

Advice for
3-2 Combined Plan
CS Students

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Columbia University

Fall 2024

Advising



I am the CS advisor for Combined Plan students

Email me with questions

sedwards@cs.columbia.edu

Advising



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Your “class dean” at the Center for Student Advising (CSA) can advise on non-CS class questions

I know remarkably little about, e.g., English classes

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The CS Advising Team can help with other bureaucracy

ug-advising@cs.columbia.edu

Time is of the Essence

You have exactly two years here

You must take 60 points at Columbia



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Typical class is 3 points

$60 \div 3 \div 4 = 5$ classes per semester

“Fifteen (15) to Finish”

Typical load: 4 CS + 1 elective



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Flaking out on classes, for whatever reason, is the number one problem of combined plan students

Extending your time here is nearly impossible

The SEAS Quick Guide

CS website → Academics → BS/BA Programs →
BS in Computer Science (SEAS)

← → ↻ cs.columbia.edu/education/undergraduate/

career interest by pursuing additional programs in business administration, medicine, or other professional studies.

[Spring 2021 Topics Course Descriptions](#)

[Fall 2020 Topics Course Descriptions](#)

[Tentative list of Spring 2021 and Summer 2021 courses](#)

DEGREE PROGRAM QUICK GUIDES

- [BS in Computer Science \(SEAS\)](#) *Updated February 2022*
- [BS in Computer Engineering \(SEAS\)](#)
- [BA in Computer Science \(CC, GS, Barnard\)](#) – *Updated February 2022*
- [BA in Computer Science and Mathematics \(CC & GS\)](#)

BS CURRICULUM

SEAS Students who declare a CS major in Fall 2023 and beyond are required to follow the new curriculum. SEAS Students who declared a CS major before Fall 2023 can follow the new CS Curriculum or continue with the old CS Curriculum.

PREREQUISITES

- SEAS Prerequisites and ENGI E1006: Computing for EAS

CS CORE

- The following 6 courses must be taken:
 - COMS W1004 Intro to CS
 - COMS W3134 Data Structures
 - COMS W3157 Advanced Programming
 - COMS W3203 Discrete Math
 - COMS W3261 CS Theory
 - CSEE W3827 Fundamentals of Computer Systems
- Select 1 Linear Algebra course
 - COMS W3251, APMA E3101, APMA E2101, MATH UN2010, or MATH UN2015
- Select 1 Probability course (new)
 - STAT UN1201, STAT GU4001, IEOR 3658, or MATH UN2015
 - MATH UN2015 can double count for Linear Algebra and Probability requirements. This is the ONLY instance a course can double-count

IMPORTANT NOTES

GTE APPROVALS NOT NEEDED

AREA FOUNDATION COURSES

PROBABILITY REQUIREMENT

NO MORE TRACKS

IMPORTANT EXCEPTIONS

- No more than 6 points of project/thesis courses (COMS W3902, W3998, W4901) can count toward the major.
- COMS W3999 Fieldwork cannot be used as a CS Elective.
- No more than one course from each set below may be applied to the major
 - IEOR E3658, STAT UN1201, STAT GU4001, MATH UN2015
 - MATH UN2015, MATH UN2010, APMA E3101, COMS W3251
 - COMS W4771, COMS W4721, STAT GU4241

AREA FOUNDATION COURSES (AFC)

- Select 4 courses from the following list:
 - COMS W4111 Introduction to Databases
 - COMS W4113 Distributed Systems Fundamentals
 - COMS W4115 Programming Languages and Translators
 - COMS W4118 Operating Systems
 - CSEE W4119 Computer Networks
 - COMS W4152 Engineering Software-as-a-Service
 - COMS W4156 Software Engineering
 - COMS W4160 Computer Graphics
 - COMS W4167 Computer Animation
 - COMS W4170 User Interface Design
 - COMS W4181 Security 1
 - CSOR W4231 Analysis of Algorithms
 - COMS W4236 Introduction to Computational Complexity
 - COMS W4701 Artificial Intelligence
 - COMS W4705 Natural Language Processing
 - COMS W4731 Computer Vision
 - COMS W4733 Computational Aspects of Robotics
 - CBMF W4761 Computational Genomics
 - COMS W4771 Machine Learning
 - CSEE W4824 Computer Architecture
 - CSEE W4868 System-on-Chip Platforms

CS ELECTIVES

- 4 COMS courses or jointly listed CS courses such as CSXX/XXCS that are at the 3000- level or higher, and are at least 3-points

GENERAL TECHNICAL ELECTIVES (GTE)

- 4 courses from the following Columbia or Barnard departments that are 3-point courses, and at the 3000 level or above:
 - Any SEAS department
 - Astronomy
 - Biomedical Informatics
 - Biological Sciences
 - Chemistry
 - Earth and Environmental Sciences
 - Ecology, Evolution and Environmental Biology
 - Mathematics
 - Physics
 - Psychology
 - Statistics
 - Economics

CS Degree Requirements

CS Core

24 points

All are required:

1. Intro to CS (COMS 1004)*
2. Data Structures (COMS 3134)*
3. Advanced Programming (COMS 3157)
4. Discrete Math (COMS 3203)*
5. CS Theory (COMS 3261)
6. Fundamentals of Computer Systems (CSEE 3827)
7. Linear Algebra (COMS 3251, ..., or MATH UN2015)
8. Probability (STAT UN1201, ..., or MATH UN2015)

*You already took these three to enter the 3-2 program

CS Degree Requirements

CS Core

24 points

Area Foundation Courses (AFC) 12 points

Select 4 from

COMS W4111 Intro. Databases

COMS W4113 Dist. Systems

COMS W4115 Prog Lang Trans

COMS W4118 Operating Systems

CSEE W4119 Computer Networks

COMS W4152 Engineering SaaS

COMS W4156 Software Engin.

COMS W4160 Computer Graphics

COMS W4167 Comp. Animation

COMS W4170 UI Design

COMS W4181 Security 1

CSOR W4231 Analysis Algo.

COMS W4236 Comp. Complexity

COMS W4701 AI

COMS W4705 Natural Lang Proc.

COMS W4731 Computer Vision

COMS W4733 Robotics

CBMF W4761 Comp. Genomics

COMS W4771 Machine Learning

CSEE W4824 Comp. Architecture

CSEE W4868 SoC Platforms

No substitutions

CS Degree Requirements

CS Core

24 points

Area Foundation Courses (AFC) 12 points

Select 4 from

CS Electives

12 points

4 3000+ COMS / CSXX / XXCS courses, 3+ points

COMS 4995 and COMS 6998 are “topics” courses

Each section is a unique topic

You may take multiple 4995s or 6998s with different topics

CS Degree Requirements

CS Core

24 points

Area Foundation Courses (AFC) 12 points

Select 4 from

CS Electives

12 points

4 3000+ COMS / CSXX / XXCS courses, 3+ points

General Tech. Electives (GTE) 12 points

4 3000+ courses from these departments (3+ points)

Any SEAS department

Astronomy

Biomedical Informatics

Biological Sciences

Chemistry

Earth and Environ. Sciences

Eco, Evo. and Env. Biology

Mathematics

Physics

Psychology

Statistics

Economics

Course Names

COMS W4115 001 Programming Languages and Translators

COMS: Computer Science

CSEE: Joint Computer Science and Electrical Engineering

EECS: Joint EE and CS

CSOR: Joint CS and Operations Research

W: Can be ignored along with “E”

3xxx: Introductory undergraduate level

4xxx: Advanced undergraduate, MS, and PhD

6xxx: Graduate level; undergraduates need
instructor permission

001: Section number

Registering For CS Classes

4000- and 6000-level CS Courses are waitlist-only

Everybody joins the department- or instructor-managed waitlist

Students are enrolled based on **need**, not order in line

3-2 students often get priority because they are under significant time pressure

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Students are enrolled based on **need**, not order in line

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“Blocked”: you can only join the waitlist

“Restricted”: you likely won't ever be allowed to enroll

Waiving Core Classes

If you took an acceptable equivalent course elsewhere, you can have the requirement waived for

- ▶ Linear Algebra
- ▶ Probability
- ▶ CS Theory (COMS 3261)
DFAs, NFAs, CFGs, Turing Machines, $O()$, P vs NP
- ▶ Fundamentals of Computer Systems (CSEE 3827)
Digital Design and Computer Architecture
Often separate classes elsewhere
- ▶ Advanced Programming COMS 3157
Systems Programming in C: threads and sockets

Waivers **do not** affect the 60 point requirement

You already have Intro to CS, Data Structures, and Discrete Math waived

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- ▶ Submit import requests through
<http://mice.cs.columbia.edu> (accounts coming)
- ▶ For help, email ug-advising@cs.columbia.edu

Double-Majoring and Minorng

In a word: **don't**

3-2 students don't have the time to complete another program's requirements

Future employers and graduate schools don't care

Do well in your CS courses; take electives for the rest

Better to do an independent project with a professor whom you can impress



Graduating



Columbia Student Services Online (SSOL)
<https://ssol.columbia.edu>

Among other things, has a Degree Audit Report (DAR)

An unreliable indicator of your progress

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Not to worry → CS Advising and I clear you to graduate

We follow your transcript and waived classes

Your Degree Progress Checklist

CS website → Academics → BS/BA Programs →
BS in Computer Science (SEAS) Checklist

← → 🔄 🔒 cs.columbia.edu/education/undergraduate/

- [BA in Information Science \(CC, GS\)](#) *Updated March 2021*
- Minor/Concentration in Computer Science – Please see the BS and BA program guides above
- [A Guide for CC & GS Transfer Students](#)

ADVISORS

- Undergraduate Faculty Advisors
- Administrative Advisors: advising@cs.columbia.edu

DEGREE PROGRESS CHECK LIST

(please right click on any of the below to download)

- [BS in Computer Science \(SEAS\)](#)
- [BA in Computer Science \(CC, GS, Barnard\)](#)
- [BA in Computer Science and Mathematics \(CC and GS\)](#)
- [BA in Data Science \(formerly known as Computer Science & Statistics\) \(CC, GS\) – Updated January 2022](#)

FREQUENTLY ASKED QUESTIONS (FAQ)

	A	B	C
1		SEAS progress check	
2			
3	NAME:		
4	UNI:		
5	TRACK:		
6			
7		<u>ENGI E1006 (Required)</u>	
8			
9		<u>CORE</u>	
10		W1004 or W1007	
11		W3134 (3pts) or W3137 (4pts)	
12		W3157 Advanced Programming 4pts	
13		W3203 Discrete Mathematics	
14		Linear Algebra (<u>COMS 3251</u> , MATH 2010, MATH 2020, <u>APMA 3101</u> , or <u>APMA 2101</u>)	
15		W3261 Computer Science Theory	
16		<u>CSEE W3827</u> Fundamentals of Computer Systems	
17		STAT 4001 (formerly <u>SIEQ W4150</u>) Probability and Statistics	
18			
19		Calc I	



Request edit access



- New
- Open Ctrl+O
- Make a copy
- Share
- Email
- Download
- Rename
- Move
- Add shortcut to Drive
- Move to trash
- Version history

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COM
Linea
COM
CSEE
Prob

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Grade	Substitution or Waiver <small>(specify course & faculty who approved)</small>

NOTE: A
to take
4 Ar

linear algebra and probability requirements without the need