

Welcome to the

Statistics Major

Biostatistics Emphasis

in the College of Computational, Mathematical, and Physical Sciences

College Advisement Center

Website: <https://science.byu.edu/advisement>
Email: cmsadvising@byu.edu
Phone: 801-422-2674
Office: N-181 ESC

Statistics Department

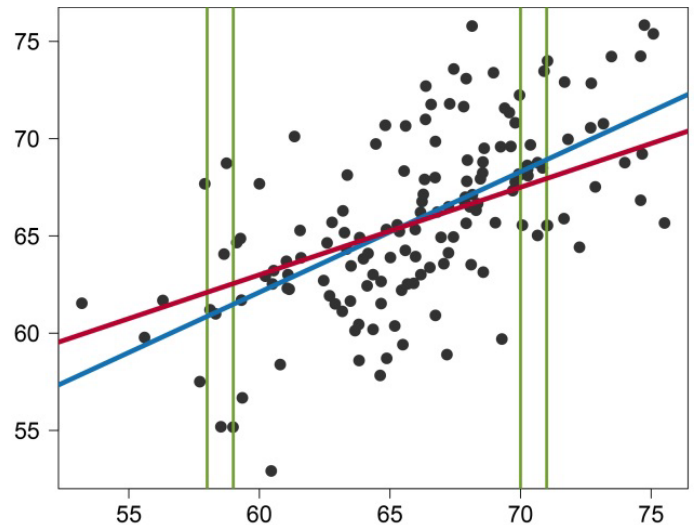
Website: statistics.byu.edu
Email: statsec@stat.byu.edu
Phone: 801-422-4505
Office: WVB 2152

Undergraduate Department Advisor – Kimri Mansfield

Email: kmansfield@stat.byu.edu
Phone: 801-422-4506
Office: WVB 2152D

Internship Coordinator – Kimri Mansfield

Email: kmansfield@stat.byu.edu
Phone: 801-422-4506
Office: WVB 2152D



University Career Services – Lane Muranaka

Website: careers.byu.edu (Handshake--see flyer in packet)
Email: lane_muranaka@byu.edu
Schedule an appointment: 801-422-3000 or <https://careers.byu.edu/lane-muranaka>
Office: WVB 2172

Department Student Hiring – Renea Scott

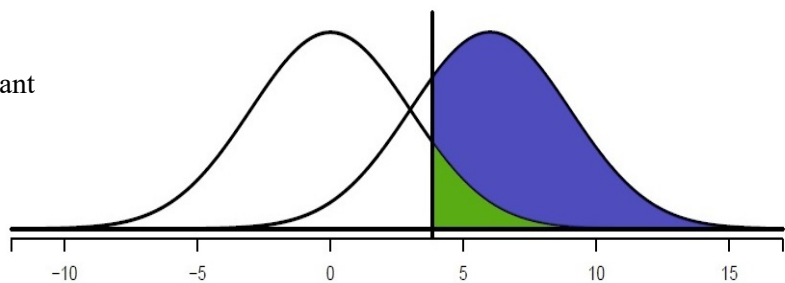
Website: statistics.byu.edu/teaching-assistant
Email: rscott@stat.byu.edu
Phone: 801-442-4527
Office: WVB 2152A

Club - Mu Sigma Rho Club, Analytics Club

Contact: Kimri Mansfield
Contact Information: WVB 2152D, 801-422-4506, kmansfield@stat.byu.edu

Club- BYU Statistics Association

Contact: Jamie Perrett
Contact Information: perrett@stat.byu.edu, 801-422-6053, <https://statistics.byu.edu/byu-statistics-association>



Learning outcomes can be found here: <https://learningoutcomes.byu.edu/Courses/program-courses/695233/Statistics+BS+Biostatistics/1329>

Things to Know

Resources for Graduation Planning

- Flow Charts and Major Academic Plans (MAPs) can be found here: <https://science.byu.edu/advisement/explore-majors-and-minors>.
- Academic advisors in N-181 ESC will help you understand course sequencing and help you plan classes to efficiently fill requirements. They can also help you with study skills and initial career exploration as well as connecting you with correct resources.
- Plan and register from your plan on MyMAP. Your academic advisor can help you understand how to best utilize this resource.
- Evaluate your current program. Periodically major programs are updated. An academic advisor would be happy to review the differences between the programs with you to help you determine what would be best for you.
- Consider meeting with a faculty advisor in your department. Contact info is found on the first page of this packet.

Tutoring Resources and Research

- Volunteer peer tutors are available through Y Serve if you need help with a class. Also, if you excel in a subject, consider serving your fellow students by becoming a tutor. Find out more here: <https://tutoring.byu.edu/>.
- Many departments provide TA Tutorial Labs and research opportunities. Check your department for details:
 - Chemistry and Biochemistry: C-104 BNSN, 801-422-6261, <https://chem.byu.edu/department/faculty/>
 - Computer Science: 3361 TMCB, 801-422-3027, cs-office@byu.edu
 - Geological Sciences: S-389 ESC, 801-422-3918, geology@byu.edu
 - Mathematics: 275 TMCB, 801-422-2061, office@mathematics.byu.edu
 - Mathematics Education: A180 ESC, 801-422-1735, office@mathed.byu.edu
 - Physics and Astronomy: N-283 ESC, 801-422-4361, physics_office@byu.edu
 - Statistics: 2152 WVB, 801-422-4505, statsec@stat.byu.edu

Prepare Early for a Career

- Check out Careers & Experiential Learning in 1134 WSC and at careers.byu.edu.
- Consider doing an internship.
 - Attend the STEM and Career Fairs held in fall and winter semesters.
 - Talk to your department about internship opportunities.
 - Use LinkedIn and Handshake (see flyer in this packet) to connect with alumni and apply for jobs/internships. BYU Connect is another great resource for networking (connect.byu.edu).
 - Talk with the college Career Director who can help you search for internships as well as assist you with many other career related strategies (see first page of this packet).
- Consider taking StDev 317 (Career Strategies) your junior year.
- Consider taking either Chem 502, CS 502, Geol 502, Math 502, PHSCS 502, or STAT 502 (1-credit Networking Class). Class is held for 1 hour each week.

Biostatistics Emphasis

Requirements / Prerequisites

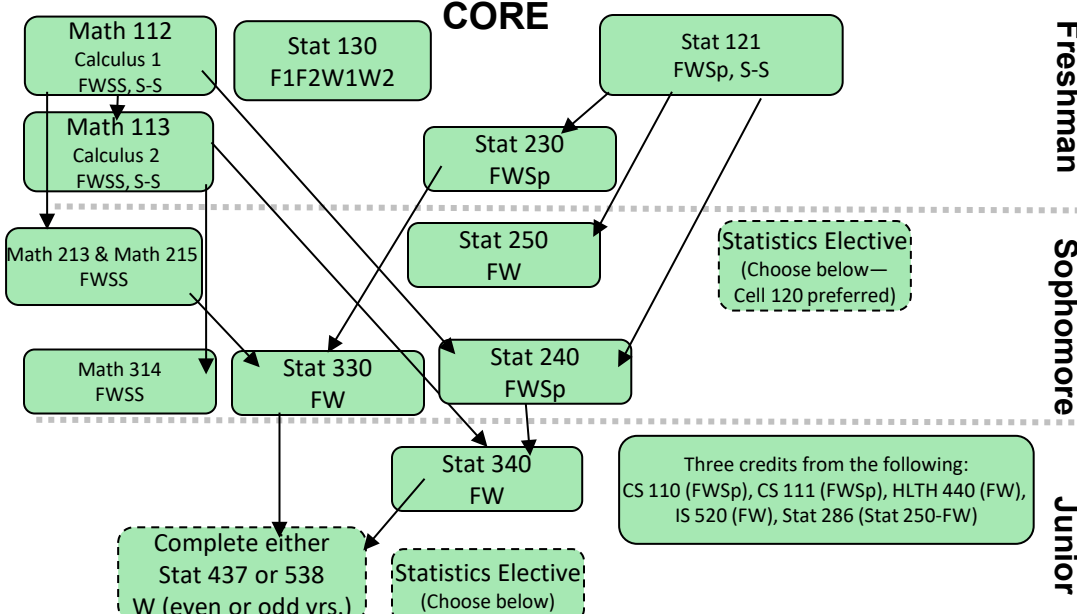
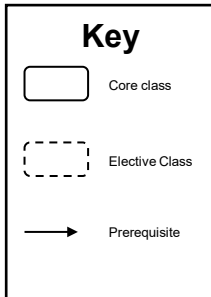
2025-2026 Academic Year

Major (55 Hours)

1. Complete Stats 121 and 130.
2. Complete the following courses: Stat 230, Stat 240, Stat 250, Stat 330, Stat 340, Stat 390
3. Complete the following courses: Math 112 and 113, 213, 215.
4. Complete 3 hours from the following: CS 110, CS 111, Hlth 440, IS 520, Stat 286.
5. Complete the following course: Math 314.
6. Complete 3 hours from the following: Stat 437 or Stat 538.
7. Complete 6 Elective hours from the following (Courses filling requirement 7 will not double count with requirement 6, 8, or 9): Bio 350, Cell 120, Cell 305, Chem 105, Chem 111, Hlth 345, Mmbio 240, PWS 340, Stat 437, Stat 538.
8. Complete 3 elective hours from the following (Courses filling requirement 8 will not double count with requirement 6, 7, or 9): Stat 234, Stat 251, Stat 274, Stat 281, Stat 286, Stat 348, Stat 381, Stat 386, Stat 395R, Stat 435, Stat 437, Stat 451, Stat 466, Stat 469, Stat 482, Stat 483, Stat 486, Stat 487, Stat 495R, Stat 531, Stat 538.
9. Complete 6 elective hours from the following (Courses filling requirement 9 will not double count with requirement 6, 7, or 8): Hlth 345, Math 341, Math 342, Stat 234, Stat 251, Stat 274, Stat 281, Stat 286, Stat 348, Stat 381, Stat 386, Stat 395R, Stat 435, Stat 437, Stat 451, Stat 466, Stat 469, Stat 482, Stat 483, Stat 486, Stat 487, Stat 495R, Stat 496R*, Stat 497R*, Stat 531, Stat 538.
10. *No more than 3 combined credit hours of Stat 496R, or Stat 497R may be counted toward this requirement.

Minor (18 Hours)

1. Complete one of the following: Stat 121, or Stat 201.
2. Complete one of the following: CS 110, CS 111, Stat 250.
3. Complete: Stat 230
4. Complete either Stat 220 or Stat 330.
5. Complete 6 hours from the following: Stat 234, Stat 240, Stat 250, Stat 251, Stat 281, Stat 286, Stat 340, Stat 348, Stat 381, Stat 386.



F=Fall, W=Winter, Sp=Spring, Su=Summer, S-S=Spring-Summer, SS=Spring & Summer.

Choose 3 Credit Hours of Electives Requirement 8

Choose any class from Requirement 9 except Hlth 345, Math 341, Math 342, Stat 395R, Stat 496R, Stat 497R

*Note: No more than 3 credit hours of Stat 496R or Stat 497R may be counted toward this major.

Choose 6 Credit Hours of Electives Requirement 7

- Bio 350
Pre-req: Cell 120 or Bio 130 or MMBio 121
EW
- Cell 120
FWSp
- Cell 305
Pre-Req: Cell 210 or 220; Chem 101 or equiv.
FWSp
- Chem 105
Pre-Req: Math 110
FWSS
- Chem 111
Pre-Req: Math 110
F
- Hlth 345
Pre-Req: HLTH 313
W
- MMBIO 240
Pre-Req: Bio 130, Cell 120 or MmBIO 121
FWSp
- PWS 340
Pre-Req: MMBIO 240, Chem 481, or Chem 381,
FW
- Stat 437
Pre-Req: Stat 330 & Stat 340
W Even Years
- Stat 538
Pre-Req: Stat 330 & Stat 340
W Odd Years

Choose 3 Credit Hours of Electives Requirement 9

- Hlth 345
Pre-req: Hlth 313
W
- Math 341
Pre-Req: Math 113 & Math 290
FWSu
- Math 342
Pre-Req: Math 213 & Math 314, & Math 341
FW
- Stat 234
Pre-Req: Stat 121, or 201
F
- Stat 251
Pre-Req: Stat 240, Stat 250, Math 113
EW
- Stat 274
Pre-Req: Math 112
FW
- Stat 281
Pre-Req: Stat 121 or Stat 201
W
- Stat 286
Pre-Req: Stat 250
FW
- Stat 234
Pre-Req: Stat 121, or 201
F
- Stat 251
Pre-Req: Stat 240, Stat 250, Math 113
EW

Choose 6 Credit Hours of Electives Requirement 9

- Stat 386
Pre-req: Stat 121 & CS 110 or 111
F
- Stat 395R
Contact Department
- Stat 435
Pre-Req: Stat 330 & Stat 340
Contact Department
- Stat 437
Pre-Req: Stat 330, & Stat 340, W even years
- Stat 451
Pre-Req: Stat 251 & 330, and 340
W
- Stat 466
Pre-Req: Stat 251, Stat 330, & Stat 340
F
- Stat 469
Pre-Req: Stat 330 & Stat 340
W
- Stat 482
Pre-Req: Stat 286, Stat 330, Stat 340
Contact Department
- Stat 483
Pre-Req: Stat 482
Contact Department
- Stat 486
Pre-Req: Stat 330 & 340 & 386
W

Choose 6 Credit Hours of Electives Requirement 9

- Stat 390
Pre-Req: Stat 330
FW
- Stat 487
Pre-Req: Stat 330 & 340 & 386
F
- Stat 495R
Pre-Req: None
Taught: Contact Dept.
- Stat 496R
Pre-Req: Dept. Consent (up to 3 hours)
Taught: Contact Dept.
- Stat 497R
Pre-Req: Dept. Consent (up to 3 hours)
Taught: Contact Dept.
- Stat 531
Pre-Req: Stat 330, 340 & Math 213
Contact Department
- Stat 538
Pre-Req: Stat 330 & Stat 340
W Odd Years

Note: Courses only count once towards the major.

Freshman
Sophomore
Junior
Senior



BYU's own job board. Employers who want to hire BYU graduates or offer internships to current students post job openings to this website and students apply. Just like LinkedIn, employers can view student profiles and students can network as they apply for jobs and internships



Login to handshake.byu.edu >>> BYU Net ID

**you do not need to create an account, just sign in with your BYU information*

HOW TO MAKE THE MOST OUT OF HANDSHAKE:

1. COMPLETE YOUR PROFILE

- Upload your resume and it will auto-fill in your profile
- Completed profiles tailor your Handshake experience
- Information from your transcript is already uploaded
- Fill in the Summary/Bio section
- Fill in your past jobs and experiences, including all the bullet points you use on your resume
- Add a professional headshot and background photo

Remember: every word in your profile will be searchable by students and employers

4. EXPLORE FELLOW STUDENTS

- “Students” tab
- Search for fellow BYU students to view their profiles and job positions.

5. ATTEND EVENTS

- The “Events” tab will be your key to attending info sessions, interviews, and Career Fairs
- The “Calendar” tab under “Events” will show you what events are coming soon
- Make sure to save events you are interested in or RSVP so you do not forget to attend
- Spread the word to your friends on social media

6. DOWNLOAD HANDSHAKE APP

- Search: “Handshake” not “Handshake Career Services”
- Input your BYU e-mail address: netID@byu.edu (it will forward emails to the e-mail you have on file with BYU)
- Handshake will send you a link via e-mail to enable your account in the app
- Navigate the app to perform all the functions of the website that have been previously mentioned

7. VISIT THE CAREER STUDIO

- Freshen up your resume, cover letter, or LinkedIn
- Receive networking help
- Practice interviewing with a mock interview
- Meet with a full-time Career Director in your field

8. GET A JOB, RING THE BELL

- Once you're hired, stop by the Career Studio to ring our Victory Bell and get a picture for the Victory Board



employers are
5X MORE LIKELY
to view a profile that has
at least one job/skill/organization

2. APPLY FOR JOBS

- Search for job titles, employers, or skills
- Apply for interesting jobs that meet your skill set

3. RESEARCH COMPANIES

- Under the “Jobs” Tab there is an “Employers” Tab
- Search for keywords or locations to find companies that are the right fit for you
- Plan to attend their info sessions on BYU Campus, connect with them at Career Fairs, or set up informational interviews to learn more

Remember: when looking at companies or jobs, Handshake will tell you what other BYU students have worked there. Use this resource to network and discover more information!

Careers in Statistics

What Do Statisticians Do?

Statisticians look for patterns in data to help make decisions in business, industry, and the biological, physical, psychological, and social sciences. Statisticians help make important advances in scientific research and work in opinion polling, market research, survey management, data analysis, statistical experiments, and education. Statisticians use quantitative abilities, statistical knowledge, and computing and communication skills to collaborate with other scientists to work on challenging problems, including the following:

- Studying the safety and economic viability of nuclear power plants and alternative energy sources
- Evaluating the environmental impact of air, water, and soil pollution
- Designing and analyzing studies to determine the safety and effectiveness of new drugs
- Estimating the unemployment rate in the United States
- Analyzing consumer demand for products and services
- Planning studies for and analyzing data from agricultural experiments

Statisticians apply mathematical and statistical knowledge to social, economic, medical, political, and ecological problems. They work individually, but also as part of interdisciplinary teams on complex problems. Statisticians travel to consult with other professionals or to attend conferences, seminars, and continuing education activities. They communicate and confer with other professionals to understand practical problems and inform others of their solutions. Statisticians use data from well-designed trials and from massive databases to discover results about a particular problem in a variety of fields. They combine their technical training skills with the knowledge of the field within which they are working to produce valuable results.

Statisticians are at times educators, consultants, and theoretical researchers.

Business and Industry

Manufacturing -- Industrial statisticians help build products and deliver services that satisfy customers and increase the company's market share and profit margin. Statisticians help design the best product, guide the transition from design to manufacturing, ensure a consistently excellent product, help manage customer satisfaction, and ensure a financially beneficial bottom line. Industry professionals use statistical methods for quality control and quality assurance in nearly all manufactured goods.



Marketing -- Statistics is used to quantify the extent of variation in customers' needs and wants. Statisticians design experiments for new products, conduct focus groups and sample surveys to gather consumer feedback, and perform field experiments in test markets to determine product viability and marketability. Statistics and data mining are also used to analyze sales data and predict future trends.

Engineering -- Engineers work in electronics, chemicals, aerospace, pollution control, construction, and other industries. They may be responsible for leading large projects with significant costs, technical complexity, and responsibility. Statistical methods allow engineers to make a consistent product, detect problems, minimize chemical waste, and predict product life.

Statistical Computing -- Reliable and accurate statistical software is arguably the most important tool available to statisticians in every field. Developing code that is both user friendly and sufficiently complex is a challenging task, as is exploiting the rapidly occurring improvements in hardware platforms,

graphics, and algorithms. Opportunities in this field include software design and development, software testing, quality assurance, technical support, education, documentation, marketing, and sales.



Health and Medicine

Epidemiology -- Epidemiological statisticians work on projects such as calculating cancer incidence rates or the rates of chronic and infectious diseases, monitoring and reporting on disease outbreaks, and monitoring changes in health-related behaviors such as smoking and physical activity. Fields of practice include nutritional, environmental, genetic, and social epidemiology, as well as pharmacoepidemiology.

Public Health -- Public health statisticians work on preventing disease, prolonging life, and promoting health through organized community efforts. These include sanitation, control of contagious infections, hygiene education, early diagnosis and preventive treatment, and adequate living standards. This requires understanding of epidemiology, nutrition, antiseptic practices, and social science. In the United States, public health is studied and coordinated on a national level by the Centers for Disease Control and Prevention; internationally, the World Health Organization plays an equivalent role.

Pharmaceutical Science -- Statisticians in pharmacology work in pharmaceuticals, animal health, and government research. They are key to all aspects of drug discovery, development, approval, and marketing. They work in pre-clinical research, clinical trials, epidemiology, health economics, and market research. Statisticians are essential in the drug development process because they ensure the validity and accuracy of findings at all stages of the process.

Statistical Genetics -- Statistics has been used in human genetics to create automated methods of labeling possible indicators of genetic abnormalities, such as birth defects and early aging. Statistics has also been used in animal and plant genetics to breed desirable characteristics in offspring. Using complex statistical models, statisticians aid in formulating sound decisions by distinguishing between environmental and genetic effects.

Learning

Education -- Education is one of the country's biggest industries and the tasks that the educational statistician can choose to undertake are diverse. Statisticians teach students from kindergarten through doctoral programs. They may help assess teacher effectiveness, analyze a large database to understand a particular issue, or develop better statistical models to represent the amount of learning attained by one student or by all students in a school district, state, or nation.

Science Writing and Journalism -- Science writers are employed by the mass media, universities, and corporations to produce news briefs, articles, news releases, and other reports. Writers with scientific backgrounds are especially in demand because of their ability to explain complicated statistical or scientific data in easy-to-understand articles for non-statisticians and the general public.

Research

Government -- Statistical methods are used in government regulation on topics such as stock trading rules, air purity standards, and new drug approvals. Statistics are cited in court proceedings, congressional hearings, and lobbying arguments. Politics involves statistics in the form of approval rating surveys, voter registration, campaigning, and election predictions. Statisticians participate in government agencies such as the Food and Drug Administration, the Census Bureau, the Bureau of Labor Statistics, the Office of Management and Budget, the Bureau of Transportation Statistics, the National Institutes of Health, and the Department of Agriculture. Federal agencies provide data that are used in making federal, state, and

local government policies.

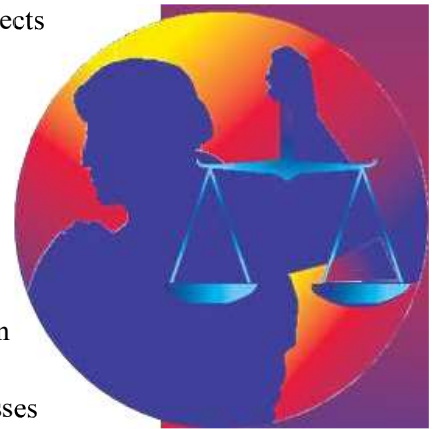
Survey Methods -- Statisticians work on surveys in government, the social sciences, education, law, forestry, agriculture, biology, medicine, business, and e-commerce. Survey statisticians might study efficient survey design, experimental methods for increasing response rates, accounting for nonresponse and under-coverage, or how to release data to the public while maintaining the confidentiality of respondents. Other important issues include question wording and design and deciding where and how to take samples that will include traditionally underrepresented groups.

Research and Development -- Whether in developing new computing technology or designing a better consumer product, statisticians work in all sectors of industry to identify sources of variability and increase the reliability of products and technology using experimental design, statistical analysis, and continuous improvement tools.

Social Sciences

Consulting -- Independent statistical consultants work on many of the same projects as other statisticians, but they usually are hired on a temporary basis to solve a specific problem that requires statistical expertise not available within the hiring company. Since the field of statistics is so broad, many statistical consultants specialize in some area, such as quality improvement or pharmaceuticals. Consultants may be hired with grant money to work on short-term projects in medicine, agriculture, engineering, or business.

Law -- Statistics are becoming more and more important as court cases address increasingly complex problems. Sometimes the statistician analyzes data that can help the jury or judge decide whether someone is guilty of a crime or must pay damages for causing injuries. Other times, statisticians are hired as expert witnesses during trials. Court cases involving statistical analyses include DNA testing, salary discrepancies, consumer surveys, and disease clusters.

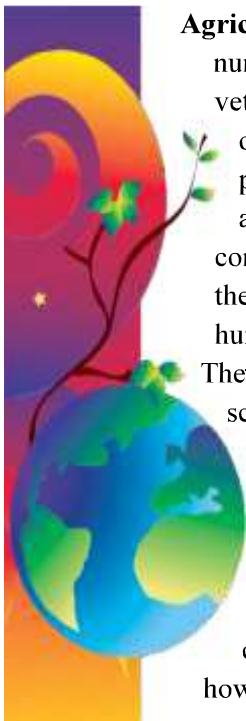


Natural Resources

Agriculture -- Statisticians have teamed up with experts in agriculture in order to study a number of challenging questions, including chemical pesticides, hydrogeology, veterinary sciences, genetics, and crop management. Precision agriculture is the practice of using statistical models to optimize agricultural inputs such as fertilizer or pesticides, to maximize yield and minimize negative ecological impact. Statisticians are involved in studies ranging from small laboratory experiments to large projects conducted over many hundreds or thousands of square miles. They work on data from the smallest scale of organisms, like viruses and bacteria, to plants, insects, animals, and humans.

They work with scientists from fields such as bacteriology, genetics, biochemistry, dairy science, environmental studies, entomology, plant sciences, rural sociology, veterinary medicine, wildlife, and ecology.

Ecology -- Statisticians play a major role in addressing questions about the earth's natural environment, including animal populations, agricultural protections, fertilizer, and pesticide safety. Most states employ wildlife statisticians. Statisticians are employed by state and federal environmental agencies as well as companies that collect environmental data. Increasingly, companies need statisticians to help assess how a new product or plant will affect the surrounding environment. Scientific researchers also work with statisticians, often at universities, to design experiments that will answer basic questions about the environment.



Resources

Weekly Emails

Sign up for weekly emails advertising available internship opportunities at career.placement@stat.byu.edu.

Handshake

<http://handshake.byu.edu/>

American Statistical Association

<https://www.amstat.org/>

Jobs in Statistics

<http://jobs.amstat.org/>

Salary Reports

<https://www.amstat.org/ASA/Your-Career/Salary-Information.aspx>

“Careers in Statistics: Possibilities and Opportunities”

–animated PowerPoint slide show that provides an overview of the field of statistics and highlights the opportunities available to those who become statisticians (<https://www.worldofstatistics.org/statistics-as-a-career/careers-in-statistics/>)

Careers in Statistics issue of *Amstat News* –annual September issue including biographies of famous statisticians, career advice, and “Day in the Life” articles of current practicing statisticians

“Career Corner” articles in *Amstat News* –monthly articles highlighting a topic of importance to students of statistics and young statisticians

How to Become a Statistician?

Education and Training

Statisticians typically study statistics, mathematics, and/or some related field of statistical application. More and more opportunities are available for statisticians with bachelor’s degrees. Many jobs, however, require either a master’s degree or doctorate. Continuing education is available through the American Statistical Association at events like the Joint Statistical Meetings and traveling “LearnSTAT” courses. Employers often encourage, or even require, their employees to earn continuing education credits.

Skills

Statisticians often develop skills in a particular field of study, such as medicine, public policy, economics, biology, psychology, or agriculture. Language and communication skills are important because statisticians must convey the results of their investigations in oral and/or written reports. The ability to explain findings clearly and concisely is essential and requires knowledge of grammar and comprehensive writing skills.

Employment Prospects

The demand for statisticians is currently high and is growing. According to the Occupational Outlook Handbook, published by the Bureau of Labor Statistics, the overall employment of mathematicians and statisticians is expected to grow 33% from 2016 to 2026, much faster than the average for all occupations. Furthermore, colleges and universities will be hiring more and more faculty members in statistical fields. Salaries and opportunities for advancement are competitive and reflect the current demand.