Welcome to the

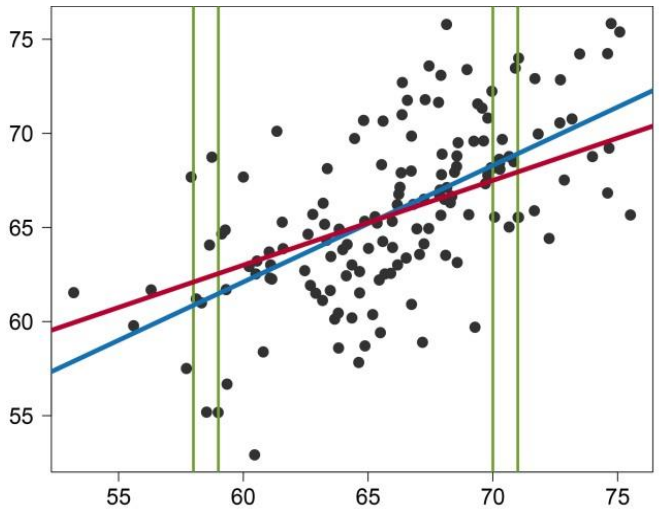
Data Science Major

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

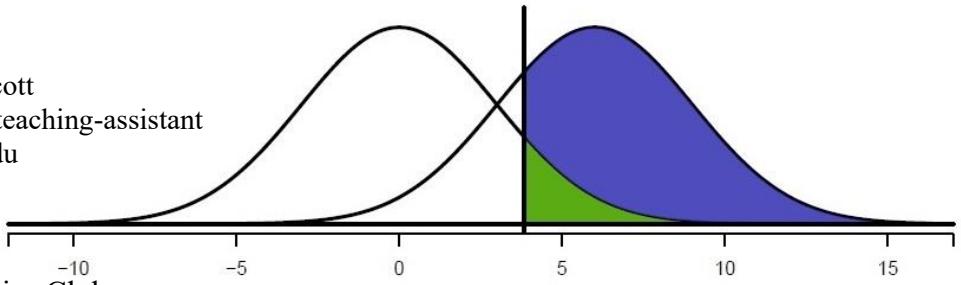
Data Science Major Advisor-Natalie Romeri-Grass
- Website: datascience.byu.edu
- Email: natalie.rg@stat.byu.edu
- Phone: 801-422-9202
- Office: 2162 WVB



Department Advisor/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

Club-Data Science:
- Information: datascience-assoc@byu.edu

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.

BYU
Data Science

Requirements / Prerequisites
2025-2026 Academic Year

Major (74.5 Hours)

1. Complete the following four courses: CS 111, Math 112, Stat 115, Stat 121.
2. Complete either CS 180 or Stat 180.
3. Complete Math 113, Math 213, Math 215.
4. Complete the following courses: Stat 230, Stat 240, Stat 251, Stat 330.
5. Complete the following courses: CS 235, CS 240, CS 452.
4. Complete the following courses: CS 270, CS 404, Math 380, PHSCS 383, Stat 281, Stat 386.
5. Complete 12 hours from the following: Bio 364, CS 462, CS 473, CS 474, CS 482, CS 483, CS 575, CS 580, Econ 398, Econ 484, Econ 588, Geol 230, Geol 531, Math 404, Math 510, Math 522, PHSCS 580, Stat 250, Stat 340, Stat 348, Stat 486, Stat 496R.
6. Complete 3 hours from the following: CS 473, CS 474, CS 483, CS 497R, Math 399R, Math 404, Math 522, PHSCS 492R, PHSCS 497R, Stat 486, Stat 496R, Stat 497R.

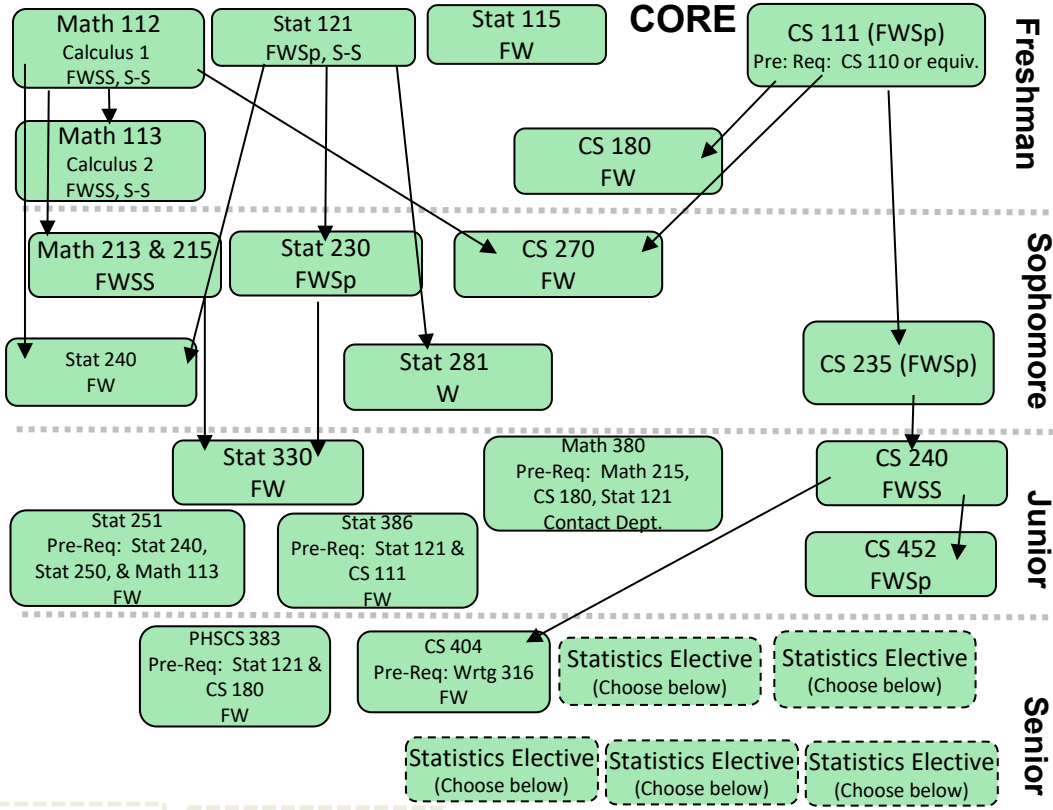
Key

- Core class
- Elective Class
- Prerequisite

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

Guide only—please consult MyMAP for full requirements.

Please Note: When Taught is subject to change.



Requirement 6
Select 12.0 credit hours from the following:

- Bio 364 — Pre-Req: CS 240 & MMBIO 240 — F
- CS 462 — Pre-Req: CS 324 — See Department
- CS 473 — Pre-Req: Math 213 & Math 215 — FW
- CS 474 — Pre-Req: CS 312 or Math 320 — FW
- CS 482 — Pre-Req: CS 240 & CS 312 — F
- CS 483 — Pre-Req: CS 482 — W
- CS 575 — Pre-Req: Math 213 — W
- CS 580 — Pre-Req: Math 213 & Math 215 — F
- Econ 398 — Pre-Req: Econ 388 — Contact Dept.
- Econ 484 — Pre-Req: Econ 388 & Econ 380 — Contact Dept.
- Econ 588 — Pre-Req: Econ 388 — Contact Dept.
- Geol 230 — Pre-Req: Geol 111 — W
- Geol 531 — Pre-Req: Stat 121 — F
- Math 404 — Pre-Req: Math 402 & Math 403 — FW
- Math 510 — Pre-Req: None — Contact Dept.
- Math 522 — Pre-Req: Math 213, Math 215, Math 314 — CS 111 Contact Dept.
- PHSCS 580 — Pre-Req: Math 213 & Math 215 — F
- Stat 250 — Pre-Req: Stat 121 — FW
- Stat 340 — Pre-Req: Stat 240 & Math 113 — FW
- Stat 348 — Pre-Req: Stat 240, Stat 330, & Stat 250 — F
- Stat 486 — Pre-Req: Stat 330 & 340 & 386 — W
- Stat 496R — Pre-Req: Dept. Consent (up to 3 credits) — Contact Dept.

Requirement 7
Select 3.0 credit hours from the following:

- CS 473 — Pre-Req: Math 213 & Math 215 — FW
- CS 474 — Pre-Req: CS 312 or Math 320 — FW
- CS 483 — Pre-Req: CS 482 — W
- CS 497R — Pre-Req: Research Agreement — FW
- Math 399R — Pre-Req: Internship Application — Contact Department
- Math 404 — Pre-Req: Math 402 & Math 403 — FW
- Math 522 — Pre-Req: Math 213, Math 215, Math 314 — CS 111 Contact Dept.
- PHSCS 492R — Pre-Req: Approved Project — FWSS
- PHSCS 497R — Pre-Req: Advisor Approval — FWSS
- Stat 486 — Pre-Req: Stat 330 & 340 & 386 — W
- Stat 496R — Pre-Req: Dept. Consent (up to 3 credits) — Contact Dept.
- Stat 497R — Pre-Req: Dept. Consent (Variable) — Contact Dept.

Note: All Courses only count once towards the major.

Updated 7/7/2025

Handshake: BYU's Online Job Board

handshake

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 yor 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

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!

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

Careers in Data Science

Example Job Titles

- Data Scientist
- Machine Learning Engineer
- Data Analyst
- Business Intelligence Analyst / Dashboard Developer
- Quantitative Researcher
- Risk Modeler / Actuary
- Data Engineer
- Machine Learning Operations (MLOps) Engineer
- Model Risk Analyst / Governance Specialist
- Research Scientist (AI/ML, NLP, or Computer Vision)

Industries Hiring Data Scientists

- **Technology:** Recommender systems (Netflix, Amazon), search engines, social media analytics.
- **Finance & Insurance:** Fraud detection, algorithmic trading, credit risk modeling, model governance.
- **Healthcare & Biotech:** Predictive modeling for patient outcomes, medical image analysis, personalized medicine.
- **Retail & Marketing:** Customer segmentation, pricing optimization, demand forecasting, dashboard reporting.
- **Government & Policy:** Public health analysis, transportation optimization, census data modeling.
- **Energy & Environment:** Smart grid optimization, climate modeling, sustainability analytics.

Example Applications

- Designing algorithms that recommend music, movies, or products tailored to individual users.
- Building predictive models to improve medical diagnoses or forecast disease outbreaks.
- Developing dashboards and visualization tools that turn raw data into actionable insights for executives and frontline staff.
- Monitoring and governing deployed machine learning models to ensure fairness, transparency, and compliance.
- Optimizing supply chains and logistics to save millions in operational costs.

- Using satellite imagery and sensor data to monitor deforestation, crop yields, or natural disasters.

Hard Skills

- **Programming & Tools:** Python, R, SQL
- **Data Wrangling & Engineering:** ETL pipelines, data cleaning, relational & NoSQL databases, cloud platforms (AWS, GCP, Azure)
- **Statistical & Mathematical Foundations:** Probability, regression, hypothesis testing, experimental design
- **Machine Learning & AI:** Supervised/unsupervised learning, deep learning, natural language processing, computer vision
- **MLOps & Governance:** Model deployment, monitoring, drift detection, version control, compliance frameworks
- **Visualization & Communication Tools:** Tableau, Power BI, matplotlib, ggplot, dashboards, storytelling with data
- **Big Data & Distributed Systems:** Spark, Hadoop, scalable computation frameworks
- **Optimization & Operations Research:** Linear programming, network flows, stochastic modeling
- **Version Control & Collaboration:** Git/GitHub, reproducible research practices

Soft Skills

- **Critical Thinking & Problem Solving:** Framing the right questions and identifying meaningful insights
- **Communication:** Translating technical results into clear stories for non-technical audiences
- **Collaboration:** Working effectively in cross-functional teams with business, engineering, and domain experts
- **Adaptability:** Learning new tools, techniques, and domains quickly in a rapidly evolving field
- **Ethical Awareness:** Recognizing fairness, bias, and transparency issues in data and models
- **Curiosity & Initiative:** Proactively exploring new approaches, datasets, and applications
- **Project Management:** Balancing competing priorities, timelines, and deliverables
- **Attention to Detail:** Ensuring accuracy and reliability in analysis and reporting