



FIRE-521: FUNDAMENTALS OF WILD LAND FIRE FIGHTING (FORMERLY FIRE-121)

Effective Term

Fall 2025

BOT Approval Date

04/11/2024

Discipline

FIRE - Fire Technology

Course Number

521

Course Title

Fundamentals of Wild Land Fire Fighting (formerly FIRE-121)

Short Title

Fund Wild Land Fire Fighting

Credit Status (CB 04)

D - Credit - Degree applicable

Units

Lecture Units

3.00

Total Units

3.00

Hours

Lecture Contact Hours

48-54

Out of Class Hours Lecture

96-108

Total Contact Hours

48 - 54

Total Out of Class Hours

96 - 108

Total Student Learning Hours

144 - 162

Distance Education

Yes

Distance Education

Distance Education Type

Both Fully Online and Hybrid Online

Fully Online Delivery Requirements:

a. Students must be notified via the college schedule of classes and the syllabus for the class if proctored tests are required for this course



b. Any planned face-to-face meetings, such as an orientation or study session, must be optional

c. The MSJC curriculum committee requires the use of accessible, asynchronous discussion as a component of every fully online course

Are you using publisher content?

No

Regular Substantive Interaction

Instructor-to-student, student-to-student, and student-to-content contact shall be distributed in a manner that will ensure regular substantive interaction (RSI) is maintained not only weekly but also for the duration of the course. Instructor interactions should be equivalent in time, quality and consistency to the engagement students would receive in a face-to-face course—for example, through announcements, discussion participation, personalized feedback, video messages, or other instructional communications. Instructors are expected to be responsive to student inquiries within a 24-72 hour time frame excluding holidays. RSI will be maintained through a variety of methods:

- Orientation - Students must be oriented to the online and face-to-face portions at the start of the course.
- Announcements - Announcements using the course management system must be posted at least weekly to keep students current on course events, due dates, materials, etc.
- Discussion Forums - Content-related discussion forums within the designated CMS will include appropriate instructor participation and will be initiated and maintained, with timely feedback provided. Instructors are required to monitor the discussions and related activities to provide guidance and direction. Open-ended discussion boards may be used to further learning and interaction.
- MSJC Communication – Instructor will use MSJC-administered communication tools (such as email or the designated CMS communication tools) to regularly communicate with and provide ease of access to students.
- Timely Feedback - Timely feedback on student work will be provided by the instructor, which may include comments and/or rubrics, within the Grades area of the designated CMS.
- Scheduled Meetings – Hybrid and synchronous courses will meet at regularly scheduled times. ADA Compliance - All course interactions and content must be designed with accessibility in mind and meet ADA requirements.

Additional Regular Substantive Interaction

The course will meet asynchronously for the fully online version using the CMS to engage with all course materials and complete assignments. Students may be required to create accessible videos with closed captions of [themselves performing or doing something involving course content. Hybrid sections will meet synchronously once a week via teleconferencing meetings as an Online Real-Time course, or as a hybrid course, they will meet fully face-to-face once a week with the rest fully online via the CMS. Students may be required to create accessible videos with closed captions engaging with course content and upload them into the CMS for feedback and to ensure proper understanding and performance of course content, this will be at the discretion of the instructor. Some assignments may be included in a live synchronous meeting via teleconferencing. Students will receive feedback from faculty regarding assignments performed live in synchronous meetings. Testing may occur using the CMS, or in a live classroom for hybrid courses.

Catalog Description

This course provides fundamental information on all aspects of wild land fire fighting including wild land fire safety, fire behavior, and the incident command system and resource usage. The course also describes new advances in technology used in wild land fire suppression such as fire-blocking gels and the use of GPS. (formerly FIRE-121)

Codes

TOP Code (CB 03)

2133.10* - *Wildland Fire Technology

CIP Code

43.0203 - Fire Science/Fire-fighting.

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Learning Objectives

Learning Objectives

Learning Objective
1. Analyze and describe the meaning of the 10 standard firefighting orders for wildland fires.
2. Analyze and understand the meaning of the common denominators of fire behavior on tragedy fires and 18 watch out situations that go with them.
3. Analyze and describe the different factors affecting wildland fire behavior. Identify the look up, look down, and around indicators dealing with fuel, weather, and topography.
4. Identify and differentiate the various wildland firefighting safety and survival techniques.
5. Determine and recognize the different types of equipment and resources used in wildland firefighting.
6. Compare and contrast the different fire attack and extinguishment methods used on wildland fires and explain how tactics and strategies are used.
7. Compare and contrast the different types of fire departments, the areas they protect, what different types of resources do each bring to a wildland fire.
8. Evaluate an Incident Action Plan and explain how it is used in a wildland fire.
9. Evaluate and describe the need for diversity, inclusion, and behavioral change within the emergency services relating to wildland safety, incorporating leadership, supervision, accountability and personal responsibility when working as a team on the fire line.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
1. The student will analyze and describe the different factors affecting wild land fire behavior.
2. The student will compare and contrast the various wild land fire fighting safety and survival techniques.
3. The student will describe and categorize the different types of equipment and resources used in wild land fire fighting and analyze how to use specialized equipment in the process
4. The student will identify and differentiate the fire attach and extinguishment methods used on wild land fires and explain how tactics and strategies are used to determine which method to use.

Program Learning Outcomes

Learning Outcome
Analyze fire service theories and techniques as well as conduct research on specific topics related to the fire service. Use technology to process information to identify and address problems.
Demonstrate the ability to address problems while working as part of the team.
Develop good oral and written communication skills.
Exhibit a working knowledge of the various aspects of the Fire Service to include but not limited to Fire Department structure, operations, educational and experiential requirements for firefighting jobs.
Use technology to process information to identify and address problems.

Institutional Learning Outcomes

- Critical Thinking: The student will analyze problems, gather and synthesize relevant information, evaluate ideas, information, and evaluate alternative points of view to create, innovate and implement effective solutions.
- Cultural Awareness and Humility: The student will demonstrate knowledge of and sensitivity toward individuals of diverse ethnicity, age, gender, sexual orientation, and religious affiliations, as well as toward those individuals with diverse abilities and socio-economic classes to respectfully interact with individuals of diverse perspectives, beliefs and values while being mindful of the limitation of their own cultural frameworks.
- Information and Technology Literacy: The student will access, interpret, evaluate, and apply relevant information sources and digital media effectively, and in an ethical and legal manner.
- Scientific Awareness: The student will apply the scientific method of inquiry to assess potential solutions for real-life challenges by employing science-based knowledge and methodologies in daily life.
- Social Awareness: The student will recognize and analyze the interconnectedness of global, national, and local concerns, analyzing cultural, political, social, and environmental issues from multiple perspectives and appreciate similarities and differences among cultures.

Civic
Personal
and Professional Responsibility

Content

Course Lecture Content

1. Fire ground and air resources used on wildland fires.
 - a. Fire engine types, engine and pump capacities, water tank capacity
 - b. bulldozer types
 - c. hand crew types
 - d. aircraft, fixed-wing tankers, and helicopters.
2. Incident Command System
 - a. CFLOP
 - b. branches
 - c. divisions
 - d. single resource
3. Wildland fire behavior
 - a. fuel types
 - b. surface and aerial fuel characteristics, continuity, vertical arrangement
 - c. live-to-dead fuel ratio, and fuel moisture.
4. Fuel temperature classifications of grass
 - a. shrub, timber
 - b. logging slash
5. Topography
 - a. slope, aspect, elevation
 - b. terrain features
6. Weather
 - a. Foehn winds, local winds
 - b. effects of slope with weather fronts
 - c. thunderstorms, Air Mass Stability, thermal belt
 - d. relative humidity.
7. Protective equipment
 - a. helmet, goggles
 - b. Nomex, or fire-resistant cotton shirt, gloves, boots, web gear
 - c. fire shelters
8. Fire behavior watch outs/ common denominators
 - a. chimney or saddle
 - b. narrow canyon or box canyon, mid-slope road
9. 10's and 18's
 - a. accountability of incident personal Situational awareness
 - b. heat stress, carbon monoxide poisoning
 - c. fatigue, physical fitness
 - d. LCES
10. Scene size-up
 - a. arrival on scene
 - b. assigning resources, hazards involved, resource needs
 - c. forming a plan including making a box.
11. Modes of fire attack
 - a. offensive
 - b. defensive
 - c. combination
 - d. Wildland/Urban Interface tactics.
12. Fire service changes to inclusion, diversity, and sexuality.
 - a. Cultural changes in the past five years in the fire service
 - b. Equipment and facility structure (living conditions, bathrooms, and uniform policies.

- c. Diversity and behavioral changes in leadership and accountability
- d. Dietary options

Methods of Instruction

Method

Group Projects

Integration

Students will be placed in groups to research, analyze, and discuss with classmates the relationship between the fuel types the fire is burning in, concerning changing weather factors. Students will be given an incident (scenario) they need to be in command of and will analyze the topographical features affecting fire spread. Each student group will write a group essay on suppression tactics for a specific fire situation presented. Each student group will present in front of the class via a discussion board or video recording with accessible close captions.

DE Adaptations for MOI

A discussion board will be provided for each student group to work together. The CMS discussion board will be the location for students to share their research and provide feedback. Students can use accessible video conferencing tools to work together if students choose to connect in real time. Discussion boards are posted for student questions who cannot attend live video lectures with close captions. Group discussions can be created for groups to do research together. Lectures can be communicated through the CMS in formats including PowerPoint Presentations, lecture videos with close captions, websites, and online videos with close captions that can be incorporated as part of the lectures.

Method

Discussion

Integration

Research the differences regarding social and equitable dynamics of the 18 Watch Out Situations for wildland fire operations. Examples #6 Instructions and assignments are not clear and # 7 communication break down between crew members and supervisors.

DE Adaptations for MOI

Discussion boards are posted for questions for students who cannot attend live lectures. Lectures can be communicated through CMS in formats including PowerPoint Presentations, accessible and closed-captioned lecture videos, websites, and online videos that can be incorporated as part of the lectures.

Method

Directed Study

Integration

Students will be assigned to explore the FIREFIGHTER FATALITY INVESTIGATION AND PREVENTION PROGRAM website

<https://www.cdc.gov/niosh/fire/investigations/completedinvestigations/completedinvestigations.html>

The students will find a report on a firefighter fatality investigation that interests them. Students will write a two to three-page paper regarding situational awareness and how it relates to firefighter fatality during wildland fire operations. Students will be instructed to prepare a three to five-minute informal presentation of their findings.

DE Adaptations for MOI

Reading can be provided utilizing the text, and accessible materials provided in the CMS. Some articles and publications may also use asynchronous threaded discussion in discussion boards. Instruction videos can be utilized with close captions accessibility requirements. Students can videotape their oral presentation and upload it into an assignment feature in the CMS.



Methods of Evaluation

Method

Class Participation

Integration

A weekly assessment will be provided by the instructor to show student knowledge in wildland firefighting, life-threatening hazards, such as watch-out situations, safety regulations regarding 16 fire-safe practices and student performance of weekly group discussions.

DE Adaptations for MOE

Weekly assessments and instructor feedback are provided during weekly discussion boards or during the class for face-to-face hybrid courses. Periodic written evaluations may be made through the CMS, or verbal evaluation during hybrid sessions or synchronous sessions utilizing the video conferencing tools with closed captions.

Method

Exams/Tests

Integration

At various intervals, students will encounter short objective tests that align with the course's learning objectives. These assessments are designed to be both diagnostic and evaluative, providing students with insights into their progress. Quizzes may take various formats, encompassing objective question types such as multiple-choice, true/false, and fill-in-the-blank, as well as more expansive long-format essays. The aim is to encompass the breadth of learning outcomes within this multifaceted field. These quiz exams may undergo grading through manual evaluation or automated processes, utilizing tools such as the course management system (CMS). Quizzes can contrast, and a final examination will be used to evaluate the student's understanding of terminology, knowledge of the subject matter, and ability to contrast and evaluate types of wildland fire situations.

DE Adaptations for MOE

Quizzes will be given within the CMS. Quizzes may be graded manually by the instructor or through the CMS auto-grading system. The instructor will provide correct responses, comments, and grades within two weeks of the due date of these quizzes within the gradebook using the CMS.

Method

Homework

Integration

Read a case study/report on an actual incident, the student will utilize the 16 fire safety initiatives and how they can be used during wildland firefighting operations. Recognize unsafe situations regarding wildland fire operations, identify alternatives to correct the unsafe situation, and determine if an equitable behavioral change will prevent the unsafe situation from occurring in the future. The student will write a paper on what safety precautions should be initiated.

DE Adaptations for MOE

The student's homework will be submitted via CMS. Rubrics/clear instructions will be provided. Papers will be evaluated through correctness, clarity, completeness, and precision. The student will receive a grade and feedback from the instructor within two weeks of the assignment's due date within the gradebook using the CMS.

Assignments

Assignment Type

Writing

In-class and/or outside of class

Outside of class



Formative or Summative

Formative

Assignment

Assignment Description: Weather and topography hazards during wildland operations.

Write a one to two-page paper, written in a format to identify and assess the hazards of firefighting operations in buildings with weather storms and how to avoid them. Additionally, assess the S290 indicators of potential fire behavior change regarding wind and how to prepare for change analysis describing each indicator and how to recognize them for safe operations.

Evaluation:

Student submissions will be evaluated on grammatical correctness, clarity, completeness, precision, evidence of understanding, and introspection. The student will receive a grade and feedback from the instructor within two weeks of the assignment's due date within the gradebook using the CMS.

How assignment will be adapted in online format

The assignment will be assigned, submitted, and graded through the course management system (CMS). Online courses should make course material, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS. Students will submit the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Any material for students and communications must meet accessibility guidelines

Assignment Type

Writing

In-class and/or outside of class

Outside of class

Formative or Summative

Summative

Assignment

Lecture/self-research on what changes are in process regarding the fire service for gender, race, and sexuality on a campaign wildland incident. Write a two to three-page paper on what changes were made to wildland fire tactics regarding this subject. (examples: dietary options, gender natural restrooms, and the single layer radiation pant)

How assignment will be adapted in online format

The assignment will be assigned, submitted, and graded through the course management system (CMS). Online courses should make course materials accessible, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS. Students will submit the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Any material for students and communications must meet accessibility guidelines.

Assignment Type

Reading

In-class and/or outside of class

In-class

Formative or Summative

Formative

Assignment

In this reading and writing assignment, you will read and research at least three articles on the three different fire attack modes which are offensive, defensive, and combination from the National Fire Protection Agency. This will allow an understanding of how they are utilized during firefighting operations. Utilizing the textbook, and or National Fire Protection Agency articles regarding information



concerning different wildland firefighting operations by reviewing the textbook and National Fire Protection Agency articles. You will write a three to four-paragraph paper on your findings and include a work cited page.

How assignment will be adapted in online format

The reading and writing assignments will be assigned, submitted, and graded through the course management system (CMS). Students will submit the writing portion of the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Any material for students and communications must meet accessibility guidelines. Online courses should make course materials accessible, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS.

Course Materials

Textbooks

National Fire Protection Association (2018). NFPA 1144: Standard for Reducing Structure Ignition Hazards from Wildland Fire NFPA. ISBN: 1455917133
Teie, William C. (2018). Firefighter's Handbook on Wildland Firefighting, Strategy, Tactics, and Safety Fire Protection Publications; 4th Edition. ISBN: 0879396768

Class Size Information

Class Size

40

Class Size Category

A - Lecture/discussion 40

Diversity and Inclusion

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

The students will conduct interviews with full-time firefighters of all different races and genders as part of the student's research. This course will show how cultural and behavioral change has occurred on large wildland campaign fires in the fire service over the past few years. What changes are in process regarding the fire service for gender, race, and sexuality? Different forms of personal protective equipment, dietary options during meal time, the introduction of gender-neutral bathrooms, and uniform policies. This includes all firefighters concerning their sexuality and different body types. Training policies have been enhanced regarding subjects regarding different forms of harassment.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

Students have equal opportunities to access all learning resources through the CMS, and individual support from the instructor via accessible CMS videoconferencing. Accessible and closed caption videos and other forms of media are used to ensure success in the area of DEI. Instruction is provided through accessible recorded/captioned video and in-person lectures. Discussion boards are offered in two different formats - student-to-student and student-to-instructor. Students participate in class via asynchronous discussions in print or accessible/captioned video format using accessible CMS video conferencing software. All PowerPoint or accessible video presentations with closed captions will be uploaded onto Canvas for student use. Accessible exams and/or tests are administered fully online and evaluated through the CMS. The format for assignments and exams will include multiple choice, short answer essays, video creation, and other formats to promote diverse learners for equitable student engagement, and participation. This is in alignment with the learning objectives. All exams/tests must meet accessibility guidelines. Individual student feedback will be provided by the instructor via the CMS within two weeks.

Interactions

Explain how the course will incorporate student-to-student interaction.

Student-to-student interaction will be encouraged by utilizing group discussion boards as a means of evaluation. The conversations serve as a platform for students to connect with their peers, share interpretations of course content derived from lectures and readings, ask questions, and weave personal experiences to converse about the subjects in class. Through the utilization of course management system (CMS) discussion forums, breakout rooms utilizing accessible video-conferencing software, and in-class interactions, students come together to collaboratively develop critical approaches and apply theoretical concepts.

Explain how the course will incorporate instructor-to-student interaction.

The instructor takes on the crucial task of grading assignments according to a predefined rubric and providing timely and constructive feedback on all assessments. In this capacity, the instructor also moderates discussions on topics such as building codes and NFPA hazard regulations regarding wildland operations to enhance this interaction, faculty members are equipped to provide feedback on student assignments through various avenues, be it accessible video conferencing software, the course management system (CMS) grading functionality, or one-on-one meetings with individual students.

Explain how the course will incorporate student-to-content interaction.

Using a wide range of tools to expose students to material, including discussion boards, small group engagements, breakout rooms, and introspective writing opportunities, students will have exposure to a wide variety of perspectives on wildland operations. Students will participate in class in class discussions in asynchronous discussions using accessible video conferencing software. Exams and/or tests are administered fully online. They will be evaluated through CMS. The format may include multiple choice, short answer, essay, or other formats. Exams/ tests will be evaluated based on the demonstration of identification, and understanding of the applications of major topics examples, NFPA regulations, and 16 firefighter safety initiatives these described in the course content. This is in alignment with the learning objectives. All exams/ tests must meet accessibility guidelines. Instructor feedback will be provided via CMS, within 2 weeks.

Explain how the course will incorporate student-to-self interaction (metacognitive).

The course promotes critical thinking by asking students to reflect on how the material can help prevent injury or property loss during wildland fires. Through the reading of the text, lectures, and different activities throughout the course, students will consider different hazard factors that influence fire spread. This knowledge will help improve safety during wildland firefighting operations.

Key: 1601