Level 3: Rafting - Paddle Skills Course

Skills Course Overview

This course is designed as a 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.

The **Rafting - Paddle** course is for individuals interested in learning the skills required to efficiently paddle a raft on rivers with class I-II rapids. This course includes advanced river reading, safety considerations, and paddling techniques. In addition, the skills required to captain, or guide, a paddle raft in class I-III rapids will be introduced. This course is appropriate for properly outfitted rafts.

Skills Course Prerequisites

- Acknowledgment of personal compliance with the ACA Essential Eligibility Criteria (EEC)
- No prior paddling experience or training is required to participate in this course

Course Duration

2 days (16 hours) or more.

Course Location / Accessible Venues

Sections of rivers rated class I-II, where limited 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.*

Course Size

6 Participants : 1 Instructor; with an additional qualified assistant, the ratio can be 12 : 2.

Instructor

This course may be offered by Level 3: Rafting - Paddle (or higher) ACA Instructors, Instructor Trainers, or Instructor Trainer Educators.

Succeeding Courses

- Level 3: Rafting - Paddle Assessment, Guide Certification, or Instructor Certification Course
- Level 4: Whitewater Rafting - Paddle Skills, Assessment, Guide Certification, or Instructor Certification Course

Complementary Courses

- Level 3: Rafting - Oar Skills, Assessment, or Certification Course
- Level 4: Whitewater Rafting - Oar Skills, Assessment, or Certification Course

Course Learning Objectives

While a paddle raft navigating in this course venue, the participant will learn to:

- Identify whitewater features and hazards
- Become familiar with paddle rafting equipment and the river environment
- Maneuver a paddle raft
- Paddle using safe and effective techniques
- Use basic safety and rescues skills

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

Learning objectives - students should have a basic understanding of the ACA and its policies, how and where this course is being conducted, and acceptable student behavior.

- 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
- Describe and follow safe boating practices (behavior, substance abuse, on water and land etiquette, respecting private property, and Leave No Trace ethics)

The Paddling Environment

Learning objectives - students should understand the paddling environment and the venue for the duration of the course.

- Discuss current weather conditions, forecasts, and other environmental factors (water, weather, wind, waves)
- River classifications

Personal Preparation

Learning objectives - students should understand what is expected of them during this course. Check in with students about the following:

- Personal self-evaluation - *mental and physical*
- Whitewater comfort and confidence
- Whitewater swimming ability
- Fitness, conditioning, and warm-up to reduce injury
- Boat handling experience
- Safety and rescue considerations

- Personal equipment (reviewed by the instructor)

Getting to the River

Learning objectives - students should understand the logistics of a rafting trip prior to arriving at the put-in.

- Trip Planning – 6P's: Prior Proper Planning Prevents Poor Performance
  - Review elements of a float plan (who, what, when, where, filing practices)
  - Sourcing local beta such as river sections, flows, weather, etc. (i.e., online groups, guidebooks, websites, apps, businesses, gauges, etc.)
  - Local rules, regulations, and permitting requirements
  - Shuttle logistics
- Transporting a raft
  - Loading and unloading from racks and trailers using straps, rope, webbing
  - Carries: overhead and underhand
  - Lifting
  - Stacking
- Knots: figure 8, bowline, trucker's hitch, and daisy chain

Equipment

Learning objectives - students should understand the equipment (both personal and group equipment) needed for rafting, including appropriate use, maintenance, and care.

- Personal equipment
  - Life jackets - types, materials, fit
  - Helmets - proper fit, always buckled when on your head
  - Clothing and shoes
  - River knife, whistle, flip line, etc.
  - Environmental supplies - food, water, spare clothing, sunscreen, etc.
- Safety equipment

    - Spare paddle
    - Throw bag - proper use, storage, and risks
- Group equipment
    - Sweep kit - first aid kit, repair kit, pump, spare life jacket, pin kit, etc.
    - Paddles - parts, materials, and sizing

Raft

Learning objectives - students should understand care and maintenance for raft and gear longevity, and proper rigging concepts to reduce entrapment hazards.

- Raft: types, parts, and materials
    - Terminology and nomenclature
    - Proper inflation
    - Bow and stern lines
    - Perimeter lines
    - Flip recovery systems (flip lines, belly band, bottom floor handles, etc., which may or may not require extra rigging)
    - System to get back in boat efficiently (thwart handles, cross thwart strap, perimeter line, etc., which may or may not require extra rigging)

Crew Preparation

Learning objectives - students should understand the importance of safety talks, as well as the paddle captain's (guide's) responsibility for the safety and performance of the paddle crew.

Safety Talks - responsibility of the paddle captain (guide) for the safety of the crew

- What to cover during a safety talk
- When to give a safety talk
- How to give a safety talk

Paddle Talk - responsibility of the paddle captain (guide) for the performance of the crew

- Paddler placement and foot position
- Paddle talks
    - What to cover during a paddle talk
    - When to give a paddle talk
    - How to give a paddle talk

River Running Strategy

Learning objectives - students should understand the concepts of river etiquette and strategies for having a fun and safe day on the water.

- River etiquette
    - Efficiency and courtesy during launching and landing
    - Courtesy on the water
    - Communicating with other groups
    - Use of good judgment
    - River stewardship
- River leadership
    - Communication with all people and crafts in your group/pod
    - Appropriately use communication/river signals (paddle, hand, and whistle)
    - Lead / sweep
    - Group dynamics
- Scouting
    - A thorough trip plan includes knowing which rapids you want/need to scout
    - Land based scouting using a clear method, such as:
        - FORMS (Flow, Obstacles, Route, Maneuvers, Safety)
        - WORMS (Water, Obstacles, Route, Markers, Safety)
        - Top down / bottom up

River Features and Hydrology

Learning objectives - students should understand basic river features and hydrology and

- Currents
- Bends
- Eddies
- Eddy lines
- Waves/holes
- Upstream and downstream Vs
- Tongues
- Pillows
- Rocks

In addition:

- How each of the above changes with river levels
- How each of the above impacts a boat and why

River Hazards

Learning objectives - students should be able to identify river hazards.

- Ledges and low head dams (horizon lines)
- Strainers/sieves
- Undercut rocks or ice
- Manmade hazards:
    - Debris such as rebar, concrete, metal scraps, etc.
    - Bridges
    - Bridge pilings
    - Pipelines

Paddle Factors

Learning objectives - students should understand the fundamentals needed for effective strokes and maneuvers including stroke timing, parts of the paddle, paddle shaft angle, and blade placement in the water.

- How to hold the paddle in correct orientation and grip for effective paddling
- Efficient paddle stroke (CPR): moving the boat is the objective, as opposed to moving the paddle through the water
    - Catch: clean entry with minimal splash
    - Power
        - Maintain consistent pressure on blade face throughout the power phase of stroke
        - Minimize the length of stroke; stroke loses efficacy after passing paddler's hip
    - Recovery
        - Feathering to minimize wave and/or wind action against the blade
        - Consider in-water recoveries
    - Paddle shaft angle impacts boat movement
        - Vertical paddle shaft with blade next to raft gives more momentum with minimal turning
        - Horizontal paddle shaft with blade far from raft gives maximum turning effect
        - Vary power, blade angle, shaft angle, and distance from pivot point for fine control
    - Stroke timing and blade placement based on hydrology (i.e., placing paddle blade in the backside of a wave or in an eddy behind a rock)

Body Mechanics

Learning objectives - students should understand and be able to demonstrate posture that promotes efficient paddling and places the least amount of stress on the body to

avoid injury.

- Position of Power
  - Sitting in a central, upright position
  - Maintaining good posture
  - Utilizing hinge, twist, and reach
  - Locking in the lower body to transfer power from water to paddle, through the body, and into the raft
- Three ranges of motion
  - Hinge: forward and back lean, bending at the waist
  - Twist
    - Torso rotation to use large muscle groups improves reach and keeps shoulders safe
    - Posture enhances twist, balance, and comfort
  - Reach
    - Proper torso rotation increases forward reach
    - Solid foot lock is required to reach out over the water with upper body
- Minimizing risk of shoulder injury
  - Maintaining the “paddler's box” with correct body positioning and paddle placement
  - Using torso rotation and reach to efficiently turn the boat and transfer power while keeping shoulders safe
  - Value of warmup and stretching

Boat Handling

Learning objectives - students should understand and be able to demonstrate successful maneuvering of their raft using proper paddle strokes and paddle commands.

Paddle Strokes

Learning objective - students should understand and be able to demonstrate the different paddle strokes used to maneuver a raft.

- Crew strokes (primarily momentum)
  - Forward
  - Back
- Guide strokes (primarily angle)
  - Draw
  - Pry
  - Sweep
  - Rudder
  - Rafting “J” Stroke (momentum stroke)

Crew Commands

Learning objectives - students should understand and be able to demonstrate the different commands used to captain a paddle raft.

Note: crew commands can vary; the critical concept is to establish commands with your crew and be consistent in the delivery of those commands.

- Commands for:
  - Moving forward and backward
  - Turning left and right
  - Stopping
- Other commands such as high-side and get down

Calm Water Maneuvers

Learning objectives - students should understand and be able to demonstrate basic raft maneuvers on flat water.

- Left turn
- Right turn
- Forward: paddle in a straight line

- Reverse: reasonably straight line backward
- Stopping raft from a good speed
- Spin: pivot the raft - left and right, stop the spin

Moving Water Maneuvers

Learning objectives - students should understand and be able to demonstrate dynamic raft maneuvers in course venue.

- Setting and holding angles
- Ferries: front, back
- Eddy turns
- Peel outs
- Spin: pivot the raft - left and right, stop the spin

Boat Factors

Learning objectives - students should be able to understand how raft design and crew load affects the boat's maneuverability.

- Speed, glide, and tracking are affected by boat type and construction, load, paddle team, and paddle captain position
- The pivot point of the boat changes with load, balance, and team position
- Weight distribution of passengers and gear
    - Frontloading
    - Aft loading
    - Center loading
    - Distributing different sized paddlers
    - Distributing paddlers of different strength
- Raft design and construction affect the performance of the boat

Differences to consider:

- Tube diameter: larger tubes have more flotation

- Diminished tubes vs regular tubes: diminished tubes punch waves
- Kick/rocker: impacts surf ability
- Type of material: PVC is more rigid than Hypalon
- Width: impacts stability
- Floor-type, construction, and height from water impacts tracking

Playboating with a Raft

Learning objectives - students should understand the benefits and consequences of making non-essential maneuvers for the sake of fun and practice.

- Playboating - a great way to learn but increases the chances of swimming. Make sure your crew is comfortable with playing and swimming and make sure your venue is safe (i.e., no downstream hazards)
    - Downstream safety
    - Communication with crew and other boaters
- Making non-essential maneuvers - practicing higher consequence moves in lower consequence water leads to increased confidence and ability
    - Catch challenging eddies
    - Practice challenging ferries
    - Make extra moves
    - Make challenging maneuvers instead of just going straight down an easy rapid
    - Use features like waves, holes and rocks for maneuvers and momentum control
    - Attainment (moving upstream)

Surfing

Learning objectives - students should understand river features that can be surfed, demonstrate how to choose an appropriate feature, and how to surf a raft.

Surfing Hydrology - holes and waves

- Assessing if a hole can be surfed or will trap a boat (get surfed)

    - Size and shape of the hole, and the variability of shape within the hole
    - The angle of “glassy” water going into the hole
    - Height of pour-over vs tube height
- Assessing if a wave can be surfed
    - Types of waves for surfing - unstable vs stable waves (i.e., an unstable wave might crest and fall often)
    - Size of wave
    - The angle of “glassy” water going into wave

Hole and wave surfing maneuvers

- How to approach the river feature
    - From above
    - From eddy
- Maintaining proper boat angle during the surf
    - Front surf
        - Bow upstream
        - Use rudder strokes to maintain the upstream angle
    - Side surf - highsiding to prevent flipping
- Paddler placement during surf - shifting paddler weight
    - Towards feature to engage the surf
    - Away from feature to raise bow and prevent “submarining” and getting raft on plane
    - Shifting upper body weight toward the stern – “laying back” makes for good wave planing
- Techniques for escaping feature
    - Work your way to the side (does one side flush more than the other?)
    - Grab downstream water with big static draw stroke

    - Consider throw bag from shore (if you are “getting surfed”)
- Swim and safety considerations when surfing
    - Set downstream safety
    - “Get down” position to maintain surf or stay in the boat

R2 (Raft with two paddlers)

Learning objectives - students should understand the difference between paddling a raft with just two people as opposed to as a paddle guide with a crew.

Sitting in an R2

- Paddler placement
    - Side by Side
    - Off-set
- Leg/foot placement
    - Straddling a thwart
    - In between thwarts

Commands (Communication is key! Discuss who, if anyone, is going to be giving commands):

- One person in charge & giving commands
- Taking turns giving commands (i.e., switching off between rapids)
- Neither paddler is in charge and both simply communicate which lines to take

Paddle Strokes

- Paddlers do not necessarily paddle in unison
- Both paddlers use both angle and momentum strokes
- Draw strokes can move small boats sideways or change the angle

Safety and Rescue

Learning objectives - students should understand the handling of common emergency situations on the river.

- Principles of rescue
    - Rescue priorities: people first, boat, paddles, and gear second
        - Group over individuals, rescuer over swimmer
    - Fast and simple to slow and complex
- Environmental factors
    - Importance of fueling, hydration, clothing/insulation, and sun protection
    - Recognition and prevention of cold shock, hypothermia, and hyperthermia
- Dealing with a rescue situation (swimmers, flipped or broached boat, etc.)
    - Swimming in current - defensive and aggressive swimming techniques
    - Preventing foot entrapment
    - Re-entry into the boat
        - Self
        - Assisted
    - Bulldoze a boat to shore
    - Swimming a boat to shore
    - Throw rope use and practice
    - Boat pin (strong arm, rope/vector)
    - Boat flip and recovery

Raft Repair

Learning objectives - students should understand how to perform basic raft repair.

- Raft repair kit
    - Appropriate glue and patch material for different rafts
    - Temporary “river fix” patch material (i.e., tear aid)
- Cuts and perforations
- D-rings

- Valves

Conclusion and Wrap Up

Learning objectives - students should understand the importance of continuing education and practice. The instructor should debrief the course and hand out any pertinent materials.

- 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)

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https://americancanoe.org

This curriculum is managed by the ACA Rafting Committee. To connect with the leadership of this committee, please view the SEIC Committee rosters on the ACA website.