

Emergency Medical Responder 2 (EMR 2) COURSE OUTLINE - UC

DESCRIPTION:

Emergency Medical Responder 2 is the capstone course in the Emergency Response pathway. An Emergency Medical Responder is the first medically trained person to arrive on the scene of an emergency. The Emergency Medical Responder provides care to injured persons and assists other emergency medical service providers. This course builds upon skills acquired in Emergency Medical Responder 1 by training students to recognize emergency situations, maintain personal safety, and provide basic emergency care including CPR and First Aid, prevention of disease transmission, along with an understanding of advanced ethical and legal considerations. This course will prepare students who are interested in a career as an emergency medical technician, paramedic, or similar allied health related careers. Activities in this course include work-based learning that connects students to industry and the local community.

INFORMATION:

PRE-REQUISITE:	Emergency Medical Responder 1
LENGTH:	One Year
SECTOR:	Public Services
PATHWAY:	Emergency Response
ARTICULATED:	No
UC A-G APPROVAL:	Yes: College-Preparatory Elective (G) / Interdisciplinary

O*NET SOC CODES:

29-2041.00	Emergency Medical Technicians and Paramedics
33-3051.00	Health Care Support Workers, All Other
53-3011.00	Ambulance Operators and Attendants

Orientation

- A. Introduce the course and facilities.
- B. Discuss the syllabus and major objectives.
- C. Explain applicable classroom management procedures, and any operational guidelines.
- D. Review instructor/student expectations.
- E. Explain attendance requirements and procedures.
- F. Review grading and student evaluation procedures.
- G. Discuss the work-based learning aspect of the program, if applicable.
- H. Discuss the "next steps" related to additional education, training, and employment.
- I. Review classroom safety, emergency and disaster procedures.

1. Communication Skills

- A. Demonstrate positive verbal communication skills using appropriate vocabulary, demeanor, and vocal tone in the classroom and/or worksite.
- B. Read and interpret written information and directions.
- C. Practice various forms of written communication appropriate to the occupation.
- D. Practice positive body language skills.
- E. Practice professional verbal skills for resolving a conflict.
- F. Demonstrate active listening skills including techniques for checking for understanding, and for obtaining clarification of directions.

2. Interpersonal Skills

- A. Demonstrate positive teamwork skills by contributing to a group effort.
- B. Practice the importance of diversity awareness and sensitivity in the workplace.
- C. Define sexual harassment in the workplace and identify the employee's role and responsibility.
- D. Practice participation skills.
- E. Identify different personality types and demonstrate flexibility and adaptability working with diverse individuals.
- F. Practice business and social etiquette skills appropriate to the occupation.
- G. Evaluate and discuss the role of business and personal ethics in decision making based on various job-related scenarios.
- H. Demonstrate the use of time management skills.

3. Employability Skills

- A. Demonstrate appropriate attendance and punctuality practices for the classroom (and worksite, if applicable).
- B. Prepare a resume, cover letter, and job application.
- C. Demonstrate interviewing techniques in seeking employment, using appropriate tone, body language and professional dress and

grooming standards.

- D. Identify strategies for employment retention.
- E. Identify and analyze sources of job information, including electronic sources and the impact of social networking on employability.
- F. Identify the need for continuing education, professional development, and professional growth in chosen field.
- G. Identify appropriate procedures for leaving a job.
- H. Review company policies and current trends in employee compatibility screening, drug screening, and background checks.

4. Leadership

- A. Define leadership and identify the responsibilities, competencies, and behaviors of successful leaders.
- B. Work with peers to promote divergent and creative perspectives.
- C. Demonstrate how to organize and structure work, individually and in teams, for effective performance and the attainment of goals.
- D. Explain multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace.
- E. Employ ethical behaviors and actions that positively influence others.
- F. Analyze the short-term and long-term effects a leader's actions and attitudes can have on productivity, morale, and organizational culture.

5. Personal and Occupational Safety

- A. Demonstrate procedures to be followed in case of emergencies.
- B. Describe and discuss the procedure for reporting a work-related hazard or injury (worker's comp), including ways to report a potential safety hazard to a supervisor.
- C. Identify and discuss cyber ethics, cyber safety, and cyber security.
- D. Apply personal safety practices to and from the job.
- E. Recognize the effects of substance abuse in the workplace.
- F. Explain the importance of CAL-OSHA in the industry.
- G. Demonstrate the use of Body Substance Isolation (BSI)/Standard/Universal precautions.
- H. Demonstrate proper hand washing.
- I. Demonstrate proper gloving and glove removal.
- J. Identify and demonstrate the use of personal protective equipment (PPE).
- K. Demonstrate the proper disposal of biohazardous waste and materials.
- L. Identify common blood borne pathogens and methods for prevention.

2024-2025

6. Emergency Medical Services (EMS)

- A. Describe the elements of an EMS system.
- B. Explain the historical background and development of the EMS system.
- C. Identify local, state, and federal regulatory agencies, entities, laws, and regulations related to EMS.
- D. Identify current and emerging technology in EMS.
- E. Describe the role of the emergency medical responder in EMS support operations.
- F. Explain the scope of practice of an emergency medical responder.

7. Legal and Ethical Issues

- A. Define confidentiality, HIPAA, and ethical aspects of confidentiality.
- B. Define "duty to act" as it applies to an Emergency Medical Responder.
- C. Identify the need for and types of consent necessary to provide emergency medical services.
- D. Explain the importance of crime scene preservation and working with law enforcement.
- E. Describe the ethical responsibilities of an Emergency Medical Responder.
- F. Describe the medical-legal responsibilities in suspected abuse cases.
- G. Explain the "Good Samaritan" law and how it applies to various professions.
- H. Explain the importance of Do Not Resuscitate (DNR) and advanced directives.

8. Communication and Documentation

- A. Explain the importance of accurate documentation.
- B. Identify the information required in a patient care report.
- C. Explain the emotional reactions that may be experienced by Emergency Responders, patients, family, and bystanders when faced with an emergency situation.
- D. Describe the importance of understanding the response to death and dying and communicating effectively with the patient's family.
- E. Identify methods for overcoming common barriers in communication during an emergency.
- F. Accurately follow instructions the emergency medical dispatcher transmits during transport.

9. Anatomy and Medical Terminology

- A. Demonstrate the ability to use medical terms in their proper context.
- B. Identify the function and location of the major body organs.
- C. Identify common medical abbreviations.
- D. List the major body systems and give general functions of each: Integumentary, Muscular, Skeletal, Nervous (including senses), Cardiovascular, Endocrine, Lymphatic, Immune, Respiratory, Gastrointestinal, Urinary, and Reproductive.

- E. List and define basic word elements related to anatomy and physiology.
- F. Define anatomical directional terms.

10. Surveying the Scene

- A. Demonstrate the proper method for assessing an incident scene.
- B. Demonstrate knowledge of occupational health and safety hazards relating to on-scene response for emergency medical responders, patients, families and identify methods of prevention.
- C. Summarize the components of basic triage.
- D. Describe the role of the emergency medical responder in a multi-casualty incident (MCI) and steps involved in the START* triage system.
- E. Explain the purpose of prioritizing a client for care and transport.
- F. Identify the difference between medical emergencies and non-emergencies.
- G. Identify medical and non-medical equipment needed when responding to a call.
- H. Describe the appropriate use of extraction.
- I. Demonstrate best method for helping a variety of patients (elderly, chronic care, disabled, hearing/visually impaired, non-English speakers, developmentally disabled, or experiencing behavioral emergencies).
- J. Accurately size-up the scene for extreme weather, unexpected hazards, and practice situational awareness/safety.
- K. Explain the key principles and structure of an Incident Command System (ICS) and the National Incident Management System (NIMS).
- L. Describe the Community Emergency Response Team (CERT) program and explain the role participants play in rescues.

*Simple triage and rapid treatment (START)

11. Patient Assessment

- A. Demonstrate the process used to check patient responsiveness.
- B. Demonstrate the proper steps for performing patient assessment.
- C. Demonstrate the procedures for assessing airway, breathing, lung sounds, and circulation on an infant, child, and adult.
- D. Differentiate between normal and abnormal vital signs.
- E. Accurately measure and record temperature, pulse, respiration rate, pain scale and blood glucose level.
- F. Accurately measure and record blood pressure, both digitally and manually.
- G. List information to be addressed in the hand-off report.
- H. Describe the components of an on-going patient assessment.
- I. Differentiate between a sign and a symptom.
- J. Explain the purpose of a primary and secondary patient assessment.
- K. Explain the importance of obtaining medical history.
- L. Identify concerns when assessing and treating geriatric patients, including signs of abuse.

12. Lifting and Moving Patients

A. Describe the components of good body mechanics.

- B. Demonstrate the steps needed to perform patient drags.
- C. Demonstrate various methods for carrying non-ambulatory patients.
- D. Demonstrate methods for performing walking assists for ambulatory patients.
- E. Demonstrate the procedures for moving patients with suspected spinal injuries.
- F. Explain the purpose and indications for use of the recovery position.
- G. Utilize equipment commonly used in moving patients.

13. Medical Emergencies

- A. Identify causes, signs, symptoms, and treatment of anaphylaxis.
- B. Describe the causes, signs, and symptoms of common cardiac emergencies.
- C. Describe the causes, signs, and symptoms of emergencies related to diabetes.
- D. Identify causes, signs, symptoms, and treatment for common medical emergencies.
- E. Identify causes, signs, symptoms, and treatment for patients who have been exposed to poison.
- F. Identify causes, signs, symptoms, and treatment for patients with possible drug overdoses.
- G. Identify causes, signs, symptoms, and treatment for common emergencies related to the nervous system (e.g., seizures, loss of consciousness, mental confusion, etc.).
- H. Identify causes, signs, symptoms, and treatment for common respiratory emergencies.

14. Trauma Emergencies

- A. List the signs, symptoms, and treatment for shock.
- B. Demonstrate emergency care for external bleeding.
- C. Explain the emergency medical treatment for various types and locations of wounds.
- D. Demonstrate the emergency medical care used for a patient with an impaled object.
- E. Demonstrate the emergency medical care used for an amputation.
- F. Demonstrate the emergency medical care used for penetrating chest injury.
- G. Identify causes and treatment for various types of burns.
- H. Differentiate between arterial, venous, and capillary bleeding.
- I. List the signs, symptoms, and treatment for internal bleeding.
- J. Describe the emergency medical care used to treat soft tissue injury.
- K. Describe the causes, signs, symptoms, and treatment for common trauma emergencies.

15. Cardiovascular and Respiratory Emergencies

- A. Describe common medical emergencies related to the cardiovascular system.
- B. Identify signs and symptoms of respiratory distress.
- C. Demonstrate proper rescue breathing techniques including, mouth to mask, mouth to barrier, and bag valve mask (BVM).

- D. Demonstrate the appropriate use of supplemental oxygen.
- E. Explain the difference in signs and symptoms between a partial and complete airway obstruction.
- F. Perform the steps used in the removal of a foreign body airway obstruction in an infant, child, and adult.
- G. Describe the anatomy and function of the circulatory system.
- H. Distinguish major structures and functions of the respiratory system.
- I. Identify differences in the respiratory systems of infants, children, and adults.
- J. Identify equipment commonly used for artificial ventilation.

16. Cardiopulmonary Resuscitation

- A. Demonstrate the proper procedures used in one and two-person CPR for infants, children, and adults.
- B. Pass a CPR exam with an 80% or higher. **
- C. List the links in the chain of survival.
- D. Explain the importance of early access to an AED.
- E. Demonstrate the procedures for using an AED.
- F. Identify common situations that may require the use of CPR.
- G. Discuss moral and legal implications for performing first aid and CPR.

**Completion of unit does not include CPR card or certification

17. Behavioral and Mental Health Emergencies

- A. Demonstrate safety precautions when dealing with potentially violent patients.
- B. Identify techniques to safely restrain a patient with behavioral problems.
- C. Describe the principles for assessing patients experiencing a behavioral emergency.
- D. Define a 5150 and explain how it applies to patient care.

18. Musculoskeletal Injuries

- A. Demonstrate splinting techniques.
- B. Assess and treat a patient with a suspected spinal injury.
- C. Differentiate between a fracture, dislocation, and sprain.
- D. Evaluate the pulse, motor, sensation, and circulation (PMSC) of a patient with an extremity injury.
- E. Demonstrate the assessment and management of a patient with a suspected head injury.
- F. Describe the anatomy and function of the muscular system.
- G. Describe the anatomy and function of the skeletal system.
- H. Identify common causes and prevention for musculoskeletal injuries.

19. Childbirth

- A. Explain the stages of labor and delivery.
- B. List the steps taken to prepare a pregnant woman for delivery.
- C. Describe the methods used to assist during childbirth.
- D. Describe the necessary care of the mother and newborn pre- and post-delivery.
- E. Identify possible complications that can occur during childbirth.

20. Pediatric Emergencies

- A. Describe anatomical and physiological differences between infants and children and age-appropriate assessment.
- B. Identify common pediatric emergencies.
- C. Explain the steps that should be taken to care for a child who has signs of abuse or sexual assault.
- D. Demonstrate how to determine an infant and child's pulse rate, respiratory rate, and body temperature.
- E. Describe methods used for cooling an infant and child with a high fever.
- F. Identify methods to prevent pediatric emergencies and injuries.

21. Environmental Emergencies

- A. Identify the signs, symptoms, and treatment of cold exposure.
- B. Identify the signs, symptoms, and treatment of heat exposure.
- C. Identify the signs, symptoms, and treatment of common bites and stings.
- D. Identify the signs, symptoms, and treatment of drowning or near-drowning.

22. Hazardous Materials

- A. Explain the role of the Emergency Medical Responder at a hazardous materials incident.
- B. Describe the common signs of a potential hazardous materials incident.
- C. Explain the purpose of the cold, warm, and hot zones at a hazardous materials incident.
- D. Identify and manage common hazards at a simulated emergency response.
- E. Demonstrate the process for proper cleaning and decontamination of equipment.
- F. Utilize the *Emergency Response Guidebook* to identify a suspected hazardous material.
- G. Identify the different levels of PPE used in hazardous situations.

23. (Optional) Fire Services

- A. Understand the basic chemistry and physics of fire and the fire triangle.
- B. Explain fire suppression methods.

- C. Identify and demonstrate firefighter PPE (donning).
- D. Identify firefighter equipment.
- E. Identify the details of operating hoses, ladders and fire hydrants.
- F. Understand the health and fitness of a firefighter.
- G. Explain the role of fire service in a mass casualty incident (MCI).
- H. Understand wildland firefighting basics and tool identification.
- I. Understand the classifications of fire—A, B, C, D, K and demonstrate the use of fire extinguishers. *

*Earn a certification using a fire extinguisher from an industry professional.

24. Portfolio Design

- A. Develop personal marketing and computer skills by refining your digital portfolio for post-secondary and employment acceptance.
- B. Compile best samples of original works and documents for a variety of purposes, which shows a progression in the acquisition of knowledge and/or skills.
- C. Demonstrate knowledge of competencies through journaling or summary of selected works or documents.
- D. Revise professional resume and cover letter to align with skills and objective statements of the relevant industry.
- E. Dress professionally and practice interviewing techniques using portfolio materials.
- F. Assemble industry and employability documents (resume, cover letter, certifications, recommendation letters, etc.).
- G. Create a "leave behind" book or folder.
- H. Display portfolio materials during a fair, community event, competition, or professional panel review.
- I. Evaluate and utilize feedback to improve portfolio.

Key Assignments

		Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
1.	Students will participate in mock interviews that represent current industry practices (e.g., skills demonstrations, resumes, applications, portfolios, personal websites, etc.).	1A, B, D 3B, C, D, I, J 6A-F 23A-1	2 3 10	2 3		LS 11-12.6 SLS 11-12.2
2.	Students will research the historic development of the EMS system and the role of the medical responder in the EMS support operations; then write a 3-5 page paper on their findings and thoughts regarding a career in the industry.	1A, B, D 3B, C, D, I, J 6E,F	2 3 11 13	2 3	B1.0 B3.8 B5.0	
3.	Students will debate the legal and ethical implications of decisions made in patient care including how a medical provider or patient's personal belief system may impact the patient.	1A, D-F 4B 8A-D,G,H	1 2 5	2 4 8	B3.0	LS 11-12.3 LS 11-12.6 SLS 11-12.1 SLS 11-12.2
4.	Students will accurately complete medical reports/documentation and practice communication for various medical and/or trauma situations.	1C 4C 9A,B,F	1 2	2	B3.0 B3.0	LS 11-12.1-2 RLST 11-12.4 WS11-12.7
5.	Working in groups, students will create a large poster based on a specified body system provided by the instructor highlighting all of the major organs and functions of each body system followed by a presentation of their poster to the class. Students will take turns quizzing each other of the terminology of the human body.	10A-F	1 2	2	B9.0	LS 11-12.1-2 RLST 11-12.4 WS11-12.7
6.	Students will demonstrate the skills necessary to complete the National Registry Emergency Medical Responder/EMT skills sheets through participation in multiple scenarios.	4C; 8D; 9A,C,E 10A,B,F; 11A-F; 12A-N 13A-G; 14A-G 15A-J; 16A-F	1 2 5	2 5 10	B2.0 B3.0 B4.0 B7.0 B9.0	LS 11-12.2 RSIT 11-12.7 SLS 11-12.1 SLS 11-12.2

Assignment		Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	ccss
		17.A,E; 18A-C				
		19A,B,F,G,H				
		21A-D; 22.A-C				
		4C; 5A; 8E,F,I;				
	 Students will demonstrate the proper procedures as a first responder in securing a crime scene, including preservation of evidence, patient care, and documentation. 	9A-F; 11A-F;				
		12A-N; 13A-G;		2	B2.0	
		14A-G; 15A-J;	1	5	B3.0	LS 11-12.6
7.		17.A,E,F,H;	2	8	B4.0	SLS 11-12.1b
		18A-D;	5	9	B6.0	WS 11-12.7
1		19A,B,F,G,H;	8	10	B7.0	
		20A-D; 21A-D;		11	B9.0	
		22A-C;				
		23A,C-D				
8.	Students will demonstrate the proper procedures for patient care including the ability to move a patient to a designated area, documentation, and scene surveillance in a mock emergency situation that includes various degrees of medical distress and/or trauma.	4C; 11A-F; 12A,-N; 13A-G 14A-G; 15A-J; 16A-F; 17.A,E,F,H; 18A-D; 19A,B,F,G,H 20A-D; 21A-D; 22.A-C; 23.A,C-D	1 2 5	2 5 9 10	B3.0 B4.0 B9.0	LS 11-12.6 SLS 11-12.1b WS 11-12.7
9.	Students will respond to a multiple victim accident that includes patients of varying ages and medical conditions, including pregnancy and pediatric scenarios.	4C; 11A-F; 12A-N; 13A-G; 14A-G; 15A-J; 16A-F; 17.A,E,F,H; 18A-D; 19A,B,F,G,H;	1 2 5	2 5 9 10	B2.0 B3.0 B4.0 B5.0 B6.0 B9.0	LS 11-12.6 SLS 11-12.1b WS 11-12.7

Assignment	Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
	20A-D; 21A-D 22A-C				
10. Students will manage common hazards in a simulated hazmat emergency response and know the proper use of personal protective equipment (PPE).	23A,C-D	1 2 5	2 5 9 10	B4.0 B6.0 B7.0 B9.0	LS 11-12.6 SLS 11-12.1b WS 11-12.7
11. <i>(Optional)</i> Fire extinguisher training: Students will describe various fire safety and suppression methods and receive hands- on fire extinguisher training and certification from a subject-matter expert.	1A-D, F 3C 4H 8B, C 23 A, B, D, I	1 2 4	2 6 11	B8.0	LS 11-12.6 SLS 11-12.2

Standards Assessed in this Program

Career Ready Practices

- 1. Apply appropriate technical skills and academic knowledge.
- 2. Communicate clearly, effectively, and with reason.
- 3. Develop an education and career plan aligned to personal goals.
- 4. Apply technology to enhance productivity.
- 5. Utilize critical thinking to make sense of problems and persevere in solving them.
- 6. Practice personal health and understand financial well-being.
- 7. Act as a responsible citizen in the workplace and the community.
- 8. Model integrity, ethical leadership, and effective management.
- 9. Work productively in teams while integrating cultural/global competence.
- 10. Demonstrate creativity and innovation.
- 11. Employ valid and reliable research strategies.
- 12. Understand the environmental, social, and economic impacts of decisions.

Anchor Standards

2.0 Communications

• Acquire and use accurately sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

3.0 Career Planning and Management

• Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

4.0 Technology

• Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the sector workplace environment.

5.0 Problem Solving and Critical Thinking

• Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

6.0 Health and Safety

• Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domainspecific words and phrases as related to the sector workplace environment.

7.0 Responsibility and Flexibility

• Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the sector workplace environment and community settings.

8.0 Ethics and Legal Responsibilities

• Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

9.0 Leadership and Teamwork

• Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution.

10.0 Technical Knowledge and Skills

• Apply essential technical knowledge and skills common to all pathways in the sector following procedures when carrying out experiments or performing technical tasks.

Pathway Standards

Public Services – Emergency Response Pathway

B1.0 Analyze the characteristics of different career fields within the Emergency Response pathway to develop a perspective on the nature of the work, entry-level requirements, career options, and expectations.

B2.0 Understand the processes by which emergency management organizations and emergency managers exert command and control over an emergency response and recovery operation.

B3.0 Demonstrate necessary leadership qualities, team concepts, and personal integrity for emergency response personnel.

B4.0 Execute safety procedures and protocols associated with local, state, and federal regulations

in order to effectively and safely conduct duties within fire and emergency services.

B6.0 Understand the roles of federal, state, and local agencies in catastrophic event planning, preparation, response, and recovery.

B7.0 Research and define what is considered to be hazardous materials incidents and threats.

B9.0 Demonstrate the immediate basic life support and interim medical care for a sick, injured, or compromised person until advanced medical care is provided or transport is initiated.

Common Core State Standards

ENGLISH LANGUAGE ARTS

Language Standards

LS 11-12.2: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

LS 11-12.3: Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

LS 11-12.6: Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the (career and college) readiness level, demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Reading Standards for Literacy in Science and Technical Subjects

RLST 11-12.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.

Speaking and Listening Standards

SLS 11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others ideas and expressing their own clearly and persuasively.

SLS 11-12.1b: Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

SLS 11-12.1d: Respond thoughtfully to diverse perspectives, synthesize comments, claims and evidence made on all sides of an issue, resolve contradictions when possible, and determine what additional information or research is required to deepen the investigation or complete the work. **SLS 11-12.2:** Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions, and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Writing Standards

WS 11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback including new arguments and information.

WS 11-12.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.