

INTRODUCTION

The world of intelligence and national security is cloaked in secrecy, and with good reason—without such caution and covert operating methods, the wellbeing of the entire country would be in jeopardy. Those employed in intelligence and national security may work behind the scenes, but their roles are vital to thwarting terror plots, preventing and investigating cyberattacks, and otherwise protecting the nation from those who would do it harm. The list of careers that are related to intelligence and national security is long, including everything from Actuaries to Emergency Management Directors and Telecommunications Technicians. Our goal with this edition is not to be all-encompassing, but rather to pull back the curtain and pinpoint key careers in this shadowy yet incredibly important field.

Being employed in intelligence and national security does not necessarily mean becoming a spy—although it certainly can. There are a vast number of career options that are either directly related to, or adjacent to, the sphere of intelligence and security, all working to support the core mission of protecting the nation’s interest at home and abroad.

Intelligence and national security work typically involves gathering and analyzing information about potential threats, keeping the country’s leaders informed, and developing forward-thinking technology that will protect the nation into the future. It also includes areas such as homeland security, and can involve such diverse career options as communications, human resources, linguistics, and logistics.

Finding the path that’s right for you means thinking about your own interests, skills, and talents. Important skills for working in intelligence and national security include analytical, communication, computer, critical-thinking, decision-making, interpersonal, listening, logical thinking, mathematics, physical stamina, problem-solving, reading, and writing skills, not to mention a passion for investigation, technology, and sense of duty to one’s country.

It’s also worth considering how much money you want to make. A position that requires a four-year degree will earn you more money than one requiring a two-year degree, or one requiring no post-secondary education at all. The profiles in this volume include education requirements and typical earnings. Remember, however, that how much money you make is not the entire story. Benefits, job security, where you work, and self-fulfillment are important factors as well.

The “Conversations With...” spread throughout this volume show the variety of career paths available involving intelligence and national security, how to achieve them, and what to expect when you get there. They are interviews with real individuals working in the field at real jobs.

The list of jobs contained in this volume is not exhaustive, and should be viewed as an entry point into a world with numerous branches and sub-disciplines, many of which can intersect in novel ways. The aim is to provide readers—especially students embarking on

their lifelong careers—with accurate and detailed examples of some of the many possibilities available in this field, which is instrumental in protecting our everyday way of life.

Here are details about how certain careers can relate to intelligence and national security:

Actuaries analyze the financial costs of risk and uncertainty. In the field of national security and intelligence, actuaries play a crucial role in analyzing financial risks and developing policies to help protect against potential threats and minimize costs associated with them. Their expertise in assessing risk and uncertainty could aid in decision making and strategic planning to safeguard national security and intelligence operations.

Cartographers and photogrammetrists collect, measure, and interpret geographic information in order to create and update maps and charts for regional planning, education, and other purposes. These professionals also play a crucial role in affairs of national security and intelligence as they provide accurate and detailed maps and imagery that can be used for military operations, border control, and disaster response. Their work can aid in identifying potential threats and planning strategic defense measures, making them integral to the safety and security of a nation.

Computer programmers write, modify, and test code and scripts that allow computer software and applications to function properly. They turn the designs created by software developers and engineers into instructions that a computer can follow. In addition, programmers run tests to ensure that newly created applications and software produce the expected results. If the products do not work correctly, programmers check the code or scripts for mistakes and modify them. This work can be exceedingly important, depending on the nature of the program being written, as the program will not function correctly without the correct coding, or may have vulnerabilities. In an intelligence and national security context, the work of computer programmers is of vital importance in terms of protecting sensitive material, protecting against harmful international cyberattacks, and even conducting espionage operations.

Emergency management directors prepare plans and procedures for responding to natural disasters and other emergencies. They also help lead the response during and after emergencies, often in coordination with public safety officials, elected officials, nonprofit organizations, and government agencies.

Human resources (HR) specialists recruit, screen, and interview job applicants and place newly hired workers in jobs. They also may handle compensation and benefits, training, and employee relations. HR specialists play a crucial role in national defense and intelligence by ensuring that only the most qualified and vetted individuals are hired for sensitive and high-security positions, therefore protecting the country from potential internal threats. This includes conducting thorough background checks and security clearance processes.

Electrical engineers design, develop, test, and supervise the manufacture of electrical equipment, such as electric motors, radar and navigation systems, communications systems, or power generation equipment. Electrical engineers also design the electrical systems of automobiles and aircraft. *Electronics engineers* design and develop electronic

equipment, including broadcast and communications systems, such as portable music players and Global Positioning System (GPS) devices. Many also work in areas closely related to computer hardware. Their expertise is of vital importance in the sphere of intelligence and national security, in order to design, maintain, and analyze advanced equipment and technology utilized in the protection of the nation.

Interpreters and translators convert information from one language into another language. Interpreters work in spoken or sign language; translators work in written language. This is crucial in national security and intelligence as it allows for effective communication and understanding of important information across different languages and cultures.

Logisticians analyze and coordinate an organization's supply chain—the system that moves a product from supplier to consumer. They manage the entire life cycle of a product, which includes how a product is acquired, allocated, and delivered. In matters of national security and intelligence, logisticians can play a critical role by ensuring the timely and efficient delivery of necessary resources and equipment to support military operations and intelligence gathering efforts.

Members of the U.S. military service maintain the U.S. national defense. Although some service members work in occupations specific to the military, such as fighter pilots or infantrymen, many work in occupations that also exist in the civilian workplace, such as nurses, doctors, and lawyers. Members serve in the Army, Navy, Air Force, Space Force, Marine Corps, or Coast Guard, or in the Reserve components of these branches, and in the Air National Guard and Army National Guard. (The Coast Guard, which is included in this profile, is part of the Department of Homeland Security.)

Operations research analysts use mathematics and logic to help organizations make informed decisions and solve problems. Their expertise can be invaluable for national defense and intelligence purposes, which rely on accurate data and strategic planning to stay ahead of potential threats and protect the safety of the public.

Photographers capture images of various objects, people, and events using a film or digital camera. Because their profession is based on choosing image composition and creating unique images, creativity is a trait common among all types of photographers regardless of their area of specialization. The role of photographers in affairs of national security and intelligence is crucial as they are able to document and capture important moments and evidence that could aid in investigations and provide valuable visual information to decision-makers.

Telecommunications technicians, also known as telecom technicians, install and maintain telecommunications infrastructure. They set up and fix different types of devices or equipment that carry communications signals, such as internet routers and fiber optic lines. In the context of national security and intelligence, telecommunication systems are vital for communication and coordination among military personnel, intelligence operatives, and government officials. Telecommunications technicians are responsible for setting up and maintaining secure networks, including encrypted communication systems, to ensure that sensitive information is protected from potential threats and adversaries.

Actuary

Snapshot

Career Cluster(s): Finance; Science, Technology, Engineering & Mathematics

Interests: Economics, Finance, Mathematics, Statistics

Earnings (Yearly Average): \$113,990

Employment & Outlook: Much Faster Than Average Growth Expected

OVERVIEW

Sphere of Work

Actuaries analyze the financial costs of risk and uncertainty. They use mathematics, statistics, and financial theory to assess the risk of potential events, and they help businesses and clients develop policies that minimize the cost of that risk. Actuaries' work is essential to the insurance industry.

In the field of national security and intelligence, actuaries play a crucial role in analyzing financial risks and developing policies to help protect against potential threats and minimize costs associated with them. Their expertise in assessing risk and uncertainty could aid in decision making and strategic planning to safeguard national security and intelligence operations.

Work Environment

Actuaries typically work on teams that often include managers and professionals in other fields, such as accounting, underwriting, and finance. Although ac-



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tuaries usually work in an office setting, those who work for consulting firms may need to travel to meet with clients.

Most actuaries work full time, and some work more than 40 hours per week.

Occupation Interest

An actuary is likely to be interested in using mathematical and statistical analysis to assess and mitigate financial risks for businesses and organizations. They may also be motivated by problem-solving and working with data to inform decision-making.

A Day in the Life—Duties and Responsibilities

Actuaries use database software to compile information. They use statistical and modeling software to forecast the probability of an event occurring, the potential costs of the event if it does occur, and whether the insurance company has enough money to pay future claims.

Actuaries typically work on teams that often include managers and workers from other fields, such as accounting, underwriting, and finance. For example, some actuaries work with accountants and financial analysts to set the price for security offerings or with data scientists to forecast demand for new products.

Duties and Responsibilities

- Compiling and analyzing statistical data and other information
- Estimating the probability and likely economic cost of an event such as death, sickness, an accident, or a natural disaster
- Designing and testing insurance policies, investments, and other business strategies to minimize risk and maximize profitability
- Calculating cash reserves needed, based on existing policies and liabilities, in case of payout or claims
- Producing charts, tables, and reports that explain calculations and proposals
- Explaining their findings and proposals to company executives, government officials, shareholders, and clients

Profile

Working Conditions: Inside

Physical Strength: N/A

Education Needs: Bachelor's Degree

Licensure/Certification: Usually Required

Opportunities for Experience: Internship; Trainee Work; Long-term On-the-Job Training

Interest Score: CIE

Most actuaries work for insurance companies, where they help design policies and determine the premiums that should be charged for each policy. They must ensure that the premiums are profitable yet competitive with other insurance companies.

Some actuaries work as consultants and provide advice to clients on a contract basis. Many consulting actuaries audit the work of internal actuaries at insurance companies or handle actuarial duties for insurance companies that are not large enough to keep their own actuaries on staff.

Cartographer/ Photogrammetrist

Snapshot

Career Cluster(s): Agriculture, Food & Natural Resources;
Architecture & Construction; Science, Technology, Engineering &
Mathematics

Interests: Geography; Maps and map-making; Engineering; Spatial data;
Demographics; Mathematics

Earnings (Yearly Average): \$71,890

Employment & Outlook: Faster Than Average Growth Expected

OVERVIEW

Sphere of Work

Cartographers and photogrammetrists collect, measure, and interpret geographic information in order to create and update maps and charts for regional planning, education, and other purposes. These professionals also play a crucial role in affairs of national security and intelligence as they provide accurate and detailed maps and imagery that can be used for military operations, border control, and disaster response. Their work can aid in identifying potential threats and planning strategic defense measures, making them integral to the safety and security of a nation.



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Work Environment

Although cartographers and photogrammetrists spend much of their time in offices, certain jobs require extensive fieldwork to collect data and verify results. For example, cartographers may travel to the physical locations they are mapping to better understand the topography of the region. Similarly, photogrammetrists may conduct fieldwork to plan for aerial surveys and to validate interpretations.

Most cartographers and photogrammetrists work full time. They may have longer workdays during fieldwork.

Occupation Interest

Individuals interested in becoming cartographers and photogrammetrists are usually detail-oriented, fascinated by geography, and interested in maps and map-making. Prospective professionals in the field should invest time in maintaining physical fitness in order to cope with the physical strain of hiking and walking long distance, sometimes burdened by heavy equipment, when working

on a project. For those interested in overseas work, becoming a cartographer or photogrammetrist can lead to many opportunities for short and long-term international work.

Duties and Responsibilities

Cartographer

- Collecting geographic data
- Creating visual representations of data, such as annual precipitation patterns
- Examining and compiling data from ground surveys, reports, aerial photographs, and satellite images
- Preparing maps in digital or graphic form for environmental and educational purposes
- Updating and revising existing maps and charts

Photogrammetrist

- Planning aerial and satellite surveys to ensure complete coverage of the area in question
- Collecting and analyzing spatial data, such as elevation and distance
- Developing base maps that allow Geographic Information System (GIS) data to be layered on top

Profile

Working Conditions: Both Inside & Outside

Physical Strength: Medium Work

Education Needs: Bachelor's Degree

Licensure/Certification: Required

Opportunities for Experience: Apprenticeship; Military Service; Part-time Work

Interest Score: RIC

A Day in the Life—Duties and Responsibilities

Cartographers are mapmakers who design user-friendly maps. Photogrammetrists are specialized mapmakers who use various technologies to build models of the Earth's surface and its features for the purpose of creating maps.

Cartographers and photogrammetrists use information from geodetic surveys (land surveys that account for the curvature of the Earth's surface) and remote-sensing

Network and Computer Systems Administrator

Snapshot

Career Cluster(s): Business Management & Administration; Information Technology; Science, Technology, Engineering & Mathematics

Interests: Computer Science; Data; Statistics; Technology

Earnings (Yearly Average): \$90,520

Employment & Outlook: As Fast As Average Growth Expected

OVERVIEW

Sphere of Work

Computer networks are critical parts of almost every organization. Network and computer systems administrators are responsible for the day-to-day operation of these networks. They organize, install, and support an organization's computer systems, including local area networks (LANs), wide area networks (WANs), network segments, intranets, and other data communication systems. Protecting these systems from cyberattacks is thus a top-of-mind issue for people in this profession, and they must regularly be guard for breaches of security, allowing operations to continue running smoothly. Given the increasing threat of cyberattacks on a national scale, network and computer systems administrators play a crucial role in protecting



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sensitive government information and preventing potential cyber espionage.

Work Environment

Although many network and computer systems administrators are employed by firms in the computer systems design and related services industry, they work in a variety of settings. Some might administer systems and networks for financial firms, and others work in hospitals or local government offices.

Network and computer systems administrators work with many types of workers, including other IT workers, such as computer support specialists, database administrators, computer network architects, and computer and information systems managers.

Occupation Interest

Network and computer systems administrators are investigative types, meaning they love working with ideas, and excel in tasks that require an extensive amount of thinking. Searching for facts and figuring out problems mentally are where they shine, thus in the ever-possible case of cyberattacks, they are the first line of defense.

Profile

Working Conditions: Inside

Education Needs: Bachelor's Degree

Licensure/Certification: Vendor Certifications

Opportunities for Experience: Educational Experience

Interest Score: IRC

Duties and Responsibilities

- Determining an organization's system needs and installing network hardware and software
- Making needed upgrades and repairs to networks and ensuring that systems are operating correctly
- Maintaining network and computer system security
- Evaluating and optimizing network or system performance
- Adding users to a network, and assigning and updating security permissions on the network
- Training users in the proper use of hardware and software
- Interpreting and solving problems when a user or an automated monitoring system alerts them that a problem exists

A Day in the Life—Duties and Responsibilities

Administrators manage an organization's servers and desktop and mobile equipment. They ensure that email and data storage networks work properly. They also make sure that employees' workstations are working efficiently and stay connected to the central computer network. Some administrators manage telecommunication networks.

Administrators may help network architects design and analyze network models. They also participate in decisions about buying future hardware or software to up-

grade their organization's network. Some administrators provide technical support to computer users, and they also may supervise computer support specialists who help solve users' problems.

WORK ENVIRONMENT

Immediate Physical Environment

Network and computer systems administrators work in office environments, generally, spending long hours sitting at a desk behind a computer screen.

Human Environment

Network and computer systems administrators will do best to have strong communication skills, as they do not work in a bubble: some are responsible for the training of other administrators, as well needing to communicate to other professionals in the management chain. Network and computer administrators will sometimes need to train others in the use of various software and on how hardware works as well.

Technological Environment

By the nature of their job, network and computer systems administrators work in a highly technological environment. They possess a range of knowledge of various hardware and software, are frequently learning new things, as well as making evaluations of and performing updates on the networks they oversee.

EDUCATION AND TRAINING

High School/Secondary

High school students interested in becoming network and computer systems administrators should focus on computer courses, as well as math-related courses. Becoming one sometimes requires a bachelor's degree, so students should prepare themselves for postsecondary education, including researching the schools they would like to consider attending to achieve that goal.

Suggested High School Subjects

- Algebra
- Applied Mathematics
- Computer Science

LIST OF ORGANIZATIONS AND RESOURCES

AAA Mediation (part of the American Arbitration Association)

402 W. Broadway, Suite 400
San Diego, CA 92101
877.252.0426
CustomerService@aaamediation.org
www.aaamediation.org

Academic Data Science Alliance

www.academicdatascience.org

Alliance for Data Science Professionals

info@afdsp.co.uk
www.alliancefordatascienceprofessionals.com

Accreditation Board for Engineering and Technology, Inc. (ABET)

415 N. Charles Street
Baltimore, MD 21201
410.347.7700
comms@abet.org
www.abet.org

Administrative Office of the United States Courts

One Columbus Circle NE
Washington, DC 20544
202.502.2600
www.uscourts.gov

Advance CTE: State Leaders Connecting Learning to Work

8484 Georgia Avenue, Suite 620
Silver Spring, MD 20910
301.588.9630
careertech.org

Air National Guard

111 S. George Mason Drive
Arlington, VA 22204
800.864.6264
www.ang.af.mil

American Academy of Actuaries

1850 M Street NW, Suite 300
Washington, DC 20036
202.223.8196
www.actuary.org

American Arbitration Association-International Center for Dispute Resolution (AAA-ICDR)

120 Broadway, Floor 21
New York, NY 10271
212.716.5800
www.adr.org
www.icdr.org

American Association for Justice (AAJ)

777 6th Street NW, Suite 200
Washington, DC 20001
800.424.2725
membership@justice.org
www.justice.org

American Association of Engineering Societies (AAES)

1801 Alexander Bell Drive
Reston, VA 20191
202.296.2237
orders@aaes.org
www.aaes.org

American Bar Association (ABA)

1050 Connecticut Avenue NW, Suite 400
Washington, DC 20036
202.662.1000
www.americanbar.org

American Judges Association (AJA)

300 Newport Avenue
Williamsburg, VA 23185-4147
757.259.1841
aja@ncsc.org
aja.ncsc.dni.us

American Society for Engineering Education (ASEE)

1818 N Street NW, Suite 600
Washington, DC 20036
202.331.3500
www.asee.org

American Society for Photogrammetry and Remote Sensing (ASPRS)

P.O. Box 14713
Baton Rouge, LA 70809
301.493.0290
asprs@asprs.org
www.asprs.org