

Welcome to the

Computer Science Major Machine Learning Emphasis

in the College of Computational, Mathematical, and Physical Sciences

College Advisement Center

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



Computer Science Department

Website: cs.byu.edu
Email: csoffice@cs.byu.edu
Phone: 801-422-3027
Office: 3361 TMCB

Undergraduate Department Advisor – Lynnette Nelson

Email: lnelson@cs.byu.edu
Phone: 801-422-9439
Office: 2250 TMCB

Internship Coordinator – Dennis Ng (International Students only)

Email: ng@compsci.byu.edu
Phone: 801-422-2835
Office: 3322 TMCB

University Career Services – Lane Muranaka

Website: careers.byu.edu (Handshake--see flyer in packet)
Email: lane_muranaka@byu.edu
Phone: 801-422-3000 (schedule appointment)
Office: WVB 2152A

Clubs

ACM – Kimball Germane, cs.byu.acm@gmail.com

Developers Club – Kimball Germane, dev-assoc@byu.edu, visit dev.byu.edu to join and learn more

BYU Competitive Programming Club—Ryan Farrell, farrell@cs.byu.edu, visit cpc.byu.edu to join and learn more

Dev-G (Game development) – Seth Holladay, dev-g-assoc@byu.edu

Linux Users Group – Casey Deccio, linux-assoc@byu.edu

Women in Computer Science – Angela Jones – angela@cs.byu.edu, wics@cs.byu.edu

Learning outcomes can be found here: <https://learningoutcomes.byu.edu/Courses/program-courses/693224/Computer+Science+BS+Machine+Learning/1323>

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, csoffice@cs.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: 167 TMCB, 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 <https://ucs.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.

BS in Computer Science: Machine Learning (693224) MAP Sheet

Physical and Mathematical Sciences, Computer Science

For students entering the degree program during the 2024-2025 curricular year

University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:				FRESHMAN YEAR		JUNIOR YEAR	
Requirements	# Classes	Hours	Classes	<u>1st Semester</u>		<u>5th Semester</u>	
Religion Cornerstones				CS 111	3.00	CS 312	3.00
Teachings and Doctrines of the Book of Mormon	1	2.00	REL A 275	CS 191	0.50	STAT 220, STAT 330, or ECON 388	3.00
Jesus Christ and the Everlasting Gospel	1	2.00	REL A 250	MATH 112	4.00	CS 224	3.00
Foundations of the Restoration	1	2.00	REL C 225	UNIV 101	2.00	GE Arts, Letters, Sciences	3.00
The Eternal Family	1	2.00	REL C 200	American Heritage or First Year Writing	3.00	Global and Cultural Awareness	3.00
BYU Foundations for Student Success				Religion Cornerstone Class	2.00	Total Hours:	15.00
Foundations for Student Success	1	2.00	UNIV 101	Total Hours:	14.50	<u>6th Semester</u>	
The Individual and Society				<u>2nd Semester</u>		CS 412 or MATH 552	3.00
American Heritage	1 to 2	3.00-6.00	from approved list	CS 235	3.00	CS Requirement 7 Elective	3.00
Global and Cultural Awareness	1	3.00	from approved list	CS 180	3.00	CS Requirement 8 Elective	3.00
Skills				MATH 290	3.00	GE Arts, Letters, Sciences	3.00
First Year Writing	1	3.00	from approved list	American Heritage or First Year Writing	3.00	Religion Elective	2.00
Advanced Written and Oral Communications	1	3.00	WRTG 316*	Religion Cornerstone Class	2.00	Total Hours:	14.00
Quantitative Reasoning	1	4.00	MATH 112*	Total Hours:	14.00	SENIOR YEAR	
Languages of Learning (Math of Language)	1	4.00	MATH 112*	SOPHMORE YEAR		<u>7th Semester</u>	
Arts, Letters and Sciences (Complete 6 of 7)				<u>3rd Semester</u>		Religion Elective	2.00
Civilization 1	1	3.00	from approved list	CS 236	3.00	Requirement 8 Elective	3.00
Civilization 2	1	3.00	from approved list	STAT 121 or STAT 201	3.00	CS 474	3.00
Arts	1	3.00	from approved list	MATH 213	2.00	CS Requirement 7 Elective	3.00
Letters	1	3.00	from approved list	MATH 215	1.00	WRTG 316	3.00
Biological Science	1	3.00	from approved list	CS 291	0.50	GE Arts, Letters, Sciences	3.00
Physical Science	2	3.00	from approved list	GE Arts, Letters, Sciences	3.00	Total Hours:	17.00
Social Science	1	3.00	from approved list	Religion Cornerstone Class	2.00	<u>8th Semester</u>	
Core Enrichment: Electives				Total Hours:	14.50	CS Requirement 9 Elective	3.00
Religion Electives	3 to 4	6.00	from approved list	<u>4th Semester</u>		CS Requirement 9 Elective	3.00
Open Electives	Variable	Variable	personal choice	CS 240	4.00	CS Requirement 9 Elective	3.00
Graduation Requirements:				CS 270	3.00	CS 404	2.00
Minimum residence hours required		30.00		MATH 380	3.00	Religion Elective	2.00
Minimum hours needed to graduate		120.00		Religion Cornerstone Class	3.00	GE Arts, Letters, Sciences	3.00
				GE Arts, Letters, Sciences	2.00	Total Hours:	16.00
				Total Hours:	15.00		
*These classes fill both university core and program requirements							

Program Requirements

Grades below C- are not allowed in major courses.

Requirement 1 — Complete 10 Courses

C S 111 - Intro to Computer Science 3.0

C S 180 - Intro to Data Science 3.0

C S 224 - Computer Systems 3.0

C S 235 - Data Structures 3.0

C S 236 - Discrete Structure 3.0

C S 240 - Adv Software Construction 4.0

C S 312 - Algorithm Design & Analysis 3.0

C S 404 - Ethics & Computers in Society 2.0

C S 472 - Intro to Machine Learning 3.0

C S 474 - Deep Learning 3.0

Requirement 2 — Complete 3 Courses

MATH 112 - Calculus 1 4.0

MATH 290- Fundamentals of Mathematics 3.0

MATH 380 - Mathematics of Data Science 3.0

Requirement 3 — Complete 2 Courses

MATH 213 - Elementary Linear Algebra 2.0

MATH 215 - Computational Linear Algebra 1.0

Requirement 4 — Complete 1 of 2 Courses

STAT 121 - Principles of Statistics 3.0

STAT 201 - Stat for Engineers & Scientist 3.0

Requirement 5 — Complete 1 of 3 Courses

ECON 388 - Intro to Econometrics 3.0

STAT 220 - Stat Modeling for Data Science 3.0

STAT 330 - Introduction to Regression 3.0

Requirement 6 — Complete 1 of 2 Courses

C S 412 - Linear Prog/Conv Optimization 3.0

MATH 522 - Methods of Applied Math 2 3.0

Requirement 7 — Complete 2 of 4 Courses

C S 450 - Computer Vision 3.0

C S 470 - Intro Artificial Intelligence 3.0

C S 471 - Voice Interfaces 3.0

C S 479 - Intro to Machine Translation 3.0

Requirement 8 — Complete 6 hours

Option 8.1 — Complete up to 6 hours

C S 482 - Data Science Capstone 1 3.0

C S 483 - Data Science Capstone 2 3.0

Option 8.2 — Complete up to 6 hours

C S 497R - Undergraduate Research - *You may take once 6.0*

If you complete this option you must take two semesters, totaling 6.0 credits

Requirement 9 — Complete 9 hours

Note: Courses taken to fulfill Requirements 6 and 7 cannot double count here

C S 412 - Linear Prog/Conv Optimization 3.0

C S 450 - Computer Vision 3.0

C S 452 - Database Modeling Concepts 3.0

C S 453 - Fund of Information Retrieval 3.0

C S 470 - Intro Artificial Intelligence 3.0

C S 471 - Voice Interfaces 3.0

C S 479 - Intro to Machine Translation 3.0

C S 513 - Robust Control 3.0

C S 575 - Intro to Network Science 3.0

C S 580 - Theory of Predictive Modeling 3.0

ECON 378 - Statistics for Economists 3.0

LING 581 - Natural Lang Processing 3.0

MATH 113 - Calculus 2 4.0

MATH 314 - Calculus of Several Variables 3.0

MATH 413 - Advanced Linear Algebra 3.0

MATH 431 - Probability Theory 3.0

STAT 240 - Probability and Inference 1 3.0

STAT 251 - Intro to Bayesian Statistics 3.0

STAT 340 - Probability and Inference 2 3.0

STAT 386 - Data Science Process 3.0

Requirement 10 — Obtain confirmation from your advisement center that you have completed the following:

Complete Senior Exit Interview with the Computer Science department during last semester or term.

Note: Math 112, Math 113, Phscs 121, Engl 316, and C S 312 can be used to fill both General Education and program requirements. Advanced Writing and Oral Communication: Engl 316. Quantitative Reasoning: Math 112 or 113. Languages of Learning: Math 112 or 113. Physical Science: C S 312 or Phscs 121.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

Computer Science Department

Brigham Young University

3361 Talmage Building Provo, UT 84602

Telephone: (801) 422-3027

ADVISEMENT CENTER INFORMATION

Computational, Mathematical and Physical Sciences College Advisement Center

Brigham Young University N-181 ESC

Provo, UT 84602

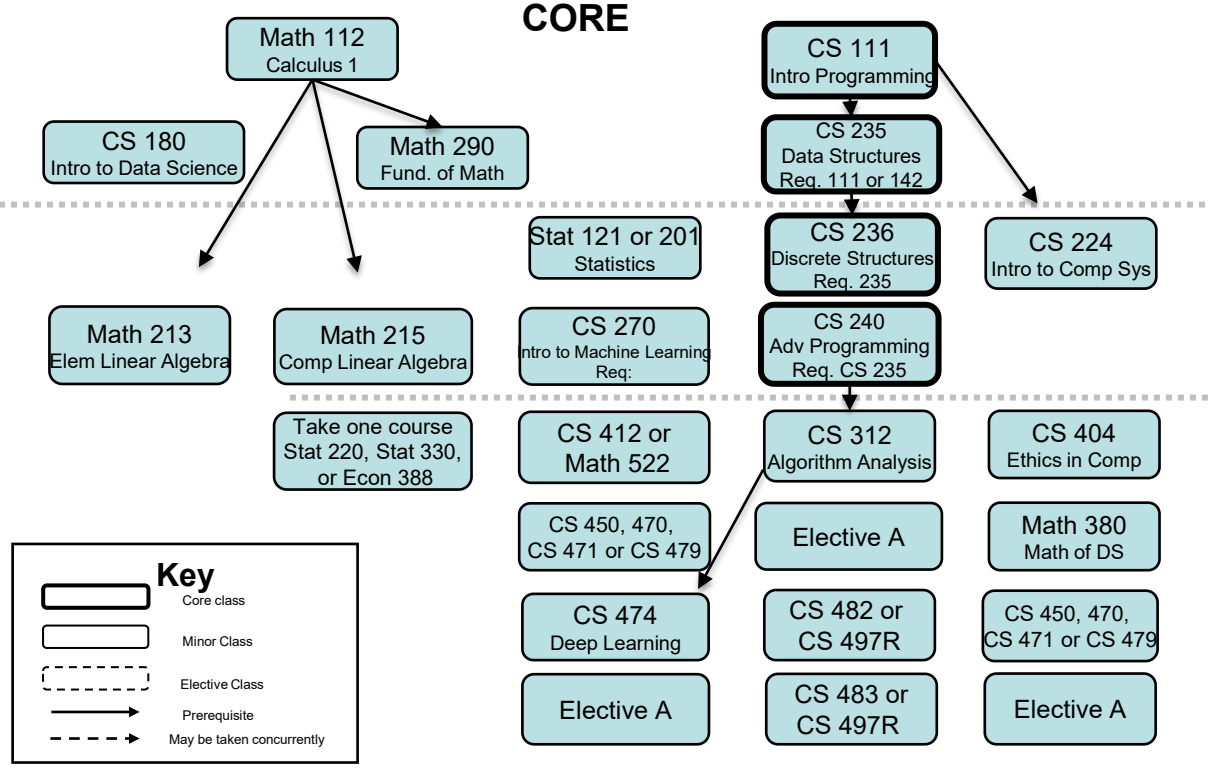
Telephone: (801) 422-2674

Machine Learning Emphasis

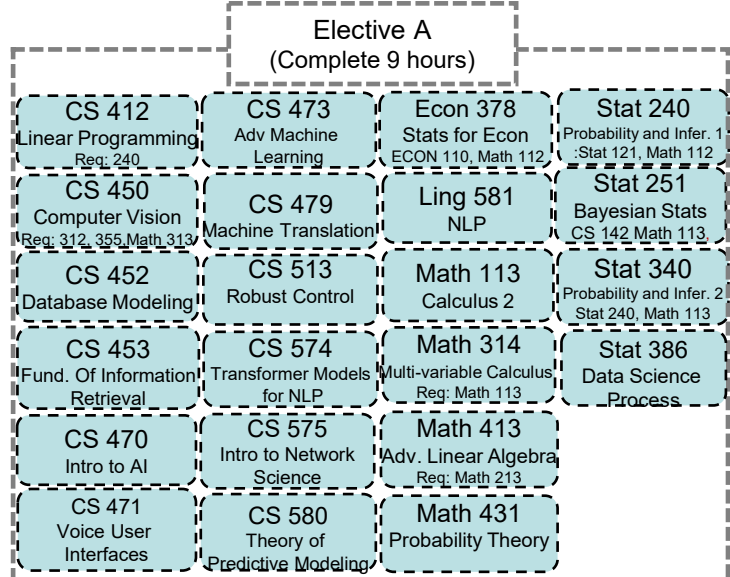
Fall 2024 Requirements

Major (74 Hours)

- Grades below C- are not allowed in major courses.
- Complete the following courses: CS 111, CS 180, CS 224, CS 235, CS 236, CS 240, CS 312, CS 404, CS 270, CS 474
- Complete the following supporting courses: Math 112, Math 290, Math 380, Math 213, and Math 215.
- Complete one of the following: Stat 121 or Stat 201
- Complete one of the following: Stat 220, STAT 330 or Econ388
- Complete either CS 412 or Math 522.
- Complete 2 of the following 6 courses: CS 450, CS 470, CS 471, CS 473, CS 479, or CS 574.
- Complete 1 option
 - CS 482 (Data Science Capstone 1) and CS 483 (Data Science Capstone 2)
 - complete 6 credits (2 semesters) of CS 497R: Undergraduate research
- Complete 9 hours from the following:
 - CS 412, 450, 452, 453, 470, 471, 473, 479, 513, 574, 575, 580, Econ 378, Ling 581, Math 113, Math 314, Math 413, Math 341, Stat 240, Stat 251, Stat 340, Stat 386



CORE



Freshman
 Semester 1
 Semester 2
 Sophomore
 Semester 3
 Semester 4
 Junior
 Semester 5
 Semester 6
 Senior
 Semester 7
 Semester 8

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 you 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 (Facebook stalking... “networking”)

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 Counselor 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!

Possible Careers with a Computer Science major

(Not a comprehensive list)

Animation Tool Developer
Applications developer
Artificial intelligence engineer
Bioinformatics developer
Business intelligence analyst
Cloud-related jobs – devops engineer, cloud engineer,
virtualization engineer, web serviced engineer
Computational and information scientist
Computer programmer
Computer systems analyst
Cyber Security Analyst
Data scientist
Database manager
Embedded Systems Programmer
Multimedia programmer
Network Engineer
Network Architect
Professor*
Research Scientist
Robotics software engineer
Security Engineer
Security Architect
Software Test Engineer
Software Development Manager
Software Engineer
Systems Engineer
UI/UX Engineer
UI/UX Researcher
Video game developer and designer
Web designer
Web programmer

*Usually requires a graduate degree

*More information is available at the Counseling and Career Center and from CareerOneStop:
<http://www.careeronestop.org/>*