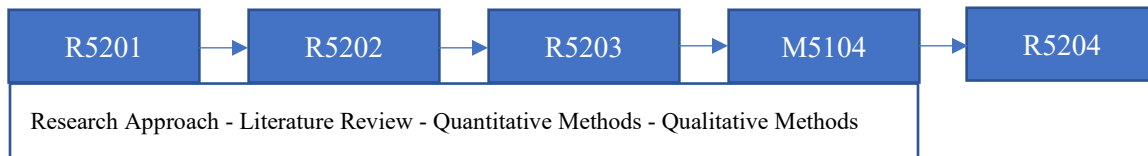


INTRODUCTION

This guide is designed to assist students enrolled in the National Fire Academy's (NFA's) Executive Fire Officer Program to fulfil the research requirements of the program. The primary objective of the guide is to describe what is expected of students as they engage in the research process. In addition, it provides guidelines for students to follow in the preparation of the Capstone Research Paper (CRP).

Students perform original research, and foundational research considerations are provided incrementally throughout the program based on *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. (Creswell & Creswell, 2018).



Research design components are embedded in the first four EFO Program courses and culminate in *M5104 Applications in the Exercise of Leadership: Capstone I*, in which instructors evaluate and provide detailed feedback on research elements through incremental writing assignments in preparation for the final submission.

Students must complete and submit the CRP prior to arrival on campus for the last EFO Program course, *R5204 Applications in the Exercise of Leadership: Capstone II*. The CRP must be submitted electronically, through the Learning Management System (LMS) approximately four weeks prior to course's start. **CRPs must receive a total score of 31 or higher to be considered acceptable and pass (see rubric in Appendix A). Students who do not pass will not be able to attend the final resident course.** Upon successful completion of the last resident course students are awarded the EFO Program certificate.

A panel of subject matter experts and NFA staff review all CRPs to evaluate and potentially recommend exemplary EFO Program CRPs to be archived in the National Emergency Training Center's (NETC's) Library. Students who demonstrate exemplary work are strongly encouraged to pursue publication in a peer-reviewed journal.

While examples from the Legacy EFO Program of Applied Research Papers (ARPs) may be helpful and are available by title or area of interest at the NETC Library, the requirements are different for the CRP and ARP's cannot be cited in the CRP.

WHAT IS A CAPSTONE RESEARCH PROJECT?

The project selection for the CRP is designed to allow students to investigate a key issue or problem that has been identified as important to their fire service organization and community. The CRP is not intended to solve a task-level issue, **it must demonstrate strategic value to the organization and community.** To ensure relevancy, students are strongly encouraged to select a topic that falls within one of the critical issues discussed in the white paper: [*21st Century Fire and Emergency Services*](#) (Center for Public Safety Excellence [CPSE] & International City/County Management Association [ICMA], 2020).

EXECUTIVE FIRE OFFICER PROGRAM CAPSTONE RESEARCH PAPER GUIDELINES

The capstone research process is designed to challenge and expand executive minds as it relates to conducting thorough and responsible research to develop conclusions and recommendations based on empirical evidence. This process is intended to challenge executives to think strategically and more critically than they ever have before.

Note: The targeted community must be clearly defined within the parameters of the project and within the content of the paper. Typically, communities are defined in the context of physical or geopolitical boundaries, but the project should consider the impact of the selected topic on as many facets of the whole community as possible. The Federal Emergency Management Agency (FEMA) identifies the whole community to include individuals and families, including those with access and functional needs; businesses; faith-based and community organizations; nonprofit groups; schools and academia; media outlets; and all levels of government including state, local, tribal, territorial, and federal partners.

SELECTION OF RESEARCH TOPICS

Considerations for selecting a research topic:

1. The significance, originality, value, and relevance of the topic or issue to the student's organization and community.
2. The relevance of the topic or issue to the critical areas within the white paper: [21st Century Fire and Emergency Services](#) (CPSE & ICMA, 2020).
3. The relevance of the topic or issue to U.S. Fire Administration's (USFA's) strategic goals. (Use the USFA Web site as the primary source when referring to the goal.)
4. The research depth, data collection, and writing required for the selected topic must be manageable within six months to one year.

RESEARCH PROPOSAL

Students are provided preparation materials and have various opportunities throughout the program to solicit feedback from instructors on proposed research topics. Formal review of research proposals, preliminary literature searches, and data collation methodology occur throughout the *M5104 Applications in the Exercise of Leadership: Capstone I* course.

EVALUATION CRITERIA

The Capstone Research Paper will be evaluated based on the rubric provided in Appendix A.

Evaluation/Assessment Policy Statement:

Students will receive extensive evaluations on writing and research components during *M5104 Applications in the Exercise of Leadership: Capstone I* and are expected to implement the feedback received for their final research paper submission in *R5204 Applications in the Exercise of Leadership: Capstone II*.

If a student does not pass the initial evaluation of the CRP made during *R5204 Applications in the Exercise of Leadership: Capstone II*, NFA will notify the student immediately. Issues that are easily remedied are adjudicated by the NFA and the student may be allowed to correct and resubmit the CRP while on campus if all other capstone elements are successfully met. However, if the CPR is missing in-depth elements, the student will not be able to attend *R5204 Applications in the Exercise of Leadership: Capstone II* and must retake *M5104 Applications in the Exercise of Leadership: Capstone I* before resubmission.

Students have only one (1) opportunity for resubmission. Failure to pass the second review shall result in removal from the program.

Effective 2023, plagiarism software will be used for capstone assignments. Plagiarism will result in a grade of “F” for the assignment and course, and potential expulsion from the EFO Program.

CAPSTONE RESEARCH PAPER FORMAT

Executive officers will follow the *Publication Manual of the American Psychological Association* (2020) as the citation and reference style for the CRP. A Capstone Research Paper template is provided in *M5104 Applications in the Exercise of Leadership*.

PERSONAL IDENTIFYING INFORMATION

Do NOT include personal identifying information (PII) within a CRP. CRPs are considered government documents because they are completed as part of a federally funded and sponsored program. Therefore, due to requirements of the Privacy Act, authors of CRPs are cautioned to ensure that a CRP does not include any PII.

Personal information refers to any item, collection, or grouping of information about an individual or individuals that is maintained by an agency, including, but not limited to, education, financial transactions, medical history, and employment history.

Examples of PII include date(s) of birth, resident mailing addresses, resident telephone numbers, all or portions of Social Security Numbers (SSNs), personal email addresses, ZIP Codes, account numbers, certificate/license numbers, and vehicle identifiers including license numbers. Authors are also cautioned to not include any other unique identifying number(s) or characteristic(s) or any information where it is reasonably foreseeable that the information could be linked with other information to identify the individual(s). An example of a nuanced PII could be participation of one of only two individuals in a department.

References

- Center for Public Safety Excellence & International City/County Management Association. (2020). *21st century fire and emergency services*. [White paper].
<https://www.cpse.org/wp-content/uploads/2020/07/21st-Century-Fire-and-Emergency-Services-White-Paper-Final-07.15.20.pdf>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. (5th ed.). Los Angeles: SAGE.
- Publication manual of the American Psychological Association : The official guide to APA style*. (7th ed.). (2020). American Psychological Association.

APPENDIX A

EFO Capstone Research Paper Rubric

This table details the point distribution for the **EFO Capstone Research Paper**.

| Chapter | Criteria Category | Unsatisfactory | Proficient | Distinguished |
|-----------|-----------------------------|---|---|--|
| | | 2-3 Points | 4 Points | 5 Points |
| CHAPTER 1 | Abstract | <ul style="list-style-type: none"> (A) Missing two or more items from the Proficient category OR (B) Does not follow a logical order to the point that the reader may be confused Contains citations, undefined abbreviations or acronyms, results, or interpretations that are not addressed in the text | <ul style="list-style-type: none"> Accurate and self-contained (250-word maximum) Problem statement defined with objectives and intent Purpose statement defined Research method defined Research questions or hypothesis summarized or paraphrased Procedures summarized Results summarized Recommendations summarized Contains important key words | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Correct tense is used throughout AND Appropriate focus on original work and not the work of others AND Accessible to a large audience (minimal use of jargon) AND Optimal use of key words |
| | Introduction | <ul style="list-style-type: none"> Problem statement is not clearly and precisely defined References do not support the problem statement Purpose statement is not clearly and precisely defined Specific research methods are not identified (A) Research questions/hypothesis are NOT clearly stated OR (B) Hypothesis is not appropriate for research method identified | <ul style="list-style-type: none"> Problem statement clearly and precisely defined Utilized appropriate academic (peer-reviewed) references in support of the problem statement Purpose statement clearly and precisely defined Specific research methods identified (A) Research questions/hypothesis clearly stated OR (B) Hypothesis appropriate for research method identified | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Identified deficiencies in existing studies AND Demonstrates relevancy and interests the reader |
| | Background and Significance | <ul style="list-style-type: none"> Background analysis of the stated problem is not clear or complete Sufficient evidence is not provided to justify study from an organizational and community-level perspective, based on past, present, and probable future impact Relevant financial, cultural, and ethical considerations are insufficient, or demographic and historical data are not present where necessary Original research methodology is not communicated clearly | <ul style="list-style-type: none"> Clear and complete background analysis of the stated problem Sufficient evidence provided to justify study from an organizational and community-level perspective, based on past, present, and probable future impact Relevant financial, cultural, and ethical considerations are sufficient, and demographic and historical data are present Original research methodology communicated Clear, logical linkage established between the research problem topic and the literature and/or the critical issues identified in 21st Century Fire and Emergency Services (CPSE & ICMA, 2020) and the goals of the EFO program | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Uses an appropriate contemporary event, case study, etc. to demonstrate relevancy and secure interest |

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| Chapter | Criteria Category | Unsatisfactory | Proficient | Distinguished |
|-----------|-------------------|---|---|---|
| | | 2-3 Points | 4 Points | 5 Points |
| CHAPTER 2 | Literature Review | <ul style="list-style-type: none">• The minimum number of required peer reviewed sources is not included• There is no clear connection between the literature, the research questions, and the methodology• The literature review does not critically analyze the data. For example, the literature review may include relevant sources, but the literature review reads like a list of studies without critical evaluation of the source materials | <ul style="list-style-type: none">• A minimum of eight peer-reviewed journals or textbooks cited (excluding EFOP texts or prior EFO papers/ARPs*)• A minimum of two peer-reviewed journals or textbooks cited outside of fire publications (e.g., public health, business, social science, psychology, etc.)• Citations are diverse, from a variety of authors and sources• Findings of others are incorporated• At least 50% of sources published within the last 5 years• Linkage from sources to research questions/hypothesis and methodology is clearly defined <p><i>*These items may be cited but will not count toward the citation requirement.</i></p> | <ul style="list-style-type: none">• All criteria from the Proficient category are met and exemplary AND <ul style="list-style-type: none">• Demonstrates a comprehensive review that involves associated research from at least three other disciplines with logical linkages to the research topic |

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| Chapter | Criteria Category | Unsatisfactory | Proficient | Distinguished |
|------------------|--------------------|--|--|---|
| | | 2-3 Points | 4 Points | 5 Points |
| CHAPTER 3 | Methodology | <p>Research Approach</p> <ul style="list-style-type: none"> Research approach is not scoped appropriately Research questions/hypothesis are not focused, measurable, and clearly articulated <p>Data Collection</p> <ul style="list-style-type: none"> The selected data gathering instruments/processes are not appropriate (e.g., will not measure what the study intends to measure) Procedures are not sufficiently delineated to permit replication Variables and limitations do not include exclusion criteria (e.g., an explanation of data excluded from the study) or statement that all data was used Explanation of considerations used to assure validity and reliability during the data collection, analysis, and interpretation are not present in the document Results and explanation of inferential statistics are not present. There is no clear relationship to the research questions/hypothesis are not included <p>Ethics</p> <ul style="list-style-type: none"> Conflicts of interest are not addressed Procedures to ensure subject privacy are not addressed Potential negative impact on participants and mitigation strategies are not addressed Does not address the security of data and integrity of analysis Ethical considerations are not sufficiently addressed | <ul style="list-style-type: none"> Research approach is sufficiently scoped and detailed Research questions/hypothesis are focused, measurable, and clearly articulated and able to address the research problem The selected data gathering instruments/processes are provided and appropriate Field test is discussed if researcher is developing own instrument Research procedures (means of obtaining participants, means of collecting data, and means for analysis) are sufficiently delineated to permit replication Variables and limitations noted to include explanation of data excluded from the study or statement that all data was used Explanation presented of considerations used to assure validity, reliability, or trustworthiness during the data collection, analysis, and interpretation Conflicts of interest and bias are addressed Addresses how subject privacy information is protected (confidentiality of participants) Addresses potential negative impact on participants and mitigation strategies Addresses the security of data and integrity of analysis Ethical considerations addressed <p>IF Qualitative:</p> <ul style="list-style-type: none"> Types/strategies are appropriate for the research questions Appropriate data collection type, with pertinent explanations The selection/recruitment of participants is purposeful and of adequate numbers/sample size is defended <p>IF Quantitative:</p> <ul style="list-style-type: none"> The population, sampling design, and sample is appropriate and defended Descriptive statistics of participant demographics, responses, and/or observations are considered Nonexperimental variables controlled (experimental only) The statistical test(s) is/are appropriate for the variables and purpose of the study | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Research questions are focused, measurable, and clearly articulated AND The selected data gathering instruments/processes are appropriate and the process is explained thoroughly AND Appropriate data collection type and thorough explanation of the choice as applicable to this study AND The variables are correct, with sufficient explanation of how they relate to the study AND Conflicts of interest have been thoroughly explained and sufficiently justified AND Privacy protocols for subject information are articulated AND Thoroughly addresses ethical considerations to include the removal of bias and measures to ensure participant safety |

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| Chapter | Criteria Category | Unsatisfactory | Proficient | Distinguished |
|------------------|---|---|--|--|
| | | 2-3 Points | 4 Points | 5 Points |
| CHAPTER 4 | Results | <ul style="list-style-type: none"> Results/findings are not clearly and concisely stated in narrative form Results/finding descriptions are not organized by research question Detailed results of all procedures are not provided Specific answers to original research questions are not provided or the explanation of whether original hypothesis was supported by results, as appropriate is not included Comprehensive analysis of data is not included in sufficient detail Tables and/or figures are not clearly presented, not correctly labeled, and/or contain inappropriate data Final product(s) of action research are not included as an Appendix | <ul style="list-style-type: none"> Results/findings clearly and concisely stated in narrative form Results/finding descriptions organized by research question Detailed results of all procedures provided Specific answers to original research questions provided or explanation of whether original hypothesis was supported by results, as appropriate Comprehensive analysis of data included Tables and/or figures are clearly presented, correctly labeled, and contain appropriate data Real data (statistics for quantitative study or quotes for qualitative study) are provided for support Final product(s) of action research included as an appendix | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Thorough description of relevant research results per research question upon which to build an explanation of the subsequent sections AND Thorough evaluation and interpretation of the results as they relate to the original hypothesis or problem, from which, appropriate conclusions can be drawn |
| CHAPTER 5 | Implications, Recommendations, and Conclusions | <ul style="list-style-type: none"> Recommendations do not logically flow from the results Recommendations are not supported by the data collected Recommendations are not provided for the organization and for future readers Commentary on the “importance” of findings and the impact on the organization and community (APA 2020, p. 91) is absent or incomplete Recommendations for changing original assumptions or methods that can/should be made for future study are not included or sufficiently addressed | <ul style="list-style-type: none"> Recommendations/conclusions logically flowed from the results Recommendations/conclusions were supported by the data collected Recommendations provided for the organization and for future readers “Reasoned and justifiable commentary of the importance” of findings and the impact on the organization and community (APA 2020, p. 91) are provided Recommendations for future research are provided Limitations experienced in the application or generalizability of the study are addressed | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Thorough discussion of the generalizability/external validity of the study AND Thorough discussion of the shortcomings, limitations, or barriers within your study AND Thorough “reasoned and justifiable commentary on the importance of your findings,” including the core contributions of the study |

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| Chapter | Criteria Category | Unsatisfactory | Proficient | Distinguished |
|---------------|--|--|---|---|
| | | 2-3 Points | 4 Points | 5 Points |
| GLOBAL | Overall Scholarship and Professionalism | <ul style="list-style-type: none"> Theories, principles, and procedures are not presented and used properly Information and data are not accurate and current There are errors in grammar, punctuation, spelling, sentence structure, and typing/editing style Reference lists and in-text references are not documented sufficiently APA Style guidelines, 7th edition (2020) are not correctly implemented Title does not reflect the nature of the study; correct NFA title page format is not followed Table of contents does not include all major headings; a list of tables provided if more than one is used; and/or appendices are not listed and defined Certification statement is not signed and included | <ul style="list-style-type: none"> Theories, principles, and procedures were presented and used properly Information and data are accurate and current Correct grammar, punctuation, spelling, sentence structure, and typing/editing style (with fewer than 4 minor errors) Reference lists and in-text references are documented APA Style guidelines, 7th edition (2020) are primarily correctly implemented Title reflects the nature of the study; correct NFA title page format followed Table of contents included all major headings; a list of tables provided if more than one is used; and appendices were listed and defined Certification statement signed and included | <ul style="list-style-type: none"> All criteria from the Proficient category are met and exemplary AND Theories, principles, and procedures were extensive and convincing AND No errors in punctuation, spelling, and/or capitalization. No word choice errors. Correct tense used throughout AND All citations and references were in APA format |

Grading:

36–40 = A, 31–35 = B, 28–30 = C, 24–27 = D, 0–23 = F