

# Fire Science

## Bachelor of Science

*Emphasis in:*

### Engineering Technology

### Generalist

### Hazardous Materials

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## Career Choices:

Fire Fighter

Fire Safety Officer

Fire Protection Systems Designer

Hazardous Materials Specialist

Fire Officer/Chief Officer

Emergency Planner

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## Student Profile:

*Are you...*

interested in the safety of others?

physically fit?

## Program Description:

This degree is designed to provide both the necessary certifications to enter the fire service and also the general education and background necessary for advancement to higher rank and supervisory level.

There are three tracks a student may pursue to obtain the degree.

**Fire Science Generalist Emphasis**

— This program is designed to prepare graduates for careers in the area of fire protection, education, fire equipment service/supply and emergency planning. Students may select a minor of their choice. For those who are going to pursue work

in a career fire department, a minor in paramedic technology is strongly recommended. Others may select a minor which is more applicable to their own career aspirations such as management, computer technology, public administration, environmental science or other area.

**Fire Science Hazardous Materials**

**Emphasis** — This program combines a major in fire science with a minor in chemistry. A graduate with a degree in this emphasis may work in the area of environmental protection and quality, water quality, hazardous waste disposal, or hazardous chemical mitigation/clean-up. Positions are available in the private and public sectors. In the case of fire service, graduates may work as a member or supervisor of a hazardous materials response team dealing with an accident or release of dangerous products. Positions in emergency planning are also available. With the continued emphasis on homeland security and the threats of a biological or chemical attack upon a civilian population, readiness and response are vital to saving lives.

**Fire Science Engineering Emphasis**

— The combination of fire science and engineering courses provides a graduate with the knowledge necessary to evaluate building plans and designs from the standpoint of fire behavior and safety. The design of fire protective systems and alarms is important to the protection of life and property. There are also positions available in firms and governmental organizations which conduct materials testing and fire behavior research. Graduates may also wish to continue their education to obtain a graduate degree. Professional qualifications, such as that of Fire Protection Engineer, or other state/province designations, may also be obtained.

## Career Descriptions:

**Firefighter** — Works for fire departments at the local, state and federal levels; works for the armed forces and the U.S. Department of the Interior; suppresses structural and other types of fires using a variety of methods; acts as emergency medical technician or paramedic.

**Fire Safety Officer** — Works in industry and for the government as fire inspector and safety officer; conducts safety and fire surveys; plans for fire and other disasters.

**Fire Protection Systems Designer** — Designs fire protection systems for industry; provides consulting services for industry and other organizations.

**Hazardous Materials Specialist**

— Works in industry as a manager of hazardous materials; safety officer; consultant for industry in the area of hazardous materials.

**Fire Officer/Chief Officer** — Leads and manages the fire department. Provides command at the scene of emergencies. Prepares budgets; sets and administers department policies; supervises training; ensures compliance with local, state and federal law; conducts fire prevention/code enforcement efforts; and manages day-to-day operations. The chief also serves as an advisor to local government and keeps the community prepared for emergency response.

**Emergency Planner** — Works in office of emergency service and planning at the local, state and federal levels. Responsibilities include preparation of plans for disaster response; coordination of emergency response with other agencies; and preparation of emergency plans.

## Fire Science Engineering Technology Emphasis Bachelor of Science

### General Education Requirements (32 credits)

### Major Requirements (49 credits)

CJUS341	Fire Cause and Arson Investigation	3
CJUS345	Statistics and Design for Public Safety	4
FIRE101	Introduction to Fire Science	3
FIRE111	Hazardous Materials	3
FIRE197	Physical Fitness for Public Safety	1
FIRE201	Fire Protection Construction Concepts	3
FIRE204	Fire Protection Hydraulics and Pumps	3
FIRE206	Fire Protection Systems Equipment and Industrial Fire Protection	3
FIRE211	Tactics & Strategy	3
FIRE220	Fire Science Certification	4
FIRE301	Code Enforcement Inspection and Fire Prevention	3
FIRE312	Hazardous Materials Management	4
FIRE315	Company Level Supervision and Management	3
FIRE401	Senior Seminar	3
FIRE402	Fire Service and the Law	3
FIRE403	Fire Science Internship	3

### Support Courses (35 credits)

CSCI101	Intro. to Microcomputer Applications	3
MATH112	Calculus for Business/Life Science	4
MATH140	Pre-Calculus	5
EGME337	Thermodynamics	4
EGME338	Fluid Mechanics	2
EGMT225	Statics & Strength of Materials I	4
EGMT332	Thermodynamics & Heat Transfer for Technologists	4
EGNR140	Linear Algebra and Numerical Methods for Engineers	2
EGNR245	Calculus Applications for Technology	3
PHYS221	Elements of Physics I	4

### Electives (9 credits)

**B.S. Degree Requirements (8 credits)**  
Social Science, Natural Science or Math not used in General Education

**Total Credits: 124**

Students entering LSSU's School of Criminal Justice and Fire Science who wish to obtain a 4-year (baccalaureate) Fire Science Degree will enter into their regular degree program. Students will, however, be placed into Pre-Fire Science core courses that will introduce them to the basic concepts for the degree. Students will apply for admission to 300/400-level courses after completing the Pre-Fire Science Core (PFS).

### Pre-Fire Science Core (PFS) courses include the following:

COMM101 Fund. of Speech Communication  
ENGL110 First-Year Composition I  
ENGL111 First-Year Composition II  
MATH110 or higher  
One (1) Lab Science

All 100-level FIRE courses required in the emphasis excluding FIRE197.

Students will apply using an application form obtained from the School of Criminal Justice and Fire Science during the semester they will complete the above requirements.

## Fire Science Generalist Emphasis Bachelor of Science

### General Education Requirements (33 credits)

### Major Requirements (49 credits)

CJUS341	Fire Cause & Arson Investigation	3
CJUS345	Statistics and Design for Public Safety	4
FIRE101	Introduction to Fire Science	3
FIRE111	Hazardous Materials	3
FIRE197	Physical Fitness for Public Safety	1
FIRE201	Fire Protection Construction Concepts	3
FIRE204	Fire Protection Hydraulics & Pumps	3
FIRE206	Fire Protection Systems Equipment and Industrial Fire Protection	3
FIRE211	Tactics & Strategy	3
FIRE220	Fire Science Certification	4
FIRE301	Code Enforcement Inspection and Fire Prevention	3
FIRE312	Hazardous Materials Management	4
FIRE315	Company Level Supervision and Management	3
FIRE401	Senior Seminar	3
FIRE402	Fire Service and the Law	3
FIRE403	Fire Science Internship	3

### Support Courses (7-9 credits)

EGMT332	Thermodynamics & Heat Transfer for Technologists	4
MATH111	College Algebra	3
MATH140	Pre-Calculus	5

### Minor or Approved Concentration (20 credits)

Students may complete an approved minor or an approved concentration. The minor may be an approved minor other than Fire Science or you may develop an approved concentration in one or more disciplines with the approval of your academic advisor.

### Electives (7 credits)

### B.S. Degree Requirements (8 credits)

Social Science, Natural Science or Math not used in General Education

## Fire Science Hazardous Materials Emphasis Bachelor of Science

### General Education Requirements (25 credits)

### Major Requirements (46 credits)

CJUS345	Statistics and Design for Public Safety	4
FIRE101	Introduction to Fire Science	3
FIRE111	Hazardous Materials	3
FIRE197	Physical Fitness for Public Safety	1
FIRE201	Fire Protection Construction Concepts	3
FIRE204	Fire Protection Hydraulics & Pumps	3
FIRE206	Fire Protection Systems Equipment and Industrial Fire Protection	3
FIRE211	Tactics & Strategy	3
FIRE220	Fire Science Certification	4
FIRE301	Code Enforcement Inspection and Fire Prevention	3
FIRE312	Hazardous Materials Management	4
FIRE315	Company Level Supervision and Management	3
FIRE401	Senior Seminar	3
FIRE402	Fire Service and the Law	3
FIRE403	Fire Science Internship	3

### Support Courses (64 credits)

BIOL131	General Biology: Cells	4
BIOL132	General Biology: Organisms	4
BIOL230	Introduction to Soils	4
CHEM115	General Chemistry I	5
CHEM116	General Chemistry II	4
CHEM225	Organic Chemistry I	4
CHEM226	Organic Chemistry II	4
CHEM231	Quantitative Analysis	4
CHEM232	Instrumental Analysis	4
CHEM351	Introductory Biochemistry	4
EGMT332	Thermodynamics & Heat Transfer for Technologists	4
GEOG108	Physical Geography: Meteorology & Climatology	4
MATH111	College Algebra	3
MATH112	Calculus for Business & Life Sciences*	4
NSCI102	Introduction to Geology	4
NSCI103	Environmental Science	3
NSCI104	Environmental Science Lab	1

**Total Credits: 131**

\*or MATH151

### Bachelor of Science Degree:

At least eight (8) semester credits *in addition* to courses used for general education requirements from categories of social science, natural science or mathematics.

*These bachelor of science degree requirements can be used for majors or minors, but not general education.*