

FIRE SCIENCE

Professional Studies Building, Room 451
201 200-3407

The Fire Science Department (<https://www.njcu.edu/academics/schools-colleges/college-professional-studies/departments/fire-science/>) is the only university-based fire science program in New Jersey and one of only a few in the nation. Graduates earn a Bachelor of Science degree, an increasingly valuable asset for individuals seeking advancement to officer and chief positions in fire service. Students enjoy the opportunity to study with and learn from firefighter/scholars, who are all active and newly retired fire officers and firefighters. Nationally and regionally renowned experts in the various firefighting specialties serve as instructors and guest lecturers throughout the semester. The Department was created by fire-educators to advance the education of fire personnel and the profession.

Walter Nugent, Chairperson

Professor of Fire Science

New Jersey City University, B.S. in Fire Science; Kean University, M.P.A.

Various discipline-specific concentrations that will prepare students for multiple fields of employment or areas of additional undergraduate/graduate study are noted below. Course requirements for each concentration are explained in detail. The requirements for graduation, in addition to completion of the major area, are listed on "Undergraduate Degree Requirements (<https://catalog.njcu.edu/undergraduate/undergraduate-degree-requirements/>)."

- Fire Science, B.S. (<https://catalog.njcu.edu/undergraduate/professional-studies/fire-science/fire-science-bs/>)
- Fire Science, Minor (<https://catalog.njcu.edu/undergraduate/professional-studies/fire-science/fire-science-minor/>)

Fire Science (FS)

FS 1XX Fire Science Transfer Credit (0 Credits)

FS 2XX Fire Science Transfer Credit (0 Credits)

FS 137 Emergency Personnel Fitness (3 Credits)

This course introduces the students to the physical, cognitive and emotional demands of academy training. The students will be prepared to pass the physical training requirements of various government, state, and city agencies. Lectures and video presentations will be provided to introduce the students to several health and fitness topics, including the principles of exercise, coronary heart disease risk factors, physical readiness, nutrition, and lifetime health for emergency personnel.

FS 140 Introduction to Fire Science (3 Credits)

This course provides an introduction to the fire protection field. The behavior of fire and the strategy and tactics used in its prevention, extinguishment and investigation are examined. The value of public and private fire protection services is emphasized.

FS 150 Introduction to Engine Company Operations (3 Credits)

This course is an introductory course designed to examine the fire protection and fire suppression field operations and responsibilities of engine company personnel. The student will be provided with an understanding of fire behavior, and the strategies, tactics, tools and equipment used by engine company personnel.

FS 151 Introduction to Ladder Company Operations (3 Credits)

This course is designed to provide students with insight into the comprehensive scope of actions and responsibilities of ladder company officers and firefighters. This course will provide students with an understanding of the strategies, tactics, special equipment, and tools uniquely employed at fire and emergency operations by ladder company personnel.

FS 241 Fire Prevention & Related Codes (3 Credits)

A study of applicable fire prevention codes and related codes with emphasis on life safety, fire resistance and fire protection is the focus of this course. The various existing fire codes are surveyed. Reference is made to National Fire Protection Association Standards.

FS 243 Fire Detection & Suppression Systems (3 Credits)

This course reviews portable fire extinguishers, foam systems, specialized extinguishing systems, explosion suppression, fire detection systems, standpipe and sprinkler systems. Legal considerations, economic factors, line safety considerations, maintenance and testing and recent developments in fire suppression are surveyed.

FS 261 Hydraulic Technology (3 Credits)

In this course, students develop an understanding of the properties, principles and concepts of the hydraulic use of water. Pressures, flow and pumps are examined for their practical application by fire services.

FS 262 General Fire Insurance (3 Credits)

This course presents all aspects of fire insurance, with emphasis on function, type of carriers, provisions, and establishments of rating systems. Additionally, it examines the handling of risk and settlement of claims.

FS 334 Fire Investigation & Arson (3 Credits)

Arson and incendiary, arson laws and types of incendiary fires are topics that are introduced in this course. Methods of determining fire causes and recognizing and preserving evidence are considered.

FS 336 Firefighting Tactics (3 Credits)

This course is designed to teach students how to develop safe and successful firefighting strategies with the use of appropriate firefighting tactics. It is intended that students will complete the course in logical series: learning first the full spectrum of essential firefighting tactics and then how to use them to develop more complex and successful firefighting strategies.

Pre-Requisite: FS 140

FS 342 Building Construction (3 Credits)

Building construction from the viewpoints of fire safety and stability are studied in this course. Historic and current building construction types are reviewed as are the strengths and weaknesses of building materials. Case studies of catastrophic fire losses due to faulty construction are presented. Economic considerations, as well as current and emerging problems in this area are examined.

Pre-Requisite: FS 140

FS 344 Hazardous Materials (3 Credits)

This course examines the hazardous properties of flammable liquids, gases and combustible solids and methods to control these hazards and extinguish fires involving these materials. Principals are related to the common hazardous materials found in industry and how they can be controlled.

FS 365 Fire Officer Company Management (3 Credits)

This course provides a comprehensive presentation of management practices and principles essential to the successful completion of day-to-day firefighting unit operations by a fire officer.

Pre-Requisite(s): FS 140

FS 431 Transportation & Industrial Fire Hazards (3 Credits)

This course is designed to provide an awareness of the hazards presented by various industries and the various modes of transportation. Fire prevention is stressed. Automatic suppression is reviewed. Safety precautions, emergency procedures and public protection are studied.

FS 435 Problems in Fire Engineering (3 Credits)

This seminar examines the various dimensions of the fire problem; economic, environmental, social, fire protection factors and prevention factors; and engineering aspects. Emphasis is placed on fire research and development. Student development of research projects in selected areas is encouraged.

Pre-Requisite: FS 140

FS 436 Firefighting Strategies (3 Credits)

This course is designed to provide students with an understanding of how to use various firefighting tactics to develop successful firefighting strategies. This case scenario based course will examine how to safely and effectively extinguish structural fires in buildings categorized within each of the five different types of building construction.

Pre-requisite(s): FS 140

FS 464 Fire Department Organization & Administration (3 Credits)

Students review the basic concepts of the management and organization of fire departments in this course. The structure and types of fire department organization, the functions of a manager, as well as the leadership that is necessary to maintain the high degree of professionalism associated with good business practice are examined.

Pre-Requisite(s): FS 140