

# **Broadening Participation in Computing (BPC) Plan Connected with the University of Illinois at Urbana-Champaign Verified Departmental BPC Plan**

## **Context and Intended Population(s)**

The context and intended populations in this Project BPC Plan are provided by the included Departmental BPC Plan from the Computer Science Department at the University of Illinois at Urbana-Champaign (UIUC), which was verified by BPCnet.org.

## **Activity A4 from the UIUC Departmental Plan - Undergraduate Research**

**Strategy:** Each year of the grant, Mendis and Singh will engage in this activity by co-mentoring at least two undergraduate researchers from groups underrepresented in computing (one student per each PI). In addition to frequent research meetings with the undergraduate researchers, the PIs will each be the primary mentor for half of the undergraduate researchers and will meet with these students one-on-one at the beginning, middle, and end of their research experience. These one-on-one meetings will focus on career mentoring as recommended by resources for effective mentoring (see preparation).

**Preparation:** The PIs have prepared for this role by reviewing best practices for mentoring undergraduate researchers. Specifically they will review and apply a resource from the Computing Research Association's (CRA) Conquer website: "Resources for Planning a Successful REU," the CRA's Distributed Research Experience for Undergraduates page "Tips For a Successful Mentoring Experience", and the National Center for Women and Information Technology (NCWIT) page "REU-In-A-Box: Expanding the Pool of Computing Researchers."

**Measurement:** In the annual report, the PIs will report the number of students mentored and updates on the career progression of previously mentored students. Undergraduate researchers will participate in evaluation efforts conducted by their respective program (1) UIUC's CS STARS, (2) UIUC's Clare Boothe Luce Research Scholars, and (3) CRA's Distributed Research Experience for Undergraduates (DREU).

**Budget:** The PIs will request additional BPC funding to support 2 additional REU students per year of the grant.

## **Activity A5 from the UIUC Departmental Plan - Inclusive Teaching**

**Strategy:** Each year of the grant, Mendis and Singh will engage in this activity by attending two workshops focused on inclusive teaching and mentoring.

**Preparation:** These workshops may be provided externally or by UIUC's Center for Innovation in Teaching & Learning (CITL) or Academy for Excellence in Engineering Education.

**Measurement:** In the annual report, the PIs will report the workshops attended, total workshop time, and changes to pedagogy and mentoring practices that they undertook based upon the workshops.

**Departmental BPC Plan**  
**University of Illinois at Urbana-Champaign**  
**Department of Computer Science**



**Effective dates of Plan:** 10/14/2021 – 10/14/2023

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**Context:** The University of Illinois at Urbana-Champaign (UIUC) department of computer science (CS) aims to develop and maintain a representative, inclusive, and supportive community that prepares and empowers all of its members to excel and effect positive impact in the broader community. Beginning in 2022, the annual CS faculty survey will track faculty BPC engagement. Anonymized data will be shared by the BPC committee. Additional data and context are included within each goal below.

**G1: Department Demographics:** Each semester, share at a faculty meeting the representation of current CS students from groups underrepresented in CS (i.e., people who identify as women, African American, Black, Hispanic, Latinx, Native American, Native Alaskan, Native Hawaiian, Pacific Islander, and/or Indigenous). Data will also be disaggregated by student level (minors, CS major, graduate program).

**A1:** Faculty from the BPC Data Subcommittee aggregate and share this data (Amato/Lewis).

**E1:** Track what data was collected, analyzed, and shared with faculty (BPC Committee).

**G2: Matriculation Rates:** Enact by spring 2022 a plan to track and increase the matriculation rate for students from groups underrepresented in CS (i.e., the percentage of admitted students who matriculate).

**A2a:** Faculty from the BPC Data Subcommittee monitor the matriculation rates (Amato/Lewis).

**A2b:** Faculty contact admitted undergraduate students from groups underrepresented in CS (Amato).

**A2c:** Faculty from the BPC Recruiting Subcommittee support recruiting efforts for undergraduates, which includes the NCWIT Aspirations in Computing awards recognition program (Coleman/Lewis).

**E2:** Track faculty involved, demographics of applicants, and revisions made to improve these activities.

**G3: Graduate Recruiting:** Each year, increase by at least 5% the percentage of women and people from racial/ethnic groups underrepresented in CS in our graduate programs.

	<b>MCS</b> (Fall 21 to Fall 22)	<b>MS</b> (Fall 21 to Fall 22)	<b>PhD</b> (Fall 21 to Fall 22)
Women	330 (20.1%) to 347 (21.1%)	35 (27.6%) to 37 (29.1%)	98 (21.3%) to 103 (22.3%)
Black, Hispanic, and/or Native	79 (4.8%) to 83 (5.1%)	4 (3.1%) to 5 (3.9%)	30 (6.5%) to 32 (6.9%)

**A3a:** Faculty attend diversity-focused conferences such as Grace Hopper, NSBE, SACNAS, SHPE, and Tapia as a way to recruit prospective graduate students and connect with UIUC students attending the conference. Before the conference, faculty will invite all students who are attending the conference to meet each other and learn strategies for making the most of conference attendance (Kudaligama).

**A3b:** Faculty speak at BPC-focused graduate student recruiting events run by UIUC (MERGE and ASPIRE) and meet with applicants regardless of area fit (Kudaligama).

**A3c:** Faculty give talks at Minority Serving Institutions (MSI) and when giving a talk at an MSI or other institution request to meet with prospective students from groups underrepresented in computing (Lewis).

**A3d:** Faculty provide an additional review of applicants from groups underrepresented in CS and seek to connect applicants with appropriate advisors after completing implicit bias training (Hoiem).

**E3:** Track faculty engagement in the annual survey. The graduate admissions committee will report to the department the representation among applicants to help evaluate the recruiting efforts (Hoiem).

**G4: Undergrad Research:** By 2023, increase the representation of students from groups underrepresented in CS among undergraduate researchers by at least 25% (women: 32% to 40%; Black students: 5% to 7%; Hispanic students 4% to 6%).

**A4:** Using best practices for undergraduate mentoring, faculty mentor 2 REU students from groups underrepresented in CS through programs focused on BPC: (1) UIUC’s CS STARS, (2) UIUC’s Clare Boothe Luce Research Scholars, and (3) CRA’s Distributed Research Experience for Undergraduates (DREU). We host a structured summer REU program with weekly speakers (Amato/Harris).

**E4:** Track the demographics of REU students mentored, as reported by the respective programs (Harris).

**G5: Inclusive Teaching and Mentoring:** Between 2022 and 2025, all faculty will report having learned about inclusive teaching or mentoring and at least 80% will report increased adoption of these practices.

**A5:** Faculty can learn about inclusive teaching through seminars provided externally or by UIUC’s Center for Innovation in Teaching & Learning (CITL) or Academy for Excellence in Engineering Education, which provides a weekly program for new faculty and includes inclusive teaching training (Viswanathan).

**E5:** Track faculty engagement in the annual survey (Amato).

**G6: BPC Learning:** Each year, 80% of faculty will report having spent time learning about BPC.

**A6a:** Faculty can learn about BPC through internal or external programs. Opportunities include the CS department Equity and Justice talks or BPC book club, University events hosted by the Vice Chancellor for Diversity, Equity & Inclusion (DEI) and the IDEA institute (Lewis).

**A6b:** Faculty can serve on a diversity committee at the department, college, or university level (Amato).

**E6:** Track faculty engagement in the annual survey (Amato).

**G7: Improve Student Satisfaction:** By 2022, increase response rates and decrease gaps in responses between groups on the Data Buddies survey question “Overall, I am satisfied with the computing program at my institution.”

Key: 1 = Strongly disagree, 5 = Strongly agree, “AW” = students who identified themselves as Asian or White. “BHN” = students who identified themselves as Black, Hispanic, or Native/Indigenous, \* = statistically significant difference.

2020 data	Peer Inst.	All UIUC	Men	Women	AW	BHN
Undergrad	4.01 (N=9787)	4.52 (N=261)	4.65 (N=110)	4.41* (N=85)	4.58 (N=182)	4.67 (N=9)
Graduate	4.13 (N=3856)	4.37 (N=174)	4.45 (N=81)	4.35 (N=34)	4.42 (N=105)	4.22 (N=9)

**A7a:** Faculty from the BPC Committee will encourage students' survey participation (Lewis).

**A7b:** Faculty will host focus groups with students to better understand some of the reasons for gaps between demographic groups and present their findings to the BPC Committee (Lewis).

**A7c:** Faculty will attend BPC-focused affinity group meetings or CS KickStart (Coleman).

**E7:** Track response rates and responses, which are reported by the Computing Research Association.

**G8: Faculty Recruiting:** Each year, the representation of faculty applicants from groups underrepresented in CS will exceed their representation in the last 3 years of National IPEDS CS PhD graduation data.

**A8a:** Faculty participate in the Rising Stars as mentors as a way to recruit potential candidates (Harris).

**A8b:** Faculty lead BPC faculty recruiting efforts implementing college recommended practices (Amato).

**A8c:** Faculty invite students mid-PhD from groups underrepresented in CS to speak at UIUC (Harris).

**E8:** The office of the College shares this private data with the department.