BA in Computer Science

Orientation for Recently-Declared BACS Majors

Spring 2025

Welcome!

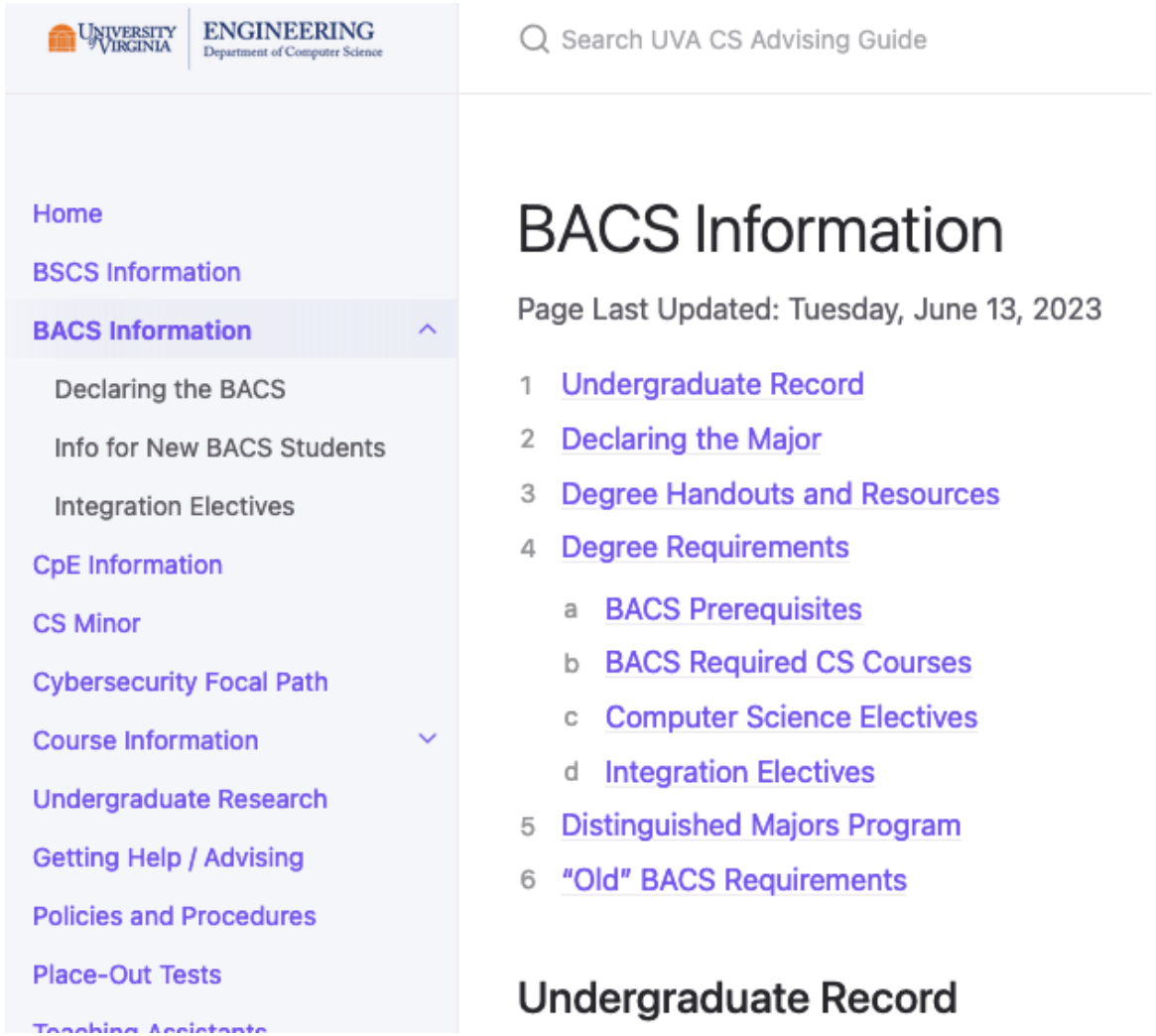
- Advising Fair? Our goals:
  - Give recently declared majors the info they need to get off to a good start
  - Help you know where to get the best information
  - Explain advising holds
  - Go over common curriculum issues
  - Answer your general questions or about next term’s classes

- What topics or issues do you want to find out about today?

Department's CS Advising Website

http://uvacsadvising.org

- Look for section "BACS Information" in the menu on the left-side of that page
- Also other sections for all computing majors
- Searchable (at the top)
- Missed "orientation"? See video under "Presentations and Videos"



Who to ask to get answers?

- First stop: the **CS Advising Website** https://uvacsadvising.org
- "Can someone go over what I need to graduate?"
  - Use **SIS** any time with either the **Academic Requirements (AR) report tool** or **the Degree Progress tool**!
- "I have a question about something related to CS"
  - Your **CS Faculty advisor** (but see below)
  - **Student "Ambassadors"** – trained in advising, at table on 4th floor of Rice Hall, schedule on Advising website
  - **BACS Program Director** (Tom Horton) – for "bigger" or administrative issues
- "I have a question about a non-CS requirement"
  - College students have two advisors: one in your major and your **Association Dean (AD)**
  - Any non-CS related question goes to the AD (general education, College policies, etc.)
- "I need info about getting an internship, preparing for an interview, salaries after graduation, etc."
  - **Engineering Career Development center** – they're the experts hired to help computing students with all that!
  - Drop-In Hours: Tuesday - Thursday 1:30 - 3:00pm, Thornton Hall A-Wing
- "I'm studying abroad and need a course approved"
  - See the CS Advising website
  - For CS courses, it's currently Prof. Reiss. For Integration electives, it's the program director (Tom Horton)
- "I'm struggling with something, not sure about how things are going, having trouble with my advisor, need someone to talk to, …"
  - **SJ Jiménez, CS Advising Coordinator**, smj4z@virginia.edu, and **Shari Grimes**, prk2zq@virginia.edu. Offices near 4th floor Advising table
- "Something's not showing up right in SIS", "I need help accessing a room", "I don't know who to ask about…"
  - CS has a large staff who solve some of these or can forward to the right person! Email **cs-office@virginia.edu**

Faculty Advisors

Many students assume their CS faculty advisor is the go-to to answer any question they have. Not usually! Why not?

- Job questions? We're academics, almost always with little contact with industry (except industry researchers)
- All those detailed rules or policies? The CS department serves 3 different majors in two schools (that have different rules)
- Recently-hired faculty who haven't been at UVA long

So what <u>are</u> we good for? (☺ Good question!)

- Definitely about grad school, careers in academia or research
- Our specialty areas, and who else in CS might match your interests
- Our own background, history, experiences in computing

Holds and Course Registration

- Holds on registration: must be removed or you can't sign up for classes
  - For CS majors, registering late is a major problem for you
- **Absolutely critical you get all holds removed by your sign-up time!**
- Advising hold: some changes in CS this term
  - In the past, all majors must see Faculty advisor in two-week period
  - Attend an Advising Fair? Hold removed (but you can see your advisor if you need to)
  - After this term, hold removed automatically
    - Unless you have been identified as having some issue
    - Then CS will contact you about getting advised

Integration Electives

- The CS Advising website has all the details
  - Link to a page showing what's offered next term, available seats, etc.
  - Rules about what can count, what can't
  - List of courses not recognized by SIS but that can count, and…
  - How you **must** fill out a form for those courses to be counted

- College rules about sharing courses
  - A course used for a major cannot also be used for a minor
  - If double-majoring, normally only two courses can be shared
    - Unless one major is "interdisciplinary" (e.g. CogSci)

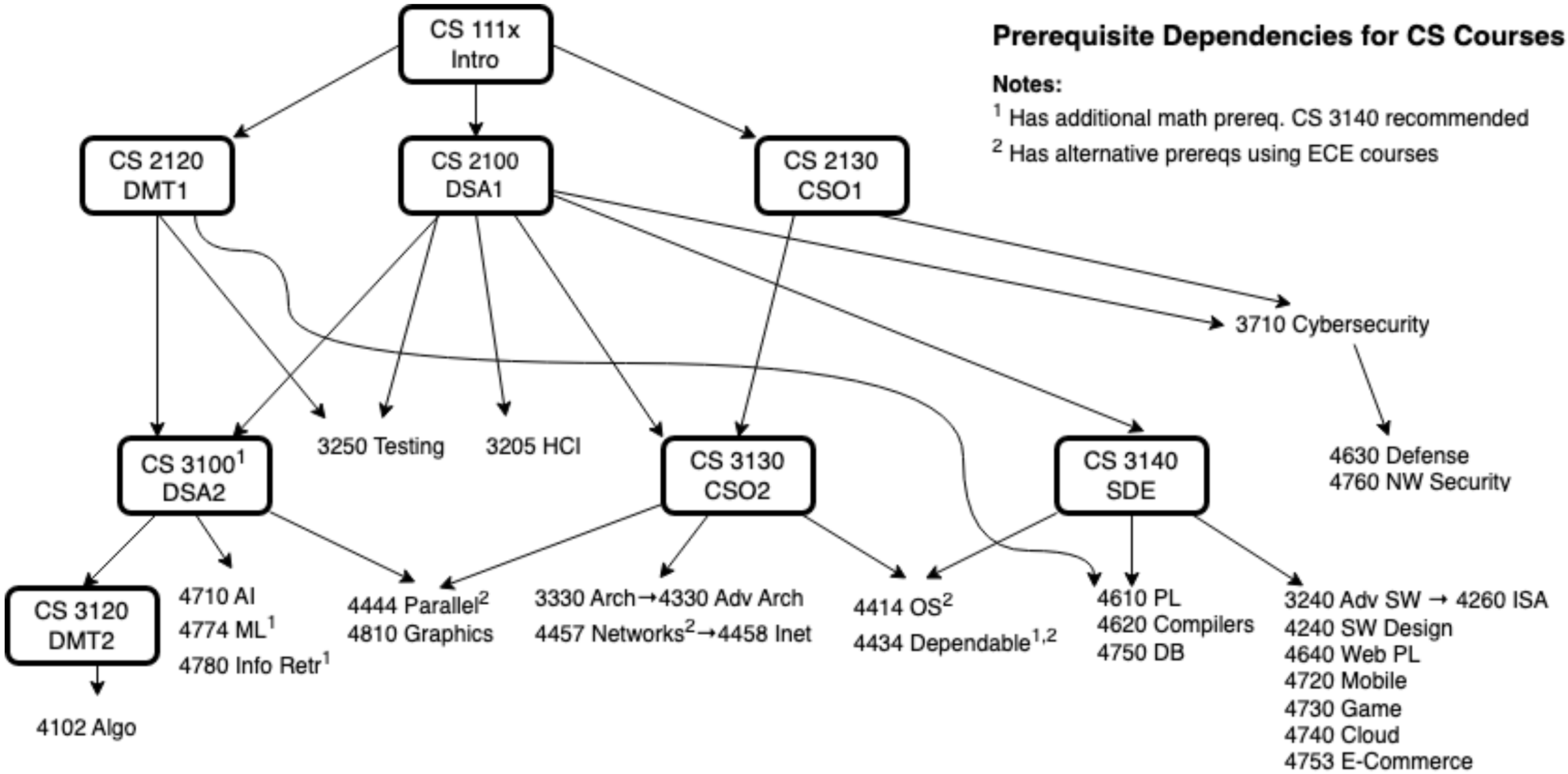
Choosing Courses for Next Term

CS Advising website https://uvacsadvising.org

- Don’t forget about pre-req flowchart!
- List of courses for Fall 2024 and plan for Spring 2025
  - CS4501s: what are they? How do I learn more? Pre-requisites?

Some recommendations:

- CS 3140: don’t put this off
  - Pre-req for many electives; useful for industry; helps for CS3100
- Don’t forget the three-semester sequence: 2120->3100->3120



Prerequisite Dependencies for CS Courses

Notes:

[1] Has additional math prereq. CS 3140 recommended

[2] Has alternative prereqs using ECE courses

Summer courses?

- CS 3120 Session I Discrete Math and Theory 2
- CS 3140 Session I Software Development Essentials
- CS 4501 Session III Human-Centered Computing for Digital Well-being (ONLINE)
- CS 4610 Session III Programming Languages (ONLINE)
- CS 4720 Session II Mobile Application Development (ONLINE)
- CS 4720 Session III Mobile Application Development (ONLINE)
- CS 4750 Session I Database Systems (ONLINE)
- CS 4760 Session I Network Security (ONLINE)

- Also, integration electives available (Look for an email)
- Courses at other schools:
  - CSC 215 for our CS 2130: there are issues, see CS advising website
  - Reasonable to take something for CS2120 at many schools
  - Courses at community colleges won't transfer as CS electives

Some Other Issues

- College students can only sign up for 15 credits until first week of August
  - If want more, then choose a course that's unlikely to fill up and wait until August to try to get into that
  - Get your CS courses in April!

- If some day you want to take a CS grad course…
  - College won't allow you to sign up until two weeks before start of class
  - There is a kind of "five-year Masters" program: UVAccelerate

Your Questions?

- Make sure we scanned your student ID so we can release your hold!

Extra slides

- The following slides were not covered in the Spring 2025 orientation.
- But you may find them interesting.

Growth in Degrees Awarded

Degree	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
BACS	99	122	117	133	177	205	250	293	247	349	324
BSCS	83	124	106	139	140	174	187	251	248	295	278
CpE	35	50	40	57	45	45	58	59	52	58	56
Total	217	296	263	329	362	424	495	603	547	702	658
Annual Increase	28%	36%	-11%	25%	10%	17%	17%	22%	-9%	28%	-6%

Second Majors and Minors for BACS Majors

- 26% of students have one of 39 second majors
  Econ (27), Applied Stats (20), CogSci (15), Math, Comm, Biology, English,…
- 24% of students have one of 21 minors
  Data Science (93), Entrepreneurship (18), Statistics (12), Data Analytics, …
- ***Important:*** The College has a rule that a course **cannot** count for both a minor and a major. However, it **is** possible to count some number of credits for each of two majors

Diversity in UG Programs

	Graduated	Women	URM	Transfer	First Generation	International
BACS	349	38%	9%	12%	12%	9%
BSCS	295	21%	10%	11%	13%	4%
BSCpE	58	16%	10%	16%	10%	3%
Overall	**702**	**29%**	**10%**	**12%**	**13%**	**7%**

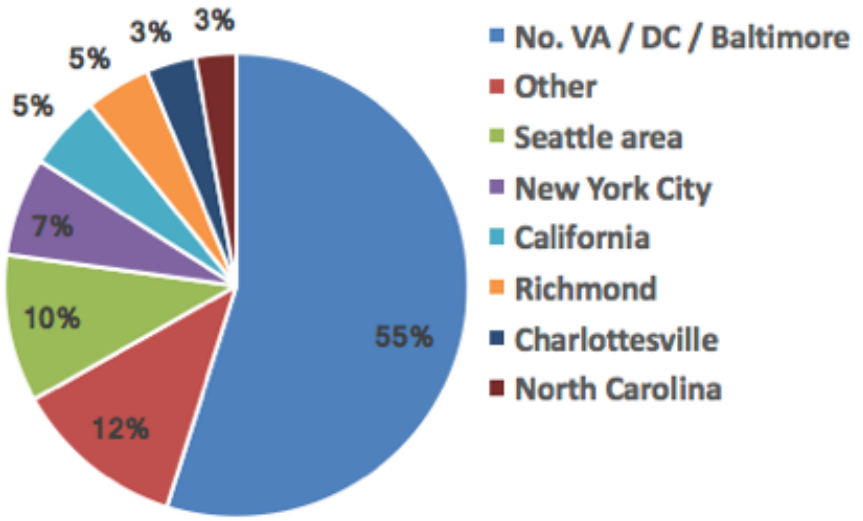
Women graduates

- Taulbee report (2021, CS degrees): 22.3%
- UVA recognized as 6th best in 4-year public universities (Feb. 2019) https://www.chronicle.com/article/Which-Colleges-Are-Best-and/245758 after: Salisbury Univ., Univ. of Washington; CUNY; UW Bothell; Penn State
- Note impact of BACS program

Is Computing a Good Career Choice?

- **Class of 2025 Salary Projections (2/10/2025), National Association of Colleges and Employers**
  - Software Engineering: $82,536, up 5.8%
  - "Computer Sciences" overall: $76,251, up 2.0%
    - computer science: up 1.7%
    - information sciences and systems majors: up 1.8%
    - software applications: up 2.5%
- **US Bureau of Labor Statistics projections in job growth 2023-2033**
  - SW Developers, Quality Assurance Analysts, & Testers: +17% (Much faster than average)
  - Computer Programmers: -10% (Decline)
  - Information Security Analysts: +33% (Much faster than average)

After Graduation:



Companies hiring undergrads (ordered):

Capital One	Epic Systems
Microsoft	IBM
Amazon	Accenture
Google	Applied Predictive Technologies
Appian Corporation	Booz Allen Hamilton
Facebook	BTI360
Alarm.com	Macedon Technologies
Yext	MITRE
CGI	

Graduate School?

About 8%. UVA, USC, Stanford, Carnegie Mellon, MIT, Washington, Cornell, Columbia, UC Santa Cruz, ...

Salaries after Graduation:

BS in CS:	$100K median
BA in CS:	$87.5K median
Range:	$60K-$153K
All SEAS:	$73K median
PhD:	$70-165K

BACS Students after Graduation

	All Students			All Responses	
Post-graduate	**Count**	**Percentage**		**Count**	**Percentage**
Grad School	8	4.7%		8	6.5%
Military	1	0.6%		1	0.8%
no response	46	27.1%			
Still Looking	18	10.6%		18	14.5%
Working	97	57.1%		97	78.2%
Total	**170**			**124**	

Graduate School:

Stanford (Masters), Latin American Studies
Carnegie Mellon (Masters), Software Engineering
Univ. of Southern California (Masters), Data Informatics
Univ. of California Santa Cruz (PhD), Ecology, Evolution, and Marine Biology
University of Virginia (Masters), Computer Science
University of Virginia (Masters), Public Policy
University of Washington (PhD), Astronomy

What Kind of Work?

Employment Type	Number	Percentage
Internet & Software	47	49.0%
Scientific and Technical Consulting	9	9.4%
Commercial Banking & Credit	7	7.3%
Management Consulting	7	7.3%
Defense	6	6.3%
Electronic & Computer Hardware	5	5.2%
Other Industries	4	4.2%
Computer Networking	2	2.1%
K-12 Education	2	2.1%
Accounting	1	1.0%
Government - Local, State & Federal	1	1.0%
Investment / Portfolio Management	1	1.0%
Investment Banking	1	1.0%
Non-Profit - Other	1	1.0%
Retail Stores	1	1.0%
Sports & Leisure	1	1.0%
Total	96	

Some BACS Alumni Profiles

- Michael Lew (2010)
  - Law degree, GMU. Now Patent Attorney https://www.linkedin.com/in/michaelwlew/
- Brielin Brown (2011) CS, Physics
  - PhD at Berkeley. Now computational biologist
  - https://www.linkedin.com/in/brielin-brown-73745878/
- Muzzammil Zaveri (2011)
  - Forbes Magazine: one of the top 30 venture capitalists under 30
  - https://www.linkedin.com/in/mzaveri/

Some BACS Alumni Profiles

- Sara Alspaugh (2009) CS, Math
  - PhD at Berkeley, now data scientist
  - https://www.linkedin.com/in/salspaugh/
- Richard McPherson (2010) CS, Physics
  - PhD Texas, now Google (security)
  - https://www.linkedin.com/in/richard-mcpherson-50379b48/
- Christina Gadala-Maria (2010)
  - VP, Senior Software Engineer at TD
  - https://www.linkedin.com/in/christinagadala/

Questions?

- **CS Advising Website:** http://uvacsadvising.org
  - In particular, page on “Info for New BACS Students”

- CS Office staff: cs-office@virginia.edu (especially about procedures, process, rules)
- Tom Horton, BACS Program Director, Associate Dept. Chair bacsdirector@virginia.edu (declaring, issues)
- Non-CS questions? Your contact(s) in the College. E.g. your Association Dean