

# STATISTICS

## What can I do with this major?

### AREAS

### EMPLOYERS

### STRATEGIES

#### GOVERNMENT

Design surveys and methodology  
Implement experiments/Conduct field work  
Collect, process, and analyze data  
Interpret results  
Clinical trial analysis  
Reliability and quality control  
Operations research  
Areas of research include:  
    Census  
    Education  
    Ecology and environment  
    Forestry  
    Government regulation  
    Law  
    National defense  
    Public health  
    Population  
    Risk assessment

Federal government:  
    Bureau of Economic Analysis  
    Bureau of Labor Statistics  
    Centers for Disease Control and Prevention  
    Census Bureau  
    Department of Agriculture  
    Department of Commerce  
    Department of Defense:  
        Army Research Office  
        Office of Naval Research  
    Department of Energy:  
        Office of Energy Research  
    Department of Health and Human Services  
    Department of Justice  
    Environmental Protection Agency  
    Food and Drug Administration  
    National Institutes of Health  
    National Science Foundation  
    National Institute of Standards and Technology  
    National Security Agency  
    Nuclear Regulatory Commission  
State and local government

Approximately 20% of statisticians work for the federal government, and they are found in nearly all agencies and departments. An additional 10% work in state and local governments.  
Plan to earn a master's or doctoral degree to qualify for most "statistician" jobs.  
Some positions are available for students with bachelor's degrees in statistics.  
Develop a strong background in computers because they are used extensively for statistical applications.  
Hone writing and presentation skills.  
Assist professors with research projects to gain experience collecting and analyzing data.  
Complete an internship with a government organization.  
Learn about the government hiring process and plan to apply early. Research special hiring authorizations to be hired and promoted more quickly.

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#### HEALTH AND MEDICINE

Biomedical research  
Biostatistics/Biometrics  
Biopharmaceutical statistics  
Pharmacology  
Clinical trials  
Epidemiology  
Genetics  
Public health  
Animal health  
Health economics  
Market research

Pharmaceutical companies  
Biotechnology firms  
Hospitals  
National laboratories  
Government agencies:  
    Centers for Disease Control and Prevention  
    Food and Drug Administration  
    National Institutes of Health  
    National Center for Health Statistics  
World Health Organization  
Research universities

Supplement curriculum with courses such as biology, chemistry, ecology, and other natural sciences. This area of statistics blends medicine and mathematics/statistics.  
Plan to earn a master's or doctoral degree in statistics, public health, epidemiology, related field.  
Seek experience with a statistical software package and learn a programming language.  
Learn to work well on interdisciplinary teams.  
Complete a relevant internship to gain experience and to test interest in field.

## AREAS

## EMPLOYERS

## STRATEGIES

### HEALTH AND MEDICINE

Technical writing

Animal health industry  
Scientific journals  
Consulting firms

Develop strong written and verbal communication skills. Statisticians in this field may frequently write technical reports and give presentations.

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### INDUSTRY

Quality control  
Reliability  
Product testing  
Product development and improvement  
Management of assets and liabilities  
Risk assessment  
Financial planning  
Market research  
Operations research  
Purchasing  
Management  
Engineering applications  
Research:  
    Agricultural  
    Environmental  
    Biological  
    Chemical  
Computer science  
Statistical computing  
Data processing services  
Technical writing  
Science journalism  
Sports statistics

Research centers and laboratories  
Pharmaceutical and biotechnology firms  
Environmental clean-up firms  
Chemical companies  
Software developers  
Computer companies  
Internet companies  
Engineering firms  
Manufacturers  
Logistics firms  
Transportation companies  
Communications industry  
Utility companies  
Financial institutions  
Insurance companies  
Consumer marketing firms  
Statistics agencies  
Data collection services  
Consulting firms  
Nonprofit organizations

Nearly all industries have a need for statisticians. Conduct informational interviews with professionals in a variety of settings to help determine career goals. Take a well-rounded selection of courses depending upon areas of interest (e.g. business or science). Plan to earn a master's or doctoral degree for higher level positions. Gain relevant experience through internships. Develop a strong background in computers because they are used extensively for statistical applications. Learn to work well both independently and on interdisciplinary teams. Develop the ability to communicate statistical aspects of business decisions to a wide array of people. Regarding sports statistics: few statisticians work full-time in this field. Some may be hired by professional sports teams or major television networks. Many in this field are paid per game. Start gaining experience in the field by volunteering or working part-time for local high schools and college sports programs. Seek an internship in sports statistics.

**AREAS**

**EMPLOYERS**

**STRATEGIES**

**OPERATIONS MANAGEMENT**

Operations research analysis:

- Business strategy
- Facilities layout
- Inventory control
- Personnel scheduling

Production management:

- Line supervision
- Manufacturing management
- Production planning
- Quality assurance

Materials management:

- Purchasing/buying
- Traffic management
- Inventory management

- Manufacturers
- Industrial organizations
- Service organizations
- Logistics firms
- Airlines and other transportation companies

- Develop strong analytical skills and a logical approach to problem solving.
- Take additional courses in management.
- Acquire skills in budgeting and cost management.
- Learn to manage multiple situations and problems.
- Develop the ability to communicate effectively with different types of people in various functional areas.
- Earn an MBA to reach higher levels of operations management.

**BANKING AND FINANCE**

- Corporate and consumer credit analysis
- Commercial lending
- Trust management
- Capital services and mergers and acquisitions
- Mortgage loans
- Originations and packaging
- Branch management
- Operations
- Cash management
- Credit scoring and risk management
- Private banking
- Financial analysis
- Investment banking

- Commercial banks
- Credit unions
- Savings and loan associations
- Savings banks
- Mortgage banks
- Captive finance companies
- Regulatory agencies including:
  - Federal Reserve
  - Federal Deposit Insurance Corporation (FDIC)
  - Office of the Comptroller of the Currency (OCC)
  - Office of Thrift Supervision (OTS)
- Brokerage firms

- Build a solid background in business including marketing, finance, and accounting.
- Gain experience through part-time, summer, or internship positions in a financial services firm.
- Develop strong interpersonal and communication skills in order to work well with a diverse clientele.
- Plan to earn an MBA to enter investment banking.
- Research professional certifications that may be valuable in this field.

## AREAS

## EMPLOYERS

## STRATEGIES

### INSURANCE

Actuary science  
Risk management/Assessment  
Loss management/Control  
Underwriting

Insurance carriers  
Insurance agents and brokers  
Professional, scientific, and technical consulting firms  
Government agencies

Take additional courses in mathematics and finance. Complete an internship with an insurance agency to gain relevant experience.  
Talk to professionals in the industry to learn more about claims, underwriting, and risk management. Many entry-level positions exist in these areas.  
Develop strong communication skills, as many positions require interaction with others and the ability to explain information clearly and concisely.  
Learn how to use statistical analysis software and various computer programming languages.  
More than half of actuaries work for insurance carriers.  
Plan to take a series of actuarial exams to gain licensure from either the Society of Actuaries or the Casualty Actuarial Society. The type of insurance you deal with will determine which path to pursue. Most actuaries take these exams while working full-time, and the process takes several years.

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### EDUCATION

Teaching  
Research

Colleges and universities

Plan to earn a doctoral degree.  
Maintain a high undergraduate GPA and secure strong recommendations from faculty.  
Volunteer to assist a faculty member with his or her research or find a part-time job as a research assistant.

**GENERAL INFORMATION**

- Statistics can be used in a wide variety of fields within science, technology, business, medicine, and social sciences. Gain knowledge or take courses in a specific field of interest, such as medicine or finance, to pair with skills in statistics, math, and computers.
- The job outlook for statisticians is very strong because businesses have more access to data than ever before and that data requires analysis.
- Most "statistician" and upper level research jobs in either government or industry will require at least a master's degree.
- An undergraduate degree in statistics can be used in a variety of business settings if combined with relevant experience and skills. Choose concentrations or minors that will enhance a degree in statistics. Take courses in forecasting and applied time series which are particularly sought after by employers. Plan to complete one or more internships.
- Some positions in business, such as sales and management, are open to any major. Seek experiences and build skills that will help you prepare for these jobs.
- Strong communication skills are critical in the field of statistics in order to communicate statistical information clearly to people who do not have technical backgrounds. Writing and presentation skills are also frequently used.
- Get involved with campus organizations to build leadership and teamwork skills.
- Conduct informational interviews with professionals in fields of interest to learn more about their work and to build a network of contacts.
- To prepare for graduate school, maintain a high grade point average and secure strong faculty recommendations.
- Statistics can be a good preparation for graduate degrees in other fields such as law, business, or public health.
- Join the American Statistical Association and use its website as a resource to research career opportunities.