



DEPARTMENT OF FINANCIAL SERVICES

*Division of State Fire Marshal
Bureau of Fire Standards & Training*

**Quantitative Analysis of the Fire Service
BFST8984**

Title: Master Syllabus

Date: 5/20/16

Course Title	Quantitative Analysis of the Fire Service
Course Number	BFST8984
Prerequisite(s)	Fire Officer II
Revision Date	May 20,2016
College Credit Recommendation	This course has 45 contact hours and is recommended for 3 College Credits
Continuing Education Units (CEU's)	None
Class Days/Time	Monday-Friday 08:00-17:00
Executive Development Program Supervisor	Patrick Giacobbe patrick.giacobbe@myfloridacfo.com
Program Manager	Mary-Ellen Harper Mary-Ellen.Harper@myfloridacfo.com
Instructor Qualifications	69A-37.059(4), F.A.C 3. Instructor Qualifications. An instructor providing training under this paragraph (d) must be qualified by the Bureau of Fire Standards and Training within the Division. Qualified instructors are: a. Instructors with requisite faculty credentials for the academic institution that is registered in the Florida Department of Education Statewide Course Numbering System to teach the course; or b. Instructors with requisite faculty credentials as determined by the United State Fire Administration – National Fire Academy; or c. Instructors with requisite faculty credentials as determined by the respective regionally accredited or nationally accredited university or college; or d. Instructors who hold an active Single Course Exemption Certification issued by the Division as outlined in subsection 69A-37.059(4), F.A.C.; or e. Instructors who hold an active Fire Officer IV Certification issued by the Division after November 18, 2013, and an active Instructor III Certification issued by the Division. f. Instructors who hold an active Fire Code Administrator Certification issued by the Division and an active Instructor III Certification issued by

	the Division may teach the courses “Community Risk Reduction” and “Personnel Management for the Fire and Emergency Services”.
<i>Class Location</i>	FSFC
<i>Course Description</i>	<ul style="list-style-type: none"> • : Introduction to Quantitative Analysis, Application of Fire Service Data, Introduction to Excel/PowerPoint and applications for graph and spreadsheet use, marketing strategies and application, budget introduction and statistical support. Project interpretation and data comparison, Presentation of completed data sets and information. Application of all Fire Officer programs and demonstrate outcomes.
<i>Student Learning Outcomes</i>	<ul style="list-style-type: none"> • To give the Fire Officer the ample tools to acquire statistical data, compile, apply and formulate the vision of the information and strategy for direction within the fire service. • To share viewpoints and strategy, create a network of support and assistance for future endeavors. • To apply Logic and analytical thought to problem solving applications • Create, and organize quantitative datasets, apply logic analysis for promotion of the fire service with in professional presentations.
<i>Required and Optional Textbook</i>	<ul style="list-style-type: none"> • National Fire Academy - Fire Data Analysis Handbook • Fire Service Performance Measures- Jennifer D Flynn (Nov 2009 PDF) National Fire Protection Association Fire Analysis and Research Division • Digital textbook - Statistical Analysis Handbook - (c) 2015 Dr M J de Smith (supplemental)
<i>Required Materials</i>	Textbook, Pen, Pencil, Paper, Thumb Drive Computer Access
<i>Method of Instruction</i>	Classroom Lecture, Practical Evaluations, in class work sessions, Presentations and review of such.
<i>Grading</i>	Passing 70% Class participation and active discussion 20 pts Homework 10 pts In-session assignments 20 pts

	<p>Academic written paper 25 pts Final presentation 25% of final grade All assignments will be submitted digital, (hard copy in Class work) to receive full credit for course completion.</p>
<i>Certification(s)</i>	<p>1 of 4 required courses for Florida Fire Officer IV Qualification:</p> <p>RN9878 COMMUNITY RISK REDUCTION FOR THE FIRE AND EMERGENCY SERVICES</p> <p>RN9881 PERSONNEL MANAGEMENT FOR THE FIRE SERVICE</p> <p>RN9884 QUANTITATIVE ANALYSIS</p> <p>RN9883 STRATEGIC PLANNING (EXECUTIVE PLANNING R0506)</p>
<i>Attendance Policy</i>	<p>You are required to attend all sessions of the course and complete all pre-course assignments. Failure to appear in class for a scheduled activity will be considered an absence unless you make arrangements with the instructor for a make-up session. Failure to make up missed sessions prior to the next session will result in an absence. Students are allowed to miss 10% of the class and still receive credit.</p>
<i>Academic Integrity</i>	<p>Academic integrity is crucial to the learning community and indicates respect for the college, the instructor, the course, your classmates and yourself. Any violation of this trust, including but not limited to cheating, plagiarism, collusion, or using or having any content of an un-administered test, will result in immediate dismissal from the course. Under Florida Statute 633, any student dismissed for academic dishonesty can be refused acceptance for any course administered by FSFC.</p> <p>Training Provider Message The course must be recognized by the Fire and Emergency Services Higher Education program or the course is determined by the Division to be equivalent to the Statewide Course Numbering System or Fire and Emergency Services Higher Education course.</p> <p>Instructor Message An instructor providing training must be qualified by the Bureau of Fire Standards and Training or instructors with requisite faculty credentials for the academic institution that is registered in the Florida Department of Education Statewide Course Numbering System to teach the course or instructors with requisite faculty credentials as determined by the United States Fire Administration-National Fire Academy or instructors with requisite faculty credentials as determined by the respective regionally accredited or nationally accredited university or</p>

<p>Pre-Certification Message</p>	<p>college or instructors who hold an active Single Course Exemption Certification issued by the Division.</p> <p>There are two methods available for a qualified applicant to obtain Fire Officer IV Certification. Individuals should evaluate their eligibility and utilize one of the following options as set forth in paragraph 69A-39.065(2) (d), Florida Administrative Code: Option A-Direct Program Delivery. The first option is designed for persons who have at least five years of full-time equivalent experience as a Florida certified Fire Officer. This method is the traditional model to achieve Fire Officer IV Certification. To qualify for certification as a Fire Officer IV, using the Direct Program Delivery, the applicant shall: Possess an active Firefighter Certificate of Compliance issued by the Division or have met the curriculum requirements of Firefighter Part I as defined in 69A-37.055(1) F.A.C. Possess an active Instructor I Certificate of Competency issued by the Division. Possess an active Fire Officer III Certificate of Competency issued by the Division. Meet the job performance requirements of NFPA 1021-Fire Officer IV (2009). Complete the Fire Officer IV Curriculum. Complete the National Fallen Firefighters Foundation course titled "Courage to Be Safe" or a course determined by the Division to be equivalent. Option B-Portfolio Program. The second option is designed for persons who have at least five years of full-time equivalent experience as a Florida certified Fire Officer. This method is intended to reduce the redundancy in courses taken by crediting the applicant's educational experience to the objectives required by the NFPA 1021 Fire Officer IV standard and the Fire Officer IV curriculum as evidenced by documentation in the Fire Officer IV Portfolio. To qualify for certification using the Portfolio Program, the applicant shall: Possess an active Firefighter Certificate of Compliance issued by the Division or have met the curriculum requirements for Firefighter Part I as defined in 69A-37.055(1) F.A.C. Possess an active Instructor I Certificate of Competency issued by the Division. Possess an active Fire Officer III Certificate of Competency issued by the division. Meet the program prerequisites, the objectives required by the NFPA 1021 Fire Officer IV standard and the Fire Officer IV curriculum as evidenced in the Fire Officer IV</p>
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	Portfolio.
<i>Students with Disabilities</i>	Any student who has a permanent or temporary disability that may require a reasonable accommodation to participate in the course must present documentation of the disability and requested accommodation no later than the beginning of the course.
<i>Emergency Evacuation Policy</i>	Occupants of buildings on the Florida State Fire College campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation. <ul style="list-style-type: none"> • Familiarize yourself with all exit doors of the classroom and the building. • Remember that the nearest exit door may not be the one you used when you entered the building. • If you require assistance to evacuate, inform the instructor on the first day of class. • In the event of an evacuation, follow the guidance of the instructor. • Do not re-enter a building unless you are given instructions by Florida State Fire College personnel to do so.
<i>Requesting Emergency Care</i>	Any request for emergency care should be initiated by calling “911” from any phone on campus of the Florida State Fire College. Phones are located in each classroom. Additionally, in the event of any emergency, immediately contact an instructor or staff member.
<i>Critical Event Procedures</i>	<p>Severe Weather – there is a lightning detection system on campus which has an audible 15 second blast of an air horn. If you are outside, please follow your instructor or move to the closest permanent building. Once the threat is over, there will be three 5 second blasts of the signal.</p> <p>Security – During the daytime, security is handled by full time faculty and staff. There are security guards on duty in the evenings and weekends. Please comply with the requests made of security officers. Failure to do so can result in removal from campus.</p> <p>Student Badges – You will be issued a badge to be worn anytime you are on campus.</p>
<i>Enabling Objectives</i>	<ul style="list-style-type: none"> • Application and demonstration of all encompassing programs of the Fire Officer model. • Application of Analytical approaches and thinking • Leadership Skill sets • Identification of community risk and safety of personnel and citizens • Application of Strategically planning and implementation • Budget preparation

	<ul style="list-style-type: none"> • Basic marketing of the Fire Service • Personnel Management and Ethical decision making
<p><i>Practical Applications</i></p>	<p>NFPA 1021 (2014) Fire Officer IV</p> <p>7.1* General. For qualification at Fire Officer Level IV, the Fire Officer III shall meet the job performance requirements defined in Sections 7.2 through 7.7 of this standard.</p> <p>7.2 Human Resource Management. This duty involves administrating job performance requirements and evaluating and improving the department, according to the following job performance requirements.</p> <p>7.2.1 Appraise the department’s human resource demographics, given appropriate community demographic data, so that the recruitment, selection, and placement of human resources is effective and consistent with law and current best practices.</p> <p>(A) Requisite Knowledge. Policies and procedures; local, state/provincial, and federal regulations; community demographics; community issues; and formal and informal community leaders.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, to relate interpersonally, to delegate authority, to analyze issues, and to solve problems.</p> <p>7.2.2 Initiate the development of a program, given current member/management relations, so that a positive and participative member/management program exists.</p> <p>(A) Requisite Knowledge. Policies and procedures, contractual agreements, and local, state/provincial, and federal regulations.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, to negotiate, to analyze current status of member relations, to relate interpersonally, to analyze the current member/management relations, and to conduct program implementation.</p> <p>7.2.3 Establish and evaluate a list of education and in-service training goals, given a summary of the job requirements for all positions within the department, so that all members can achieve and maintain required proficiencies.</p> <p>(A) Requisite Knowledge. Training resources, community needs, internal and external customers, policies and procedures, contractual agreements, and local, state/provincial, and federal regulations.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing and to organize data and resources.</p>

	<p>7.2.4 Appraise a member-assistance program, given data, so that the program, when used, produces stated program outcomes.</p> <p>(A) Requisite Knowledge. Policies and procedures, available assistance programs, contractual agreements, and local, state/provincial, and federal regulations.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, to relate interpersonally to members, and to analyze needs and results.</p> <p>7.2.5 Evaluate an incentive program, given data, so that a determination is made regarding achievement of the desired results.</p> <p>(A) Requisite Knowledge. Policies and procedures, available incentive programs, contractual agreements, and local, state/provincial, and federal regulations.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, to relate interpersonally, and to analyze programs.</p> <p>7.3 Community and Government Relations. This duty involves projecting a positive image of the fire department to the community, according to the following job performance requirements.</p> <p>7.3.1 Attend, participate in, and assume a leadership role in community functions, in given community needs, so that the image of the organization is enhanced.</p> <p>(A) Requisite Knowledge. Community demographics, community and civic issues, effective customer service methods, and formal and informal community leaders.</p> <p>(B) Requisite Skills. Familiarity with public relations and the ability to communicate orally.</p> <p>7.4 Administration. This duty involves long-range planning and fiscal projections, according to the following job performance requirements.</p> <p>7.4.1 Develop a comprehensive long-range plan, given community requirements, current department status, and resources, so that the projected needs of the community are met.</p> <p>(A) Requisite Knowledge. Policies and procedures, physical and geographic characteristics, demographics, community plan, staffing requirements, response time benchmarks, contractual agreements, and local, state/provincial, and federal regulations.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, make public presentations, interpret fiscal analysis, comply with public policy processes, forecast resources, and analyze current department status requirements.</p> <p>7.4.2 Evaluate and project training requirements, facilities,</p>
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	<p>and buildings needs, given data that reflect community needs and resources, so that departmental training goals are met.</p> <p>(A) Requisite Knowledge. Policies and procedures, physical and geographic characteristics, building and fire codes, departmental plan, staffing requirements, training standards, needs assessment, contractual agreements, and local, state/provincial, and federal regulations.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, make public presentations, interpret fiscal analysis, forecast needs, and analyze data.</p> <p>7.4.3 Complete a written comprehensive risk, hazard, and value analysis of the community, given the appropriate features of the service area of the organization, so that an accurate evaluation is made for service delivery decision-making.</p> <p>(A) Requisite Knowledge. Risk, hazard, and value analysis methods and process, as well as community development features, community demographics, and assessed valuation of properties in the community.</p> <p>(B) Requisite Skills. The ability to conduct a needs assessment plan, to effectively communicate in writing, and to problem solve.</p> <p>7.4.4 Develop a plan for a capital improvement project or program, given an unmet need in the community, so that there is adequate information to educate citizens about the needs of the department.</p> <p>(A) Requisite Knowledge. Strategic planning, capital improvement planning and budgeting, and facility planning.</p> <p>(B) Requisite Skills. The ability to conduct a needs assessment plan, to effectively communicate in writing, and to problem solve.</p> <p>7.5 Inspection and Investigation.</p> <p>7.5.1 Definition of Duty. No additional job performance requirements at this level.</p> <p>7.6 Emergency Services Delivery. This duty involves developing plans for major disasters, according to the following job performance requirements.</p> <p>7.6.1 Develop a comprehensive disaster plan that integrates other agencies' resources, given risk, vulnerability, and capability data, so that the organization can mitigate the impact to the community.</p> <p>(A) Requisite Knowledge. Major incident policies and procedures, physical and geographic characteristics, demographics, target hazards, incident management systems, communications</p>
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	<p>systems, intelligence data, contractual and mutual-aid agreements, and local, state/provincial, and federal regulations and resources.</p> <p>(B) Requisite Skills. The ability to analyze data, to communicate orally and in writing, to develop a disaster plan, and to coordinate interagency activity.</p> <p>7.6.2 Develop a comprehensive plan, given data (including agency data), so that the agency operates at a civil disturbance, integrates with other agencies' actions, and provides for the safety and protection of members.</p> <p>(A) Requisite Knowledge. Major incident policies and procedures, physical and geographic characteristics, demographics, incident management systems, communications systems, contractual and mutual-aid agreements, and local, state/provincial, and federal regulations and resources.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing and to organize a plan; familiarity with interagency planning and coordination.</p> <p>7.7 Health and Safety. This duty involves administering a comprehensive risk management program, according to the following job performance requirements.</p> <p>7.7.1 Maintain, develop, and provide leadership for a risk management program, given specific data, so that injuries and property damage accidents are reduced.</p> <p>(A) Requisite Knowledge. Risk management concepts, retirement qualifications, occupational hazards analysis, and disability procedures, regulations, and laws.</p> <p>(B) Requisite Skills. The ability to communicate orally and in writing, to analyze data, and to use evaluative methods</p>
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Plan of Instruction

Course Topics and Objectives

- Basic Statistical Analysis, Analytical Data collection and types, Basic Excel use and graph design, Analytical Approach & Logic, Management Theory Analysis, Ethics Basic and Budgeting Analysis, Marketing your information, Data presentation:

Course Outcomes

- To give the Fire Officer the ample tools to acquire statistical data, compile, apply and formulate the vision of the information and strategy for direction within the fire service.
- To share viewpoints and strategy, create a network of support and assistance for future endeavors.
- To apply Logic and analytical thought to problem solving applications
- Create, and organize quantitative datasets, apply logic analysis for promotion of the fire service with in professional presentations.

Assignments/Projects/Presentations

- 10 In class assignments, to be completed in group format.
- **Research Paper:** Academically quantify the existence of your agency, express the value of your department. 3-5 page written assignment, APA format, 12 pt Times New Roman, Double spaced. Submitted electronically prior to final class meeting.
- Final Presentation- Create a 5-10 minuet PowerPoint budget presentation for Little Town Fire Department.
- Use quantitative analysis
- Budget theory and logic, show cost/expense & value
- Graphics
- Marketing strategy
- BE prepared to answer questions from council
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Research paper format

When writing research papers, the format you use will drive and direct your work product. The format will allow your academic work to be displayed, properly and accurately.

Abstract
Introduction/ Problem Statement
Review of literature
Research Methodology
Findings
Recommendations
Conclusion
References

Grading Embedded Rubric for In Cass Presentation

	Excellent	Very Good	Good	Needs work	Inadequate
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THE BUREAU OF FIRE STANDARDS & TRAINING
AT
The Florida State Fire College
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Criteria	(5)	(4)	(3)	(2)	(1)
Evaluate the practical elements of comprehensive Fire Department Management systems and application	Oral Presentation demonstrates an outstanding comprehension of comprehensive Fire Department Management systems and application.	Oral Presentation demonstrates very good comprehension of comprehensive Fire Department Management systems and application	Oral Presentation demonstrates good comprehension of comprehensive Fire Department Management systems and application	Oral Presentation demonstrates a comprehension of comprehensive Fire Department Management systems and application	Oral Presentation demonstrates little comprehension of comprehensive Fire Department Management systems and application
Evaluate definition of statutes and ordinances for department creation	Oral Presentation reflects an outstanding understanding of definition of statutes and ordinances for department creation	Oral Presentation reflects a very good definition of statutes and ordinances for department creation.	Oral Presentation reflects a good understanding of definition of statutes and ordinances for department creation.	Oral Presentation reflects an understanding of definition of statutes and ordinances for department creation	Oral Presentation reflects very little understanding of definition of statutes and ordinances for department creation.
Analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Oral Presentation demonstrated outstanding ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Oral Presentation demonstrated very good ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Oral Presentation demonstrated good ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Oral Presentation demonstrated some ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Oral Presentation demonstrated very little ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems
Demonstrate the skills necessary to evaluate decisions regarding change management in Fire Rescue abilities	Oral Presentation reflects an outstanding application of the skills necessary to evaluate decisions regarding change management in Fire Rescue	Oral Presentation reflects a very good application of the skills necessary to evaluate decisions regarding to evaluate	Oral Presentation reflects a good application of the skills necessary to evaluate decisions regarding change management in Fire Rescue	Oral Presentation reflects limited application of the skills necessary to evaluate decisions to regarding change management in Fire Rescue	Oral Presentation reflects very little ability to apply the skills necessary to evaluate decisions to regarding change management in Fire Rescue

	abilities	decisions regarding change management in Fire Rescue abilities	abilities	abilities	abilities
Apply appropriate terminology, concepts, principles and analytic techniques used in change Management.	Oral Presentation demonstrates outstanding ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.	Oral Presentation demonstrates very good ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning	Oral Presentation demonstrates good ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning	Oral Presentation demonstrates limited ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.	Oral Presentation demonstrates little ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning

Grading Embedded Rubric for Term Research Paper

Criteria	Excellent (5)	Very Good (4)	Good (3)	Needs work (2)	Inadequate (1)
Evaluate the practical elements of comprehensive Fire Department Management systems and application	Research paper demonstrates an outstanding comprehension of comprehensive Fire Department Management systems and application.	Research paper demonstrates very good comprehension of comprehensive Fire Department Management systems and application	Research paper demonstrates good comprehension of comprehensive Fire Department Management systems and application	Research paper demonstrates a comprehension of comprehensive Fire Department Management systems and application	Research paper demonstrates little comprehension of comprehensive Fire Department Management systems and application
Evaluate definition of statutes and ordinances for department creation	Research paper reflects an outstanding understanding of definition of statutes and ordinances for department creation	Research paper reflects a very good definition of statutes and ordinances for department creation.	Research paper reflects a good understanding of definition of statutes and ordinances for department creation.	Research paper reflects an understanding of definition of statutes and ordinances for department creation	Research paper reflects very little understanding of definition of statutes and ordinances for department creation.
Analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Research paper demonstrated outstanding ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Research paper demonstrated very good ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Research paper demonstrated good ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Research paper demonstrated some ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems	Research paper demonstrated very little ability to analyze problems requiring strategic planning toward reasonable methods for solving organizational problems
Demonstrate the skills necessary to evaluate decisions regarding change management in Fire Rescue abilities	Research paper reflects an outstanding application of the skills necessary to evaluate decisions regarding change management in Fire Rescue abilities	Research paper reflects a very good application of the skills necessary to evaluate decisions regarding change management in Fire Rescue abilities	Research paper reflects a good application of the skills necessary to evaluate decisions regarding change management in Fire Rescue abilities	Research paper reflects limited application of the skills necessary to evaluate decisions regarding change management in Fire Rescue	Research paper reflects very little ability to apply the skills necessary to evaluate decisions regarding change management in Fire Rescue abilities

		regarding change management in Fire Rescue abilities		abilities	
Apply appropriate terminology, concepts, principles and analytic techniques used in change Management.	Research paper demonstrates outstanding ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.	Research paper demonstrates very good ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.	Research paper demonstrates good ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.	Research paper demonstrates limited ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.	Research paper demonstrates little ability to apply appropriate terminology, concepts, principles and analytic techniques used in change management and strategic planning.
Writing style and English grammar and usage, and application of APA style	The research paper is exceptionally well written exhibiting flawless English grammar and usage plus excellent application of APA style	The research paper is very well written exhibiting excellent English grammar and usage plus excellent application of APA style	The research paper is well written exhibiting acceptable English grammar and usage and acceptable application of APA style	The research paper demonstrates acceptable English grammar and usage and acceptable application of APA style	The research paper does not demonstrate acceptable English grammar and usage nor acceptable application of APA style