Here’s some advice

Advising help for Fall 2026 courses

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compsci.appstate.edu/advising

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  - CS Requirements
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  - Fall through courses
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- Where's the CS 3100 course?
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- Are you thinking about dropping or repeating a course?
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- Are you looking for an additional credential? You can earn a Data Science certificate with one extra course
  - Academic Option: Data Science Certificate
- Are you an excellent student? Do you want to make yourself even more marketable? Are you interested in an academic career?
  - Academic Option: Accelerated Bachelors to Masters
- Are you looking for an academic challenge in your undergraduate degree?
  - Academic Option: Department Honors Program
- How about an international experience?
  - CS students can do a Study Abroad

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- Are you interested in a minor? You can earn a Math minor with one extra course and a cybersecurity minor with three extra courses.
  - Academic Options: Minors
- How to I add or change a minor/certificate/major?
  - Adding/changing major/minor/certificate
- Are you interested in an internship? You should be. In addition to money, experience, and a chance at full-time employment, you can earn CS elective credit for an internship.
  - Internships
- How many classes do I need to take in a semester to graduate in four years?
  - How many classes should I take?

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- When can I register?
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- How can I tell if I have the prerequisites for a course?
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- When/how do I apply for graduation?
  - Applying for Graduation
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  - Completion Form

Note the bottom right corner of each slide contains a link that takes you back to this menu.

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Things to consider (advice for new students)

- Brand new to Computer Science or need extra help?
  - Consider taking **1530: Programming Support**
  - This is a 1 credit course for CS 1440 and CS 2440 students who would like additional help developing programming skills

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Things to consider (advice for new students)

- Options for transfer students
  - First semester (if calculus ready): CS 1440: Computer Science 1, CS 1100: Discrete Mathematics, MAT 1110: Calculus I
    - CS 2435: Introduction to Scientific Program - not a CS requirement but is the department's only Python course
  - Second semester: CS 2440: Computer Science II, MAT 1120: Calculus II, CS 3430: Database
    - CS 2450: Intro to Computer Systems - prerequisite is CS 2440 and CS 1100, but transfer students can petition to take it after CS 1440 and CS 1100
    - CS 3435: Data Collection and Visualization - not a CS requirement but can help you earn Data Science Certificate (CS 2435 is the prerequisite)

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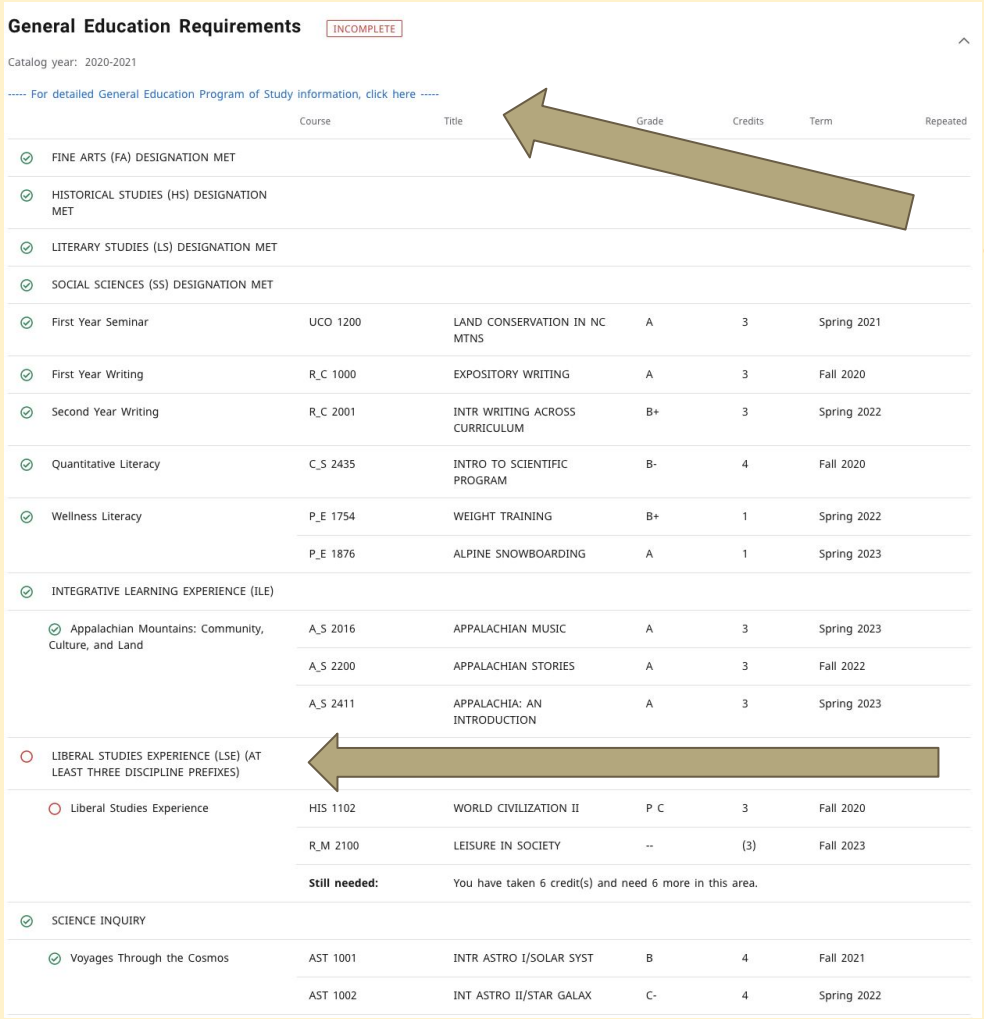

General Education Requirements

INCOMPLETE

Catalog year: 2020-2021

----- For detailed General Education Program of Study information, click here -----

	Course	Title	Grade	Credits	Term	Repeated
FINE ARTS (FA) DESIGNATION MET						
HISTORICAL STUDIES (HS) DESIGNATION MET						
LITERARY STUDIES (LS) DESIGNATION MET						
SOCIAL SCIENCES (SS) DESIGNATION MET						
First Year Seminar	UCO 1200	LAND CONSERVATION IN NC MTNS	A	3	Spring 2021	
First Year Writing	R_C 1000	EXPOSITORY WRITING	A	3	Fall 2020	
Second Year Writing	R_C 2001	INTR WRITING ACROSS CURRICULUM	B+	3	Spring 2022	
Quantitative Literacy	C_S 2435	INTRO TO SCIENTIFIC PROGRAM	B-	4	Fall 2020	
Wellness Literacy	P_E 1754	WEIGHT TRAINING	B+	1	Spring 2022	
	P_E 1876	ALPINE SNOWBOARDING	A	1	Spring 2023	
INTEGRATIVE LEARNING EXPERIENCE (ILE)						
Appalachian Mountains: Community, Culture, and Land	A_S 2016	APPALACHIAN MUSIC	A	3	Spring 2023	
	A_S 2200	APPALACHIAN STORIES	A	3	Fall 2022	
	A_S 2411	APPALACHIA: AN INTRODUCTION	A	3	Spring 2023	
LIBERAL STUDIES EXPERIENCE (LSE) (AT LEAST THREE DISCIPLINE PREFIXES)						
Liberal Studies Experience	HIS 1102	WORLD CIVILIZATION II	P C	3	Fall 2020	
	R_M 2100	LEISURE IN SOCIETY	--	(3)	Fall 2023	
	Still needed:	You have taken 6 credit(s) and need 6 more in this area.				
SCIENCE INQUIRY						
Voyages Through the Cosmos	AST 1001	INTR ASTRO I/SOLAR SYST	B	4	Fall 2021	
	AST 1002	INT ASTRO II/STAR GALAX	C-	4	Spring 2022	

Notice the link to get information about the gen ed requirements

Themes are chosen Appalnet. When you choose a science inquiry, make sure it also meets CS requirements

Choose gen courses that meet both the “experience” and a “designation”

Appears wherever you have a requirement left to meet
(A discipline prefix is HIS or CS.)

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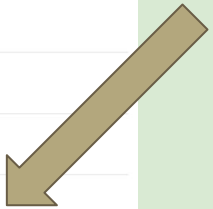
Major in Computer Science

INCOMPLETE

Catalog year: 2020-2021

	Course	Title	Grade	Credits	Term	Repeated
Writing in the Discipline Course (WID)	ENG 3695	TECHNICAL WRITING FOR COMP SCI	A	3	Spring 2023	
Capstone Course (CAP)	**Still needed:**	Capstone Course still needed.				
MAJOR REQUIREMENTS						
Computer Science I	C_S 1440	COMPUTER SCIENCE I	A-	4	Spring 2021	
Computer Science II	C_S 2440	COMPUTER SCIENCE II	A-	4	Fall 2021	
Introduction to Computer Systems	C_S 2450	INTRO TO COMPUTER SYSTEMS	B-	3	Fall 2022	
Introduction to Theoretical Computer Science	C_S 2490	INTRO THEORETICAL CMP SC	B	3	Fall 2022	
Database	C_S 3430	DATABASE	A	3	Fall 2022	
Data Structures	C_S 3460	DATA STRUCTURES	B-	3	Spring 2022	
Computer Systems I	C_S 3481	COMPUTER SYSTEMS I	--	(3)	Fall 2023	

indicates a course
In progress



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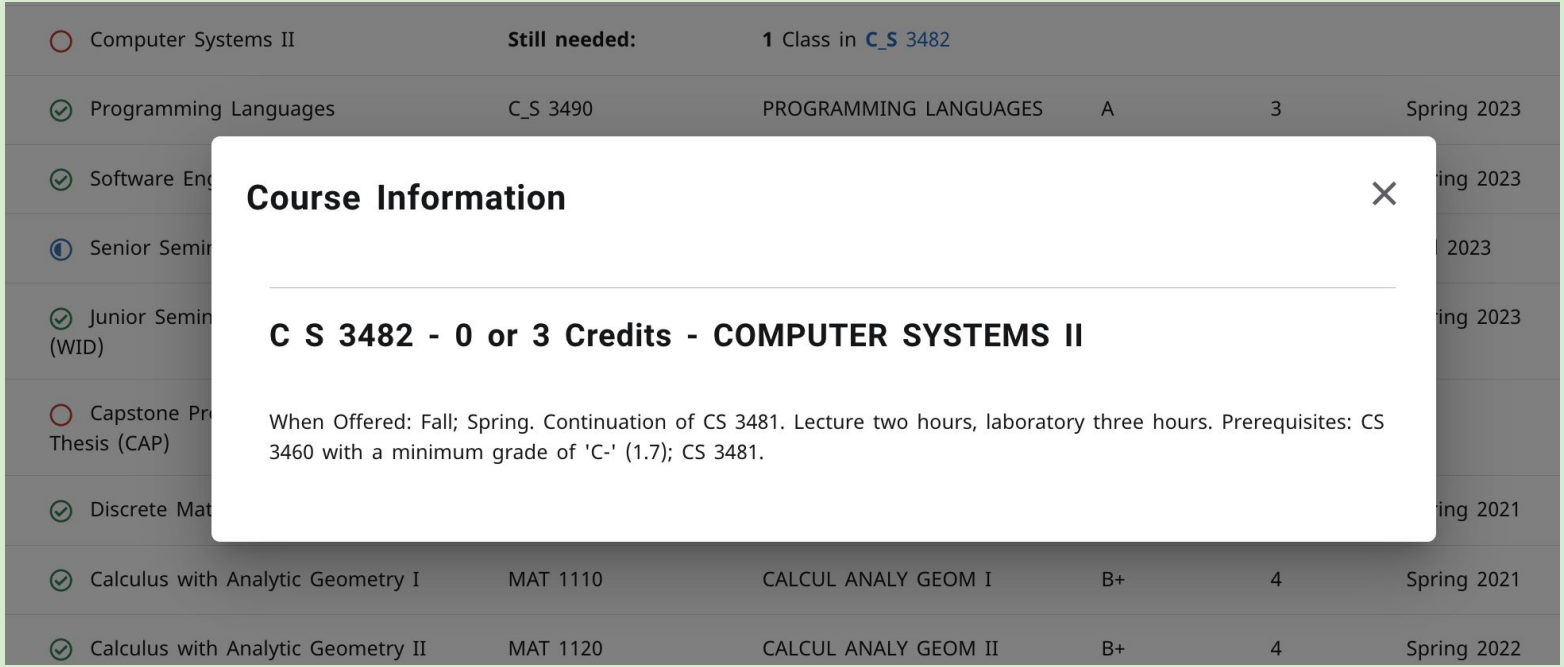

If you click on a course that you need to take, you will be shown the course description, including the prerequisites. Note the minimum grade requirements.

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CS Electives

- CS major requires 12 hours of **CS electives**
- 3 hours of those can be from an internship
- Two math courses count for a CS elective (MAT 4310: Numerical Methods; MAT 4990: Numerical Linear Algebra)
- Each semester we offer special topics courses that count as CS electives

○ Computer Science Electives	C_S 4900	INTERNSHIP	S	3	Spring 2024
	Still needed:	**9** Credits in **C_S** 3240 or 3440 or 3463 or 3500 or 3515 or 3530:3549 or 3750 or 3760 or 3770 or 4435 or 4440 or 4450 or 4465 or 4521 or 4550 or 4570 or 4620 or 4680 or 4740 or 4755 or **MAT** 4310 or 4990			

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Elective courses

- CS major also requires **7-9 hours of electives** be completed to get to 120 hours (these can be anything you want)
- Elective courses show up on degree works in the major block

Electives	BIO 1202	BIOLOGY IN SOCIETY II	APCR	3	Fall 2021
	Satisfied by:	BIO20 - BIOLOGY - Advanced Placement Credit			
	BIO 1203	BIOLOGY IN SOCIETY LABORATORY	APCR	2	Fall 2021
	Satisfied by:	BIO20 - BIOLOGY - Advanced Placement Credit			
	MAT 1025	PRECALCULUS	B	4	Fall 2021

Fall through courses

- CS major: 44 hours of gen ed plus 67 to 69 hours for CS (depending upon science sequence) plus 7 to 9 hours of electives equals 120 hours
- Fall through courses are other courses taken by the student that are not needed for the CS major or any declared minors

Fall Through - Courses Not Included

Credits applied: 6 Classes applied: 2

Course	Title	Grade	Credits	Term	Repeated
BIO 1201	BIOLOGY IN SOCIETY I	APCR	3	Fall 2021	
	Satisfied by: BIO20 - BIOLOGY - Advanced Placement Credit				
IDS 3250	INTERNET STUDIES	A	3	Fall 2022	

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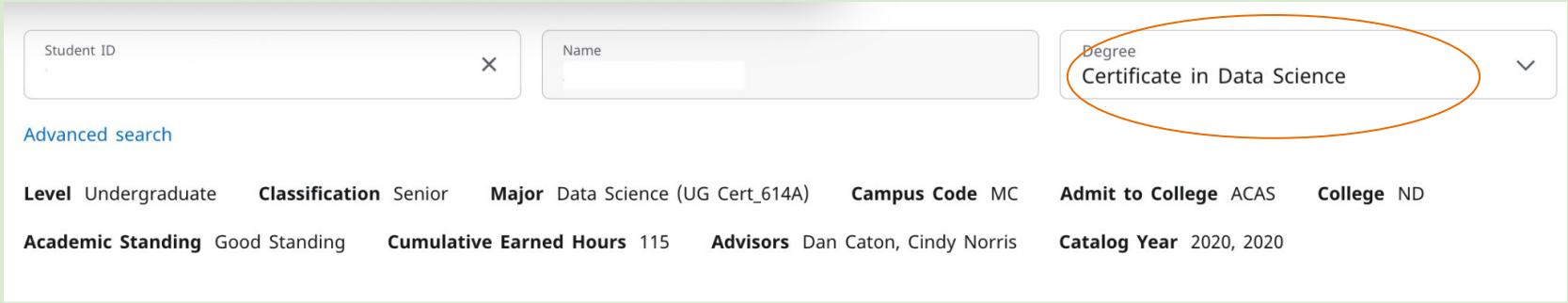
Minors and Certificates

- Degreeworks shows any minor requirements in a block below the display of major requirements
  - Computer science doesn't require completion of a minor, but some degrees do
- If you are completing a certificate or another major, you can see those requirements after selecting it in the degree block



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Drops versus Repeats

- Withdrawal Credits (formerly, Career Drops)
  - Drop after the early drop-add period during the beginning of the semester before the end of the ninth week of the semester is called a “withdrawal”
  - Students are limited to a total of 16 withdrawal credits during their undergraduate careers at Appalachian State University.
- Repeat
  - A retake of a course causes the first grade in the course to be forgiven
  - Students are allowed four repeats for four *different* courses
  - The second grade replaces the first even if it’s worse!
  - The Registrar automatically does this for a retake
    - You can waive it with a form completed by end of 1st week of retake
    - Why waive? A 1-credit course doesn’t have much GPA “bang”

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Should a I drop or repeat?

Be aware that dropping a course can cause you to be enrolled for less than full-time (12 hours for ugrad, 6 hours for grad), which can impact financial aid.

- If you are changing majors
  - Drop the course if you have withdrawal credits available
- If you are out of withdrawal credits
  - You can still drop if there are extenuating, documented circumstances
    - Late or Retroactive Withdrawals | Office of the Registrar
- If you are staying in the major
  - Repeating the course is reasonable
  - The grade you earn in the course the second time will replace your first grade (up to four times for four *different* courses)
    - You don't want to earn a lower grade in the second attempt!

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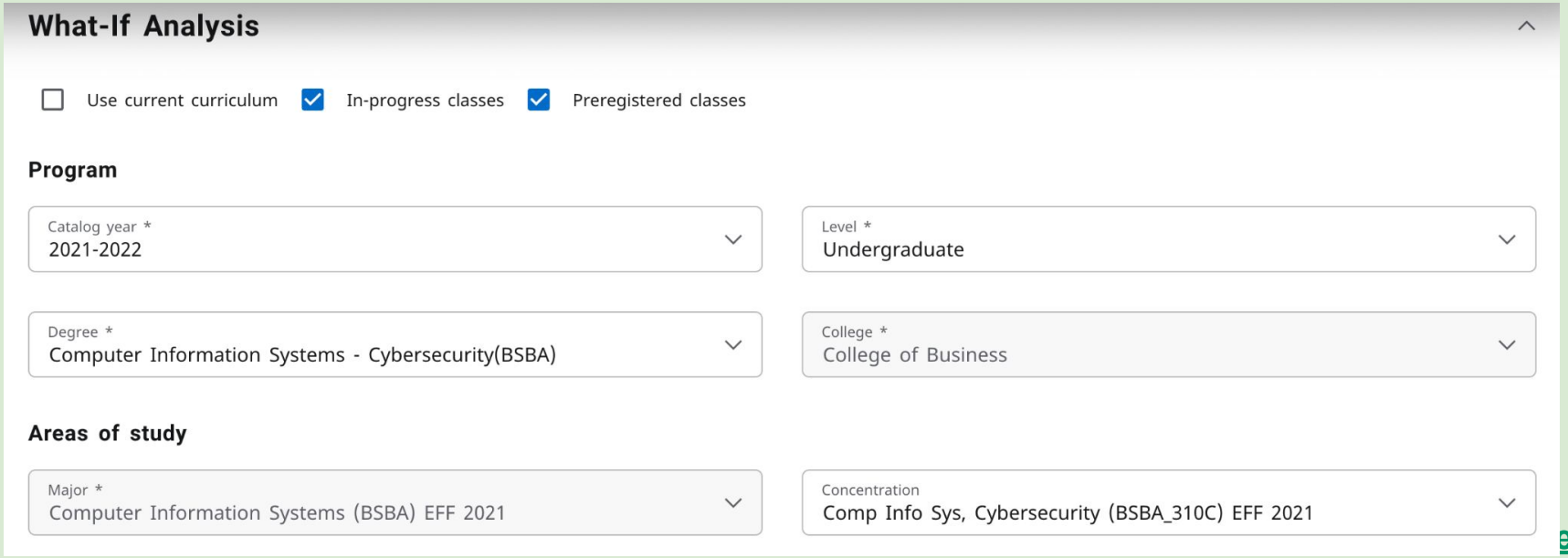
What-If Analysis

- Degree works what-if analysis allows you to see how close you are to finishing a different major



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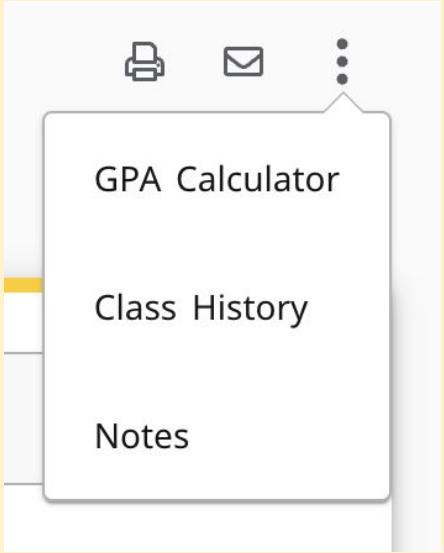
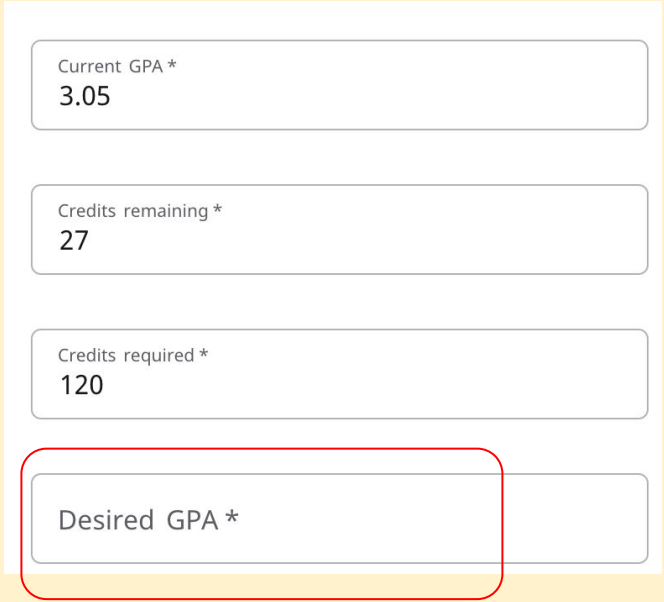
GPA Calculator

- Can be used to calculate the average grade you need to earn in order to reach a target GPA





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Study Abroad

- Yes, Computer Science students can do a semester abroad
- The Office of International Programs will help you figure out how to have an enriching experience abroad while also meeting degree requirements

https://international.appstate.edu/education-abroad/starting-process

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Academic Option: Accelerated Bachelors to Masters

- If you have a GPA of 3.2 or above (or you're going to do the work to get it there), think about entering the Accelerated Bachelors to Masters Program
- During your senior year, you can take grad courses that count toward both your undergraduate degree and a future graduate degree
  - Up to 12 hours can double count

Students who graduate with an MS typically have better job opportunities than those with only a BS

For more information contact CS graduate program director:
Dr. Mitch Parry, parryrm@appstate.edu

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Academic Option: Data Science Certificate

- Data scientists extract meaningful insights from data using
  - statistics
  - algorithms
  - programming skills
- Data scientists use data to answer questions like:
  - Will this person renew their subscription?
  - What kind of car is this person likely to buy?
  - Is this a picture of a cat or a dog?

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Data Science Certificate Requirements

- Although the certificate is open to all majors, it is easier for CS majors to earn because of the significant overlap in requirements
- Requirements:
  - **CS 2435:** Introduction to Scientific Programming (Programming in Python)
    - CS 2440: Computer Science II can be a substitute
  - **Math 2240**: Linear Algebra
    - Required for CS major
  - **Stat 3850**: Statistics
    - Required for CS major
  - **CS 3435**: Data Acquisition and Visualization
    - *The one "extra" course, but it also contributes to the 120 hours needed to graduate*
  - **One of these courses:**
    - **CS 4755:** Applied Machine Learning
    - **CS 3750:** Applied Neural Networks
    - **CS 4440:** Artificial Intelligence
      - Each of these also counts as a CS elective (12 hours of CS electives required for CS major)

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Why Data Science Certificate?

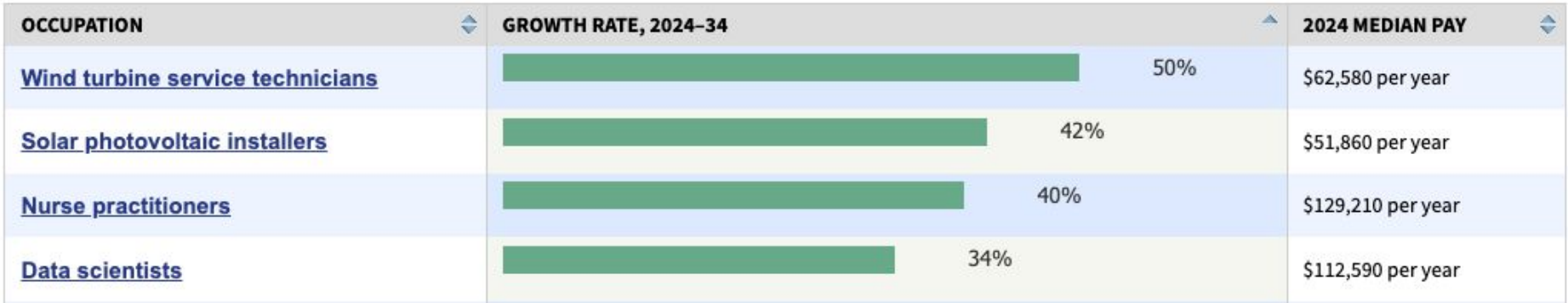
U.S. Bureau of Labor Statistics

Fastest Growing Occupations

PRINTER-FRIENDLY

Fastest growing occupations: 20 occupations with the highest projected percent change of employment between 2024–34.

Click on an occupation name to see the full occupational profile.



OCCUPATION	GROWTH RATE, 2024–34	2024 MEDIAN PAY
Wind turbine service technicians	50%	$62,580 per year
Solar photovoltaic installers	42%	$51,860 per year
Nurse practitioners	40%	$129,210 per year
Data scientists	34%	$112,590 per year

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Academic Option: Department Honors Program

- To graduate with Honors in Computer Science, a student must:
  - Earn a minimum of 9 hours of honors credit:
    - 6 hours of honors courses in Computer Science
    - 3 hours of honors thesis/project (instead of Capstone)
  - Possess a minimum GPA of 3.45 in the Computer Science major upon graduation
- Graduate courses count as Honors courses
  - Take Graduate courses to graduate with honors and simultaneously work toward earning the Master's degree

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Why Honors?

- Richer, more in-depth educational experience
- Interested in becoming a faculty member in higher education?
  - PhD required by most institutions
  - PhD generally requires writing a thesis
  - Honors provides the opportunity to write a thesis
- Interested in becoming a Researcher in academia or industry
  - Honors provides the opportunity to perform research under the guidance of a faculty member

For more information contact CS department honors program director:
Dr. Mark Hills, hillsma@appstate.edu

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Academic Options: Minors

Math minor

- MAT 1120: Calculus II plus 9 more hours
  - MAT 2240: Linear Algebra
  - MAT 4310: Numerical Methods (counts as CS elective)
  - MAT 2310: Computation Mathematics (prerequisite to MAT 4310)

You can get the Math minor with one extra course: MAT 2310

Cybersecurity minor

- 15 hours of coursework (five courses)
- https://cis.appstate.edu/cybersecurity/cybersecurity-minor
- Two CS courses count toward that minor:
  - CS 3760: System Administration and Security
  - CS 4450: Data Communications and Networking

These courses aren't offered every semester so don't delay taking them if you have a chance

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Minors

- CS is a good combination with many fields
  - CS + Biology = computational biology/bioinformatics
  - CS + Chemistry = computational chemistry
  - CS + Psychology = user experience design
  - CS can also be a good blend with fields in the arts and humanities
    - Interested in History?
      - A degree in CS can help you better collect and organize historical data
- Don’t be afraid to combine your CS degree with another passion

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Adding/changing major/minor/certificate

- Student Forms | College of Arts and Sciences has a link to a form that will allow you to
  - change your major to another major in the College of Arts and Sciences
  - add a minor or certificate
  - drop your major, minor, or certificate
  - change your catalog year (In fall 2025, the science required for gen ed will also meet the science requirement for CS. You may want to change your catalog year if you haven't finished your science requirements.)
- If you want to add a major in another college, you need to see advising in that college
  - For example, if you want to change your major to cyber security or computer information systems see: Walker College of Business Advising Center

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Internships

- Internships provide real-life experiences at partner colleges or industries
  - Often an internship will lead to a job offer upon completion of a degree
- Spring 2025 graduates
  - 68.8% of graduates sought an internship
  - 59.4% of those seeking an internship were able to obtain one
- CS 4900 Internship course is an approved Computer Science elective!
  - 18 interns in CS 4900 last summer, 10 last academic year
- Lots of variety
  - Big company, small company
  - On-site experience, remote experience
  - Local company, regional company, “West Coast” company (San Francisco, Seattle)

All of you should be looking for an internship at some point in your academic career. Typical time to look is in the fall/spring of your junior year (internship in summer after junior year)

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How to find an internship

- Internships - Appalachian State University
  - Sign up to get emails about flyers
  - Look at recent internship organizations
- Club meetings
- Handshake: Handshake | Career Development Center | Appalachian State University
- App State Career Center job and internship fairs
- Linked In
- Indeed
- Don’t miss local opportunities; websites for churches, non-profits, etc.

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Scholarships

- There are several scholarship programs:
  - Department scholarship page: Scholarship Information
    - ECRS - funded by the local ECRS company
    - S-STEM - funded by the National Science Foundation (NSF)
      - S-STEM Scholarship Program, Appalachian State University
  - App State scholarships portal: Appalachian Scholarship Application Portal
    - Portal allows you to apply for multiple scholarships with one application

Pay attention to emails from Dr. Fenwick about scholarships!
As the saying goes, we don't want to leave money on the table.

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How many classes should I take?

- You will need a minimum of 120 hours to graduate with a Computer Science degree
  - 15 hours a semester for eight semester
- Financial aid requires you are full-time to receive full aid
  - 12 hours in a fall/summer semester is considered full-time for undergraduates
  - 6-7 hours in a summer session is considered full-time
- What if you want to take more than 15 hours?
  - 18 hours in fall/spring (7 hours in a summer session) are allowed
  - Beyond that, special permission is required from the Dean’s office

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Registration

- Register via: appalnet.appstate.edu
- You'll need your six-digit Alternate PIN to register
  - Obtain from your advisor or via group advising session
- The early registration period is **April 1 - 15**. Registration will open for you based upon your number of earned hours
  - More hours = earlier time
- To see when you can register:
  - appalnet.appstate.edu
  - Self-service
  - Student
  - Registration
  - View your Registration Time

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Prerequisites

- If the course is a clickable link in degree works, then clicking on it will show the prerequisites, for example:

- Some prerequisites can be viewed here: Prerequisites | Computer Science Department
- Also prerequisites can be seen in the current bulletin: Bulletin - Department of Computer Science
  - Note the current bulletin prerequisites apply, regardless of your catalog year

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Applying for graduation

- Graduation is not the same as commencement
  - You don’t need to participate in commencement to graduate
  - You do need to apply for graduation in order to graduate
  - You do need to be enrolled in at least one class in the semester you graduate
- You should apply for graduation the semester *before* the semester in which you plan to graduate
- Apply to graduate via appalnet. Detailed instructions can be found here: Graduation Application Instructions | Office of the Registrar

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Completion Form

To finish, fill out this advising completion form.

qrco.de/bgQVMS