

Departmental BPC Plan
School of Computing
University of Nebraska-Lincoln



Effective dates of Plan: 9/23/2024 - 9/23/2026

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1. **Context.** University of Nebraska-Lincoln (UNL) is a land grant institution and houses the only College of Engineering in the state of Nebraska. Within the School of Computing (SoC), our current undergraduate enrollment is 3% African American, 8% Hispanic/Latinx, and 20% women, compared to the university numbers of 3%, 8%, and 50%, respectively; we refer to these groups collectively as “groups underrepresented in computing” (URG). Incoming transfers include a higher percentage of women (average 22.5% over the past 4 years) and students from URGs (average 36% over the past 4 years). We have an ongoing data diagnostic grant with the Center for Inclusive Computing and are a partner institution with the CERP Data Buddies program, in addition to having been a BRAID school and a participant in NCWIT Learning Circles. Furthermore, we have reduced the D-F-Withdrawal (DFW) rates for our introductory courses (CS1) from 36.4% in AY 2019-2020 to 21.3% in AY 2023-2024. In particular, DFW rates for women dropped from 24.0% to 20.4% in the same period. While the DFW rates for students who identify as African American Hispanic and/or Latinx also dropped from 53.6% to 45.9% in the same period, these DFW rates remain high.
2. **Goals.** The overarching goal of our Broadening Participation in Computing (BPC) Plan of the UNL within the next 5 years is to increase:
 - G1: the percentage of undergraduate women in computing from 20% to 30%, and
 - G2: the percentage of undergraduate students who identify as African American, Hispanic, and/or Latinx from 11% to 20%

3. Activities and Measurement

Our projects and activities consist of three primary sustainable, coordinated categories: (1) **Recruitment (RC)** activities to broaden the pipeline of undergraduate students, (2) **Retention (RT)** efforts to increase degrees conferred to students from URGs, and (3) **Community-building (CB)** activities to facilitate peer-support for students on and off campus.

A1. Establish and facilitate student citizenship, impact, responsibility, engagement for our society (CIRES) initiative to create a “Community for Everyone”

- **A1a, G1-2:** CSE Student Advisory Board (SAB) hosts a first-year program and student advisory panel (which will focus on BPC climate) to engage with the student population. (RT, contact: Jarrett)
- **A1b, G1-2:** Continue to improve the Undergraduate Learning Assistant program to engage students from URGs in on-campus work and recruit them to serve as peer instructors to encourage other students from URGs to persist in these courses and, ultimately, our majors. (RT/CB, contact: Witty)
- **A1c, G1-2:** Continue to host an undergraduate student engagement fair to showcase student organizations and encourage students to identify opportunities for engagement, which has been shown to be a high impact practice for persistence in college. We will particularly encourage students from URGs to participate in the fair. (RT/CB, contact: Jarrett)

- **A1d, G1-2:** Adjust introductory course structure as recommended by the BRAID and NCWIT initiative to reduce D-F-Withdraw (DFW) rates to 20% from the current rate of around 36%, (RT, contact: Witty, Leen-Kiat)
- **Measurement:** As a member school of the BRAID initiative, our department has participated in yearly **undergraduate assessments from BRAID**, which we will use as our baseline data. These assessments have shown progress in our introductory classes towards encouraging students to feel somewhat or strongly that they belong in computing. In addition, we will use our **NCWIT Learning Circles entry survey** data to assess what is attracting students to our majors (both activities and recruitment) in order to better target our efforts in future years. **Retention efforts** are being assessed through both qualitative and quantitative methods. These plans will be assessed at the end of each academic year through both focus groups and student surveys distributed via the CB activities above. We plan to assess the D-F-Withdraw rates in our first two introductory courses while monitoring performance in the next courses to ensure that we are not simply delaying exits from the major. This ongoing work is in part of our **data diagnostic grant** from the Center for Inclusive Computing and is assessed across several demographics factors.

A2. Support, inform, encourage, guide, and educate (SIEGE) faculty on BPC

- **A2a, G1-2:** Offer faculty outreach activities at the K-12 level: (1) partner with CSTA local chapter to share BPC resources with K-12 CS teachers; (2) facilitate local Hour of Code events in classrooms at schools serving a high percentage of students from URGs with the CodeLNK—a local organization with active partners from our school—and (3) host the Aspirations in Computing event every other year as a regional affiliate of NCWIT to recognize and encourage women from around the state to pursue careers in computing. Additional faculty from the department participate each year in planning and presentations at these events. (RC/CB, contact: Leen-Kiat, Bonita)
- **A2b, G1-2:** Continue to, along with help from the student organizations, host the NE College Preparatory Academy to teach students from high schools serving a majority of students from URGs about our majors and introduce them to computing. (RC/RT, contact: Brittany)
- **A2c, G1-2:** Continue to advise and support faculty in developing and implementing individual BPC plans, participating in NCWIT Learning Circles, and administering assessment activities in support of student goals. (RC/RT, contact: Brittany, Leen-Kiat)
- **Measurement:** Continue monitoring faculty attitudes through **faculty assessments** compared to the earlier BRAID baselines. Monitor faculty BPC activities to demonstrate gains in students reached, faculty activities facilitated, and the impact on student recruitment and retention across the school.

A3. Strengthen transfer student recruitment and retention. Our transfers include a higher percentage of students from URGs than other forms of admission.

- **A3a, G1-2:** Continue to recruit a significant number of students from local community colleges and work on increasing this pipeline through securing an S-STEM grant and follow-on hub from NSF. (RC/RT/CB, contact: Brittany)
- **A3b, G1-2:** Continue to encourage transfer students through meeting with faculty advisors, to engage in a monthly seminar series, and to work on campus as either research or learning assistants. (RC/RT, contact: Brittany)
- **A3c, G1-2:** Continue to develop articulation agreements with community colleges so that students have a plan to get a degree in 4 years. (RC, contact: Jarrett)
- **Measurement:** The **transfer recruitment efforts** should increase our student diversity based on the demographic trends, which we will capture in our **entry survey** instituted as part of our participation in **NCWIT Learning Circles**.