for on-land work with adequate shelter for inclement weather.

Course Size

12 Participants : 1 Instructor; with an additional instructor, the ratio can be 24 : 2. The maximum number of participants permitted is 24.

Instructor

This course may be offered by Level 5: Advanced Swiftwater Rescue ACA Instructors, Instructor Trainers, or Instructor Trainer Educators.

Succeeding Courses

- Level 5: Advanced Swiftwater Rescue Assessment or Certification Course

Course Outline

The sequence of this course should be adjusted to best fit the participant’s needs, class location, time allowance, and craft being used.

Introduction, Logistics, and Expectations

- Welcome! We’re so glad that you’ve chosen to further your paddling experience and education by attending this course! Let’s review a few highlights about the ACA
- Let’s talk about the course itinerary, expectations, and limitations
- Lay of the land (and water): the logistics of this venue

- Review liability waiver, assumption of risk, challenge by choice, and medical disclosure
- Life jacket policy: always wear while on the water

Personal Preparation & Getting Started

- Describe and follow safe boating practices (behavior, substance abuse, on water and land etiquette, Leave No Trace ethics)
- Review elements of a float plan (who, what, when, where, filing practices)
- Discuss current weather conditions, forecasts, and other environmental hazards (wind, water, weather, waves)
- Warm up to reduce injury
- Evaluate individual's swimming ability, water comfort, and confidence prior to beginning
- Review paddling terminology and care of gear (to be reviewed by the instructor):
 - Life jacket: types, materials, fit
 - Helmet types and use
 - Appropriate footwear
 - Craft and paddle, and any specific gear such as spray skirts, SUP leashes, etc.
 - Tubular webbing
 - Locking carabiners
 - Throw rope
 - Pulleys
 - Prusik Loops
 - Specialized Rescue Equipment
 - Line Capture Devices
 - Survival equipment
 - Quick release harness system (QRHS)

- Parts, applications, advantages, disadvantages, and hazards
- Common causes of QRHS failure and prevention strategies
- Threading options for tri-glide
- Buddy checks for QRHS
- Rescue Tethers: parts, applications, advantages, disadvantages, and hazards
 - Strategies to prevent entrapment: proper stow points & acceptable attachment options for carabiners
- Accessories such as river knife, whistle, water bottle, dry bags, etc.
- Review of additional personal and group gear, including, but not limited to:
 - Environmental supplies (food, water, appropriate clothing, sunscreen, etc.)
 - Navigational and signaling tools (maps, charts, whistle, etc.)
 - Repair kit
 - First aid kit (appropriate to training)
- Appropriately use communication (paddle, hand, and whistle) signals

River Hydrology Features (Objective Hazards) and Associated Risks

- Currents
- River levels and streamflow (CFS)
- Rocks (upstream and downstream Vs)
- Pillows
- Ledges and low head dams (horizon lines)
- Pins and entrapment
- Strainers/sieves
- Bends
- Undercut rocks or ice
- Dams/flow diversion structures and pipelines

- Holes and hydraulics
 - Flush drowning

Subjective Hazards

- Self care and care of other group members
 - Importance of fueling, hydration, clothing/insulation, and sun protection
 - Cold shock, hypothermia, and hyperthermia: prevention and treatment
- Is the group in satisfactory condition to navigate this feature (anxiety, risk tolerance, physical wellness including fitness, nutrition, hydration, fatigue, mental sharpness)?
 - Actual risk versus perceived risk
- Are members of the group able and willing to support others (without peer pressure)?
- Are there other subjective considerations that need to be considered - is the group affected by psychological effects such as groupthink, halo effect, familiarity, scarcity, etc.?

General Principles of River Rescue

- Principles of Rescue
 - Use of safe rescue strategies such as T-RETHROG (Talk, Reach, Throw, Row, Go) including throwable buoyancy aids and throw bag use
 - Rescue Priorities: people, boat, paddle, gear
 - Responsibilities of the group, rescuer, swimmers
 - Appropriate use of rescue and safety gear
 - Emergency procedures
- River running strategies
 - River classifications (understanding of Class I - VI)
 - Scouting on shore and by boat
 - Portaging and lining

- Group organization on the river

Rescue Strategy

- Strategies to prevent or minimize incidents
 - C.L.A.P. = Communication, Line of Sight, Avoidance, Position of Maximum Usefulness
- Incident Timeline
- Phases of rescue
 - S.T.O.P. = Stop, Think, Observe, Plan
 - L.A.S.T. = Location, Assess/Access, Stabilize, Transport
- Rescue Management: leadership, safety, rescuers, swimmers (stable & unstable)
 - Establishing acceptable level of risk: “Can I [do this]? Should I [do this]?”
 - Liability Issues: duty to act, breach of duty, harm, standard of care, abandonment
 - Ethical Issues: moral vs. legal obligations
 - Medical Issues & considerations
- Rescue strategies for common river scenarios
 - Swimmer with and without equipment in current
 - Paddlers & equipment on mid-stream rocks
 - Boat pins with and without a paddler
 - Entrapment
 - Unaccounted for paddler

Wading Skills

- Causes and prevention of foot entrapment
- Formal vs. informal wading techniques
- Factors that impact success in wading: depth, force, composition of river bottom, number of waders, etc.

- Strengths, limitations, advantages, disadvantages, and risks of wading techniques
- Four-point crawl
- Single person assisted wade
- Two-person wade
- Line astern wade
- Wedge wade
- Line abreast wade
- Fence wade
- Tethered wading techniques
- Direct line crossing
- Wading applications for foot/boat entrapments

Throw Rope Skills

- Characteristics of throw ropes: rope diameter, length, construction material, and bag design
- Rope management and safety strategies
- Rope care
- Rope hazards
- Throwing and recovery zones
- Factors impacting throw accuracy and success: stationary and moving targets
- Single person throw rope techniques: underhand, overhand, and sidearm
- Two-person throw bag techniques: split bag toss
- Bag re-stuffing techniques
- Advantages and disadvantages: bag and coil throwing techniques
- Rope coiling methods and throw techniques: butterfly and coil
- Rope receiving techniques

- Communication with swimmers
- Techniques for handling multiple swimmers
- Vectors pull to assist with landing swimmers
- Belay techniques
 - Hip belay, seated belay, and back-up belay
 - Dynamic and friction belay
- Pendulum use for crossing current
- Line ferrying techniques
 - Boats
 - Tethered swimmers
 - Messenger lines
 - Specialized equipment

Swimming Skills

- Strategies to minimize risk of foot entrapment
- Techniques for successful exits from current to eddies
- Defensive swimming position
- Aggressive swimming position
- Defensive to aggressive transitions
- Ferry techniques: defensive and aggressive swimming
- Self-Rescue: swimming with equipment
- Swimming techniques for waves, hydraulics, and drops
- Strategies to conserve energy: short aggressive sprints, “porpoising” for in-water scouting, appropriate timing, etc.
- Managing holes and drops
- Swiftwater entries: in and out-of-water starting position

- Strategies for handling strainers: aggressive swim in and over, log walk
- Non-tethered Swimming Rescue (contact rescues)
- Tethered rescue swimming
- Direct line lower of rescuer
- Techniques for successful downstream swim of a rapid

Rigging Skills

- Knots: components of good knots, dressing, terminology, strengths, and limitations
- Tie and properly dress
 - Figure 8 family: standard, on bight, follow-through
 - Overhand Family for webbing: overhand on a bight, overhand bend
 - Double Fisherman
 - Prusik Hitch
 - Munter Hitch
 - Clove Hitch
 - Butterfly Knot
- Anchors
 - Components of solid anchor points
 - Terminology
 - Advantages and disadvantages of anchor types
 - Characteristics of self-equalizing and load distributing anchors
 - Planning for anchor failure
 - One-point anchors: friction wrap, 3 bight, single loop, and wrap 3 - pull 2
 - Two-point anchors
 - Multi-point anchors
- Mechanical advantage

- Applications of mechanical advantage in the rescue environment
- Risk management strategies: scene management and dampeners
- Characteristics of simple and compound systems
- Simple systems: 2:1 & 3:1
- Load Releasing Hitches: Mariners Hitch
- Compound Systems: 4:1 (with and without pig rig), 5:1, and 9:1
- Tensioned diagonal (zip line)

Craft Based Rescues

- Advantages and disadvantages during rescues of various crafts: canoe, kayak, SUP, raft, prone kayak, river boards
- Paddle recovery options
- Strategies for boat recovery
- Self-Rescue: swimming with equipment
- Swimmer tow options
- Swimmer re-entry/re-mount techniques
- Craft bumping/bulldozing
- Craft towing (without use of Quick Release Rescue Harness (QRHS) and tether)
- Tethered craft rescue
- Controlled boat lower
- Unresponsive Paddler Rescue
- Craft specific rescues including pins
 - Pin mechanics
 - Types of craft pins
 - Boat-based techniques for pins
 - Control & haul lines

- Strong arm method
- Vector pull and progressive vector pull
- 1:1 with change in direction
- Craft specific anchors (i.e., creating anchors on specific craft)
- Craft-specific techniques: hull wrap for rotation, raft specific techniques, etc.

Strategies and Skills for Entrapments

- Stabilization & control lines
- Snag lines
- Cinches
 - Characteristics of open, closed, and irreversible cinches
 - One-bank cinches (kiwi & U-cinch)
 - Two-bank cinches (simple cinch, Y-cinch, shrinking loop/lasso, and box cinch)
- Application of cinches for paddler, swimmer, equipment, and/or boat entrapments

Vertical Rescues (Discussion/ Land-based Demonstration)

- Tyrolean Traverse
- Applications of rigging skills in vertical environments
- Risk management
 - Significantly increased risks
 - Specialized equipment and training required

Scenarios

Simulated rescue skill development sessions and scenarios will be used throughout the course to:

- Model and utilize effective risk management and rescue strategies
- Highlight essential skills for the course level and venue
- Increase skill and experience level of students

- Maximize learning outcomes for all students

Conclusion and Wrap Up

- This has been a great class! Let's talk through what we've learned with a group debrief and/or Individual feedback
- Course limitations: there is always more to learn, and the skills and concepts we discussed require more practice and experience
- First aid and CPR training is a very valuable tool and could make the difference between a "near miss" and an emergency requiring outside rescue / first responders
- Paddling is a lifetime sport - there are local organizations, clubs, events, competitions, and classes through which you can continue your learning and build community. Get connected!
- Handouts and reference materials (if applicable)

Note: participants are encouraged to reference the [ACA River Safety & Rescue Terminology Handbook](#) for further information and education.

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Date of last revision: 1/1/2023

<https://americancanoe.org>

This curriculum is managed by the ACA Safety & Rescue Committee. To connect with the leadership of this committee, please view the SEIC Committee rosters on [the ACA website](#).