



Fire Science

Students enrolled in the Fire Science Programs should be able to meet the established technical standards identified below.
The technical standards for the Fire Science Programs are representative of those found in the firefighting profession.

Ability	Standard	Examples (not inclusive)
Physical	<p>Student must have sufficient:</p> <ul style="list-style-type: none"> • Gross and fine motor skills to perform administrative, clinical and laboratory skills in a timely, safe and effective manner • Endurance, strength, mobility, balance, flexibility and coordination to perform client care activities and emergency procedures while wearing approximately 75 pounds of Personal Protective Equipment (PPE) and self-contained breathing apparatus (SCBA). 	<p>GROSS MOTOR SKILLS:</p> <ul style="list-style-type: none"> • Move within restricted spaces • Maintain balance in multiple positions • Reach above shoulders • Reach below waist • Reach out front <p>FINE MOTOR SKILLS:</p> <ul style="list-style-type: none"> • Pick up objects with hands • Grasp small objects with hands (e.g., IV tubing, pencil) • Write with pen or pencil • Key/type (e.g., use a computer) • Pinch/pick or otherwise work with fingers (e.g., manipulate a syringe) • Twist (e.g., turn objects/knobs using hands) • Squeeze with finger (e.g., eye dropper) • Good eye hand & foot coordination • Simultaneous hand wrist & finger movement <p>PHYSICAL ENDURANCE:</p> <ul style="list-style-type: none"> • Stand • Sustain repetitive movements (e.g., CPR) • Maintain physical tolerance (e.g., work on your feet a minimum of 8 hours) • Respond to calls for service over extended periods of time without meal or sleep breaks • Able to adapt to a variety of weather situations <p>PHYSICAL STRENGTH:</p> <ul style="list-style-type: none"> • Push and pull various weight during shift • Lift, carry, support, and balance various weight during shift/clinical



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Ability	Standard	Examples (not inclusive)
		<ul style="list-style-type: none"> • Carry equipment/supplies • Use upper body strength (e.g., perform CPR, operate patient transfer devices, perform forcible entry through doors, wall, floors, ceilings and roofs) • Squeeze with hands (e.g., operate fire extinguisher) • Carry, drag, assist other firefighters or trapped civilians • Advance charged hose lines while walking upright, crouching or crawling inside buildings involved in fire. <p>MOBILITY:</p> <ul style="list-style-type: none"> • Walk • Twist • Bend • Stoop/squat • Kneeling • Crouching • Crawling • Move quickly (e.g., response to an emergency) • Climbing & balancing (climb stairs, extension ladders up to 35 feet, or aerial ladders up to 100 feet)
Sensory	Student must have sufficient: <ul style="list-style-type: none"> • Auditory ability • Visual ability • Sense of Smell • Tactile ability 	<p>HEARING:</p> <ul style="list-style-type: none"> • Hear & discriminate at speech normal conversation sound levels (e.g., person-to-person report) • Hear faint voices • Hear faint body sounds (e.g., blood pressure sounds, assess placement of tubes) • Hear in situations when not able to see lips (e.g., when masks are used) • Hear auditory alarms (e.g., monitors, emergency alarms) • Hear & discriminate speech in situations with extraneous noise (e.g., back of ambulance, emergency scene) • Hear & discriminate sounds in situations with extraneous noise (e.g., lung sounds, heart tones, blood pressure) <p>VISUAL:</p>



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Ability	Standard	Examples (not inclusive)
		<ul style="list-style-type: none"> • Use depth perception • Use peripheral vision • Distinguish color and color intensity (e.g., color codes on supplies, flushed skin/paleness) • See in a darkened room <p>SMELL:</p> <ul style="list-style-type: none"> • Detect odors (e.g., foul smelling drainage, alcohol breath, smoke, gases or noxious smells) <p>TACTILE:</p> <ul style="list-style-type: none"> • Feel vibrations (e.g., palpate pulses) • Detect hot and cold temperature (e.g., skin, solutions) • Feel differences in surface characteristics (e.g., skin turgor, rashes) • Feel differences in sizes, shapes (e.g., palpate vein, identify body landmarks) • Detect environmental temperature
Communication	Student must have effective: <ul style="list-style-type: none"> • Verbal communication • Nonverbal communication • Written communication • Electronic communication 	COMMUNICATION SKILLS: <ul style="list-style-type: none"> • Effectively communicate with colleagues, clients, families, lay public, medical professionals • Teach (e.g., colleagues, client/family about health care) • Influence people • Direct/manage/delegate activities of others • Speak English • Write English legibly • Read English • Listen attentively • Comprehend spoken/written word • Collaborate with others (e.g., health care workers, citizens, elected officials, supervisors, peers) • Manage information • Exhibit & comprehend nonverbal cues



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Ability	Standard	Examples (not inclusive)
		<ul style="list-style-type: none"> • Communicate verbally with diverse cultures and age groups <p>WRITTEN COMMUNICATION:</p> <ul style="list-style-type: none"> • Read and understand written documents (e.g., protocols, patient care records, medications) • Read digital displays • Accurately read a Drug Reference Manual • Accurately read a road map • Review written reports for accuracy • Read professional journals
<p>Safety</p>	<p>Student must be able to:</p> <ul style="list-style-type: none"> • Apply knowledge, skills and experience to provide a safe work environment • Environmental Awareness 	<p>SAFETY:</p> <ul style="list-style-type: none"> • Work in an environment with potentially infectious materials • Demonstrate adherence to safety guidelines and regulations • Recognize potentially hazardous conditions and take appropriate actions • Maintain immunization and health care requirements • Utilize personal protective equipment (gloves, masks, eyewear, PPE & SCBA) • Operate equipment, adhering to safety standards • Identify and resolve unsafe situations • Be familiar with and follow emergency procedures <p>ENVIRONMENT:</p> <ul style="list-style-type: none"> • Work in cold, with or without temperature changes • Work in extreme heat, with or without temperature changes • Work in wet and/or humid conditions • Work in noise and/or vibration • Work in hazards (e.g. vehicle extrication, infectious disease, inclement weather, etc.) • Work in atmospheric conditions • Tolerate exposure to allergens (e.g., latex gloves, chemical substances) • Tolerate strong soaps • Tolerate strong odors



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Ability	Standard	Examples (not inclusive)
Critical Thinking	Student must have sufficient critical thinking and problem solving skills to: <ul style="list-style-type: none"> • Calculate, reason, analyze and synthesize data in a timely manner • Problem solve and make decisions in a timely manner • Apply knowledge, skills and experience to determine best/safe practice 	<ul style="list-style-type: none"> • Tolerate noisy environment <p>MATH:</p> <ul style="list-style-type: none"> • Tell time • Measure time (e.g., count duration of contractions, CPR, medication administration, etc.) • Count rates (e.g., drips/minute, pulse) • Comprehend and interpret graphic trends • Calibrate equipment • Convert numbers to and from metric, apothecaries', and American systems (e.g., dosages) • Add, subtract, multiply, and/or divide whole numbers • Compute fractions and decimals (e.g., medication dosages) • Perform quickly and precisely mathematical calculations using ratio and proportion • Read and interpret measurement marks (e.g., measurement tapes and scales) • Document numbers in records (e.g., charts, computerized data bases) <p>CRITICAL THINKING:</p> <ul style="list-style-type: none"> • Plan/control activities for others • Synthesize knowledge and skills • Comprehends & follows instructions • Ability to draw valid conclusions expediently relevant to patient's condition, often using limited information • Identify cause-effect relationships • Sequence information • Make decisions independently • Adapt decisions based on new information
Professionalism	Student must demonstrate the ability to: <ul style="list-style-type: none"> • Establish effective relationships 	<p>Professionalism:</p> <ul style="list-style-type: none"> • Maintain confidentiality • Demonstrate appropriate impulse control and professional level of maturity



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	<ul style="list-style-type: none"> • Display cross-cultural competency, integrity, moral reasoning, ethical behaviors and concern for others • Show respect for diverse populations • Work cooperatively with all professional teams 	<ul style="list-style-type: none"> • Recognize appropriate boundaries in relationships with patients and colleagues • Demonstrate ability to work as a team member • Demonstrate ability to cope with stressful situations • Adhere to attendance, dress code, and personal hygiene protocol • Display integrity, honesty, respect, reliability and accountability • Accept and utilize constructive feedback to enhance personal and professional growth • Work independently and in team • Respond to challenging situations while maintaining composure and professionalism <p>EMOTIONAL STABILITY:</p> <ul style="list-style-type: none"> • Independent & confident • Assume the role of team leader • Accept feedback appropriately • Accept responsibility of own actions • Ability to use good judgment & remain calm in high-stress situations • Establish professional relationships • Provide client and families with emotional support • Adapt to changing environment/stress • Deal with the unexpected (e.g., client condition, crisis) • Focus attention on task • Cope with own emotions • Perform multiple responsibilities concurrently • Cope with strong emotions in others (e.g., grief, delirium) <p>INTERPERSONAL SKILLS:</p> <ul style="list-style-type: none"> • Establish rapport with individuals, families, and groups • Respect/value cultural differences in others • Negotiate interpersonal conflict • Demonstrate problem solving and conflict resolution skills



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Gateway Technical College is committed to providing access and equal opportunity for all. Reasonable accommodations are provided for all education services, programs, and activities for individuals with disabilities. Students must be able to demonstrate these abilities with or without reasonable accommodations. Accommodations are determined and provided by disability support services. For more information related to the accommodations process, please visit [Disability Support Services](#).