

Departmental BPC Plan Workshop

August 3-5, 2022

Denver, CO

Welcome

Day 1 - August 4, 2022

Tracy Camp

Types of BPC Plans

Tracy Camp

What is a BPC Plan?

A BPC Plan describes how a PI or department will contribute to Broadening Participation in Computing (BPC) in a meaningful way.

- Departments → Departmental BPC Plans
- PIs → Project BPC Plans

- Each type of BPC Plan has a specific structure and content
 - See resources on BPCnet.org and NSF solicitations

Types of BPC Plans

DEPARTMENTAL BPC PLAN

- Describes **department** actions
- Submitted to BPCnet.org

PROJECT BPC PLAN

- Describes **PI** actions
- Submitted to NSF
- Two options ...

Departmental BPC Plans

A **Departmental BPC Plan** is a 2 page document that describes the current focus of BPC activities across a department or academic unit, and what the department has committed to do to address the [underrepresentation of certain populations, as defined by NSF CISE](#).

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- Lists BPC activities of a department
- Page limit: 2 pages

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⇒ **Submit to: BPCnet.org for verification by BPCnet**

- Information on BPCnet.org:
 - [More details about Departmental BPC Plans](#)
 - [See a list of verified Departmental BPC Plans](#)
 - [Schedule a free appointment with a BPC Consultant](#)

Project BPC Plans - Connected & Standalone

A **Project BPC Plan** is a document written by PIs submitting a proposal to NSF CISE for [certain programs that require the inclusion of a BPC Plan.](#)

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Connected Project BPC Plans (requires verified Departmental BPC Plan)

- Lists PI engagement with activities from a [verified Departmental BPC Plan](#)
- Page limit: Each institution submits 3 pages (1 page plus their 2 page [verified Departmental BPC Plan](#))

Standalone Project BPC Plans

- Describes BPC activities and how each PI engages in them
- Page limit: 3 pages, shared by all participating institutions

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- 2 pages

PROJECT BPC PLAN

- Describes **PI** actions
- Submitted to NSF
- Two options:

Connected Project BPC Plan

- One plan per each institution in a proposal
- For each institution:
1 page PI plan + 2 page Verified Departmental Plan

Standalone Project BPC Plan

- One plan for the *entire* proposal
- 3 pages total for a proposal

NSF BPC Plan Initiative

Michelle Rogers

NSF CISE Definition of Underrepresentation

“CISE strongly encourages meaningful actions that address the longstanding underrepresentation of various populations — including:

- Women,
- African Americans,
- Hispanics,
- American Indians,
- Alaska Natives,
- Native Hawaiians,
- Native Pacific Islanders, and
- Persons with disabilities

— *in the computing field.*”

<https://www.nsf.gov/cise/bpc/>

Guiding Principles for CISE BPC Effort

- BPC requires **culture change** in colleges/universities, departments, classes, research groups, professional organizations & K-12
- Culture change begins with **enhanced exposure** to BPC throughout the CISE community
- PI engagement must be **tailored to individuals and organizations** as appropriate

Vision:

BPC embedded in CISE Research Community

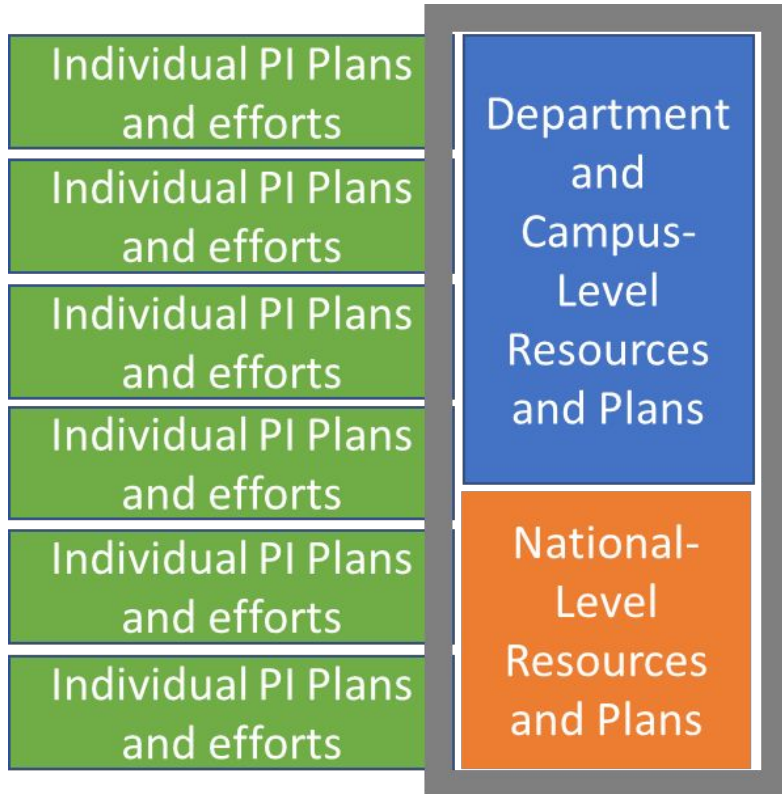
- **CISE research proposals include a meaningful plan to broaden participation in computing**
 - Quality of plans improve
 - Plans are implemented; lessons learned from implementation are shared
 - Collaborations increase between CISE and other PIs with BP expertise
- **Measurable progress towards diversifying the CISE Research Community**



Timeline of the CISE BPC Effort

- **Fiscal Year 2017:** NSF 17-110, *Dear Colleague Letter: Pursuing Meaningful Actions in Support of BPC*, announced
- **Fiscal Year 2018:** BPC Project plans encouraged for Expeditions in Computing, Cyber-Physical Systems, and Secure & Trustworthy Cyberspace Frontier submissions
- **Fiscal Year 2019-2021:** BPC Project plans required by time of award in Medium and Large proposals submitted to core programs, CPS, and SaTC. *Departmental BPC Plans encouraged*
- **Fiscal Year 2022:** BPC Project plans required at time of submission.

BPC Plans



Approach: Individual PIs offer BPC plans for Medium (and larger) proposals in Core, CPS, SaTC

Key Concept:

Individual PIs plug into departmental and national plans and expertise
Increase collaboration, , coordinate efforts, broaden expertise

Participant Introductions

Break

Next session will begin at 10:30 AM

Overview of Departmental BPC Plans

Colleen Lewis

Types of BPC Plans

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Types of BPC Plans

DEPARTMENTAL BPC PLAN

- Describes **department** actions
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 - 2 pages
-
- Help the department organize a coherent set of BPC goals and activities
 - Provide a menu of BPC activities for PIs

PROJECT BPC PLAN

- Describes **PI** actions
- Submitted to NSF
- Two options:

Connected Project BPC Plan

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Departmental BPC Plans

- Institutions can have multiple Departmental BPC Plans
 - Colleges, Schools, Departments, Centers etc. can have a plan
 - PIs from an institution pick one Verified Departmental BPC Plan
- Departmental BPC Plans and activities are not novel
 - Most plans will include similar activities
- Departmental BPC Plans are incomplete
 - Plans do not need to include all current or future BPC activities
 - Plans prioritize activities faculty can engage with
- Departmental BPC Plans are imperfect
 - Plans describe next steps and change over time

Context

Departmental BPC Plan
 Computer Science and Engineering (CSE) Department
 University of California, Riverside
 Effective dates of plan: 03/07/2023-03/07/2024
 Contact: Tamara Shahr, Associate Professor, shahr@ucr.edu
 Marjan Salamon, Assistant Teaching Professor, msalamon@ucr.edu



The University of California, Riverside (UCR) resides in a region of California known as the Inland Empire. UCR is an equal opportunity institution with equal educational opportunities for all students. UCR is an equal opportunity institution with equal educational opportunities for all students. UCR is an equal opportunity institution with equal educational opportunities for all students. UCR is an equal opportunity institution with equal educational opportunities for all students.

In this document, UCR refers to people who identify as African American, Black, Hispanic, Latinx, Native American, Pacific Islander, Native Hawaiian, Pacific Islander, and/or Indigenous.

The Department of Computer Science and Engineering (CSE) resides within the BCOE and offers several undergraduate degree programs. The department created a Broadening Participation Committee (BPC) in 2023 which will work toward and track the outlined goals.

UCR	Undergraduate (UG)	Undergraduate (UG)	Undergraduate (UG)
Undergraduate (UG)	UG (22,564 W, 45.1% URG)	UG (22,564 W, 45.1% URG)	UG (22,564 W, 45.1% URG)
Graduate (G)	G (2,426 W, 45.2% URG)	G (2,426 W, 45.2% URG)	G (2,426 W, 45.2% URG)
Faculty	F (1,100 W, 45.1% URG)	F (1,100 W, 45.1% URG)	F (1,100 W, 45.1% URG)
Computer Science (CS)	CS (7,709 W, 45.1% URG)	CS (7,709 W, 45.1% URG)	CS (7,709 W, 45.1% URG)
Computer Science (B.S.)	CS (B.S.) (7,709 W, 45.1% URG)	CS (B.S.) (7,709 W, 45.1% URG)	CS (B.S.) (7,709 W, 45.1% URG)
Computer Engineering	CE (1,539 W, 31.4% URG)	CE (1,539 W, 31.4% URG)	CE (1,539 W, 31.4% URG)
B.S. in Business	BS (1,252 W, 18.3% URG)	BS (1,252 W, 18.3% URG)	BS (1,252 W, 18.3% URG)
Education (Ed.S.)	Ed.S. (1,100 W, 45.1% URG)	Ed.S. (1,100 W, 45.1% URG)	Ed.S. (1,100 W, 45.1% URG)

- G1: Recruitment and Retention of Undergraduates:** Increase the percentage of women enrolled in our programs (B.S. in Computer Science, Computer Engineering, Computer Science with Business Applications, Data Science, and the new Robotics program) to 20% by 2026.
- G2: Data Collection:** Annually, collect and report participation and demographic data to understand the effect of various interventions and activities.
- G3: Undergraduate Research:** By 2025, increase the number of women and students from UCRs participating in undergraduate research programs / activities by 20% compared to 2022 (activities associated with CS) (include collection of student data to increase this goal).
- G4: Graduate Recruitment:** Increase the enrollment of women enrolled in UCRs by 5% across all graduate enrollment categories (include collection of student data).

- A1:** Analyze data to identify and understand demographic differences in admission, persistence and outcomes. (Dr. Salamon, Dr. Shahr)
- A2, G1, G2:** Work on existing introductory course pathways with the goal of increasing the major's accessibility and support to a diverse range of students, including understanding learning gaps between student groups. (Dr. LaParks, Dr. Salamon)

- A3: (G4):** Create B.S. + M.S. pathway in Data Science to encourage a broader range of student to pursue graduate studies. Evaluate existing B.S. + M.S. programs. (Dr. LaParks, Dr. Salamon, Dr. Wright)
- A4: (G2):** Participate in data collection efforts including CSEA, Data Business and MONT Data Report to better understand UCRs trends over time. (Dr. Salamon)
- A5: (G2):** Revitalize and improve existing Undergraduate Research Programs (URP) and/or conferences like the Grace Hopper Celebration (GHC), ACM/CV/CV, TAGS, or other technical conferences. (Dr. Salamon)
- A6: (G3, G4):** Launch the Early Researcher Scholar Program (ERSP) at UCR. ERSP has a particular emphasis on encouraging participation for students from UCRs. (Dr. Salamon, Dr. Waxman-Maddox)
- A7: (G3):** CSE Department will participate in sponsoring a number of exchange/externship students from UCRs to be involved with undergraduate research projects (CAREER grant). (Dr. Shahr, Dr. LaParks)
- A8: (G3):** Support transfer students with the goal of increasing the number of women and students from UCRs to be involved with undergraduate research projects (CAREER grant). (Dr. Shahr, Dr. LaParks)
- A9: (G3):** Offer a new Bridge course that will review concepts needed to transition to UCR. (Dr. LaParks)
- A10: (G3):** Offer Undergraduate Research Programs (URP) to increase the number of women and students from UCRs to be involved with undergraduate research projects (CAREER grant). (Dr. Shahr, Dr. LaParks)
- A11: (G3):** Faculty will support HBCU students to participate in research projects (CAREER grant). (Dr. Shahr, Dr. LaParks)
- A12: (G3):** Lead the year-long Data Science Academy in each Data Science Academy (DSA) at 500 high school students (emphasis on recruiting women and students from UCRs), emphasizing life as a college student, using monthly peer mentoring and summer school prep. (LaParks)
- A13: (G3):** Hold an annual CSEA Summer Code Camp to recruit ~80 high school students (emphasis on recruiting women and students from UCRs) for a 1-week BSA-SPM course that also emphasizes careers in computing and programming. (Dr. Salamon)
- A14: (G3):** Outreach to San Diego high schools and community colleges to incorporate computational thinking modules into geography courses that reach a broad student population including a high percentage of students from UCRs. (Dr. Magby)
- A15: (G3):** Support student organizations (e.g., UCR Women's Engineering, participating in judging, etc.). (Dr. LaParks, Dr. Waxman-Maddox, Dr. Salamon)
- A16: (G3):** Work with UCR's Center of Teaching and Learning to offer faculty workshops / speaker series to highlight effective and inclusive pedagogical strategies. (Dr. LaParks)
- A18: (G4):** Serve as a Cambridge Center member (achieve Cambridge schools as good school applications, CS research area, etc.) (Dr. Salamon)
- A17: (G4):** Launch the ReTrain program to support TAGs who are interested in transitioning by offering additional training on effective and inclusive teaching techniques. (Dr. Waxman-Maddox)
- A19: (G4):** Conduct a subcommittee to investigate undergraduate math and physics requirements for CSE programs with the goal of opening more pathways for students from UCRs. (Dr. Shahr)
- A20: (G4):** Create Data Science Academy for students from UCRs. Specifically create pathways from community colleges to undergraduates to master's degree programs. Hold DSU summer fellowship to train.

- E1:** Track faculty participation / numbers/demographics of students participating in the above activities.
- E2:** The BPC Committee will track student data holistically (from application to graduation) with specific attention to equity in admission and understanding retention issues of women and UCRs.
- E3:** A yearly presentation on BPC activities and progress will be made to the advisory board and the department for private discussion and feedback directed to the chair of the BPC committee and the departmental leadership.
- E4:** The BPC committee will conduct an annual review of progress on the goals in this document and create a presentation at the annual faculty meeting.

Departmental BPC Plan
 Department of Information Science
 Cornell University (Ithaca, NY)
 Effective dates of plan: 12/17/2021-12/17/2023
 Contact: Aranya Nay, Director of Broadening Participation, nayn@cornell.edu



Cornell University is a Ivy League university in Ithaca, New York. As the largest graduate university in New York State, Cornell has a strong reputation for research and education. The university has a long history of being an equal opportunity institution with equal educational opportunities for all students. UCR is an equal opportunity institution with equal educational opportunities for all students. UCR is an equal opportunity institution with equal educational opportunities for all students.

- G1:** Each year, address problems related to climate by collecting data and implementing programs to systematically assess climate, and implement changes to policies and practices to improve climate.
- G2:** Enhance outreach and recruitment of students from UCRs at each stage of the pipeline, from

- A1 (G1):** Climate survey [new, led by Rhea Kishore] We are beginning to systematically collect data related to broadening participation of community college and noncommunity college students. Implementing this survey annually will allow us to track progress on data tracking metrics.
- A2 (G1):** Outreach and recruitment [new, led by Rhea Kishore] We are beginning to systematically collect data related to broadening participation of community college and noncommunity college students. Implementing this survey annually will allow us to track progress on data tracking metrics.
- A3 (G1):** Co-design process [new, led by Phoebe Seng] We will engage in co-design processes such as workshops with our students, including our PhD students, to systematically understand undergraduate and master's students' needs, to identify appropriate interventions to support an inclusive faculty. Faculty can participate in providing input on the design process. We will evaluate the effectiveness of these interventions by tracking faculty participation and our self-reporting anonymous climate survey.

- A1 (G1):** Creation of central faculty advisory committee [new, led by Phoebe Seng] We are creating central faculty advisory committee to transparently inform faculty and students about Broadening Participation activities, plan and give input on the department's broadening participation efforts. This team will compile research and support diversity and inclusion. Faculty can participate by contributing to the creation of these committees (for example, providing input on broadening participation efforts). We will track the creation of these committees and the number of faculty who participate in creating them.
- A1 (G1):** TA training [ongoing, led by Kyle Harnag] We provide new and returning faculty who participate in our research projects with research mentorship opportunities and professional development and career-related resources to more effectively and inclusively support our students. We also plan to support research TA training on high school students with the goal of increasing the number of women and students from UCRs to be involved with undergraduate research projects (CAREER grant). We will evaluate the effectiveness of these interventions by tracking faculty participation and our self-reporting anonymous climate survey.
- A1 (G1):** Support faculty and student training to create an inclusive climate [ongoing, led by Kaye Linn] We are supporting community education on topics like inclusive pedagogy and course design, conflict resolution, diversity, and inclusive teaching and learning. We will track the number of faculty engaging in these processes and using the data.
- A2 (G2):** Augmented data collection [new, led by Rhea Kishore] We are creating structures for regularly updated data collection on recruitment and retention of students, master's, and PhD students (broken down by gender, neurodiversity, and first-generation status) and faculty (such as well as student performance in coursework). Faculty will participate by assisting in the design, visualization, and presentation of data collection, and in using these data to reflect on mentorship and teaching practices. We will track the number of faculty engaging in these processes and using the data.
- A3 (G2):** Hiring outreach through formal and informal channels [ongoing, led by Wendy Jui] We are increasing outreach to potential faculty who are women and members of UCRs, through formal channels such as AMACS, attending at the Career and Rising Stars program, and through informal personal contacts. We will attribute a stipend for each of our graduate students to identify potential faculty who are women and members of UCRs. We will evaluate these efforts by tracking the number of faculty contacting our offices who are broadening our network, and by assessing the proportion of women and candidates from UCRs in our pool across the hiring process (applications, interviews, offers, and offers accepted).
- A3 (G2):** Summer School for PhD students from UCRs [ongoing, led by Phoebe Seng] To increase the number of students from UCRs to our new and returning faculty, we will offer new PhD students and/or staff. We will offer a summer school program targeted to students from UCRs from high schools to broadening participation efforts. Faculty will participate by providing support, offering support for student travel, and serving on research panels / meeting with small groups of students during the event. We will track faculty participation in the summer school. Director for Diversity and Inclusion will develop a formal assessment plan for the summer school.

Departmental BPC Plan
 Department of Computer Science (CS)
 Purdue University (West Lafayette, IN)
 Effective dates of plan: 03/18/2023-03/18/2024
 Contact: Shihui Yang, Professor and Chair, shihuiyang@purdue.edu



Purdue University Northwest (PNW) is a premier research university dedicated to engineering, technological change in our students and in our community. The university offers two campuses serving a diverse student body of approximately 8,000 students and graduate students. As an emerging Hispanic Serving Institution, PNW commits to creating a culture of inclusion with Diversity, Equity, and Inclusion as core values. The Department of Computer Science at PNW is proud to be a leading faculty members and two new research-based graduate students joined in Fall 2022. The table shows 2022 academic year student population demographics by race and gender for the university and the 173

- G1:** By 2024, more than 80% of CS faculty will have completed an Inclusive Teaching in STEM training program offered by PNW Center for Faculty Excellence, all CS faculty will have attended inclusive teaching related activities.
- G2:** To inform our efforts to better serve our Hispanic/Latino students, by 2024 we will collect and analyze data from the previous 5 years to determine whether there are identifiable differences in success and persistence in the program, with a particular focus on our introductory courses, including (a) rates for CS 123 enrolling (12/1) or withdrawing from the course, (b) retention rates after CS123, and (c) retention rates after CS124.
- G3:** We will analyze data, identify the reasons for the gaps between men and women's participation in our program, by 2030, we will increase the percentage of women enrolled in CS undergraduate degree programs from 9.8% to 20%.
- G4:** Beginning 2023, the department will establish a process and budget for faculty and current undergraduate students having area high school and mentoring women and students from

- A1: Faculty training on inclusive teaching practices (G1):** PNW Center for Faculty Excellence offers training programs such as Inclusive Teaching in STEM. CS faculty will be encouraged to attend. CS faculty will be collaborating with the Center to offer mentorship and faculty coaching. CS faculty will be encouraged to participate other university activities on inclusive teaching and recruitment. CS faculty will be encouraged to participate in research projects on inclusive teaching and recruitment. CS faculty will be encouraged to participate in research projects on inclusive teaching and recruitment.
- A2: Peer coaching and faculty review (G2, G3, G4):** CS will increase peer coaching practices that increase CS faculty's skills as inclusive teaching practices. This provides opportunities for faculty to share successful practices or courses, or receive guidance in the area. CS will also include

- A1: Involvement in BPC-related activities as a factor in faculty annual review.** Measurement: # of faculty participating. (Contact: Yang)
- A2: Curriculum Evaluation (G2, G4):** During curriculum update effort starting Fall 2023, CS will redesign introductory CS courses (CS100, CS123, CS124) to integrate inclusive teaching practices and self-reporting contributing to the creation of these committees (for example, providing input on broadening participation efforts). We will track the creation of these committees and the number of faculty who participate in creating them.
- A3: CS field selection and analysis (G2, G3):** Starting Fall 2023, CS will perform course assessment for introductory CS courses, work with Center for Faculty Excellence to identify areas for inquiry and barriers. The department will participate in the CSEA CDEP study to include program, including undergraduate computing students' self-efficacy, sense of belonging, retention in computing, persistence in the department, and transition to post-grad. Measurement: # of courses assessed, # of faculty participating, and # of demographics of students surveyed. (Contact: G2, G3)
- A4: Working with regional community colleges to strengthen current pathway programs (G2, G3):** The department currently has some pathway programs with regional community colleges. CS will assess how these programs, strengths or unique items with an emphasis on recruiting women and students from underrepresented groups. CS will design and improve pipeline programs to assist students with pre-college training and post-graduate training, to increase participation in and graduation from the pathway programs. The department will also seek external funding to support these efforts. Measurement: # and demographics of participating students, completion rates of introductory CS courses. (Contact: Yang)
- A5: Encourage undergraduate student participation in research (G2, G3):** Encourage undergraduate women and students from underrepresented groups to participate in research and attend regional, national, and international conferences. Continue to pursue funding with undergraduate research related grants, such as BPC-Sponsored NSF Undergraduate Research Experiences program. Develop a mentorship program for undergraduate students to research and engage their faculty in small projects. Faculty will encourage promising students to apply to graduate school. Measurement: # and demographics of participating students, completion rates of introductory CS courses. (Contact: Yang)
- A6: Building inclusive community for BPC practices (G2, G4):** The department will apply to join BPC Computing Core. CS will establish a student cohort to promote student and K-12 outreach activities, including middle-school and high school students working with CS faculty for STEM and external funding for summer computing and research for high school students, with efforts to increase retention and completion. CS will apply to become a member of National Center for Women & Information Technology (NCWIT), review NCWIT recruitment resources. CS will work with PNW's Academic and Career Center to provide support for students from UCRs. CS will work with PNW's Hispanic Serving Institution (HSI) program to increase the number of students from UCRs to be involved with undergraduate research projects (CAREER grant). Measurement: # of students from UCRs to be involved with undergraduate research projects (CAREER grant). (Contact: Yang)
- A7: Recruiting and retaining faculty from underrepresented groups in computing (G2, G4):** Ensuring that faculty hiring processes support and encourage diversity is an important part of creating a diverse, inclusive computing workforce. The department will work with the Center for Diversity, Equity, and Inclusion to provide training on DEI practices for faculty search committees. The department will work with external research organizations and faculty hiring networks to recruit new members from underrepresented groups. Measurement: # faculty members from underrepresented groups who are hired. (Contact: Yang)

graduating from CS degree program.

Hearder

Context

Goals

Activities

Measurement

Departmental BPC Plan Templates

Template:

BPCnet has provided two templates for you to create your own Departmental BPC Plan. These templates provide two options for how Departmental BPC Plans can be organized while following the guidelines in this checklist. You can download the templates below:

- [Template A](#)
- [Template B](#)

Template A

Template (A) for writing a Departmental Project BPC Plan
Blue text indicates instructions that you should delete before submitting your Plan.
[Red text] indicates content that you should replace when writing your Plan.

Departmental BPC Plan
[Department Name]
[Institution Name]

Reserve this box for BPCnet.org's verification stamp.

Effective dates of Plan: Leave full line for BPCnet staff to add your dates.
Your Departmental BPC Plan's effective start date will be the date that it is verified, and your effective end date will be two years from that verification date.

Contact: **[The individual(s) responsible for overseeing the Departmental BPC Plan.]**
When you complete this section, you should have met these expectations from BPCnet.org:

- Includes the institution's name and the name of the department.
- Reserves one line for BPCnet staff to insert a start and end date for the Departmental BPC Plan OR you have set your own effective dates if not submitting for verification
- Includes the name, role, and contact information for the individual(s) responsible for overseeing the Departmental BPC Plan.

1. Contact
When you complete this section, you should have met these expectations from BPCnet.org:

- Includes relevant, currently available data that is related to the goals.
- Includes data that does not violate privacy or make people feel singled out.

2. Goals
G1: [insert goal 1]
G2: [insert goal 2]
Repeat as needed.

When you complete this section, you should have met these expectations from BPCnet.org:

- The Plan identifies the BPC goals the department is focusing on.
- All goals are specific, measurable, attainable, relevant, and time-bound (SMART).
- All goals will focus on BPC as defined by NSF CISE (see <https://www.nsf.gov/cise/bpc/>), but may also include additional groups for BPC.
- All goals have an identifier for reference elsewhere in the document. (e.g., G1, G2)

3. Activities and Measurement
A1: Activity Name (GR, GR#)
A2: Activity Name (GR#)
Repeat as needed.

Consider making a copy of this spreadsheet (make a copy) to facilitate collecting a list of existing activities.

When you complete this section, you should have met these expectations from BPCnet.org:

- Each activity has an identifier for easy reference in a Project BPC Plan (e.g., A1, A2).
- Each activity identifies which goal(s) it is intended to help achieve using the identifier set in the goals section (e.g., G1, G2).
- Each activity includes a clear description of what will occur as part of the activity.
- Each activity identifies how its outcomes will be measured.
- Identifies a contact person in the department for each activity.

Template B

Template (B) for writing a Departmental Project BPC Plan
Blue text indicates instructions that you should delete before submitting your Plan.
[Red text] indicates content that you should replace when writing your Plan.

Departmental BPC Plan
[Department Name]
[Institution Name]

Reserve this box for BPCnet.org's verification stamp.

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- Includes the name, role, and contact information for the individual(s) responsible for overseeing the Departmental BPC Plan.

1. Contact
When you complete this section, you should have met these expectations from BPCnet.org:

- Includes relevant, currently available data that is related to the goals.
- Includes data that does not violate privacy or make people feel singled out.

2. Goals, Activities, and Measurement
G1: [insert goal 1]
A1: [insert activity for goal 1]
M1: [insert measurement for activity 1]
If there are multiple activities for one goal, they can be identified in the Plan as:
G2: [insert goal 2]
A2a: [insert activity for goal 2]
A2b: [insert activity for goal 2]
A2c: [insert activity for goal 2]
M2: [insert measurement for goal 2 activities]
Repeat as needed.

Consider making a copy of this spreadsheet (make a copy) to facilitate collecting a list of existing activities.

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- Each activity includes a clear description of what will occur as part of the activity.
- Each activity identifies how its outcomes will be measured.
- Each activity identifies a contact person in the department.

Template A

Label Activities w/Goals

2. Goals

G1: [Insert goal 1]

G2: [Insert goal 2]

Repeat as needed.

3. Activities and Measurement

A1: [Activity Name (G#, G#)]

A2: [Activity Name (G#)]

Repeat as needed.

Template B

Cluster Activities w/Goals

2. Goals, Activities, and Measurement

G1: [Insert goal 1]

A1: [Insert activity for goal 1]

M1: [Insert measurement for activity 1]

G2: [Insert goal 2]

A2a: [Insert activity for goal 2]

A2b: [Insert activity for goal 2]

A2c: [Insert activity for goal 2]

M2: [Insert measurement for goal 2 activities]

Departmental BPC Plan Verification Process

- (Optional) You meet with a BPCnet.org consultant (for free)
- You submit your Departmental BPC Plan on BPCnet.org
- A consultant compares your plan to the [checklist for Departmental BPC Plans](#)
 - Includes presentation and content rules
 - Requires NSF's style guides ([PPAPG](#))
- You revise your plan with feedback from a BPCnet.org consultant
- Your Verified Departmental BPC Plan is posted on BPCnet.org
- PIs include a Verified Departmental BPC Plan from their institution in applicable NSF grants
- You revise your plan at least every 2 years

PIs Using a Verified Departmental BPC Plan

- Departmental BPC Plan checklist is designed to make it easier for PIs to write a Project BPC Plan for an NSF grant
- Most NSF grants do not require a Project BPC Plan
 - All NSF grants require Broader Impacts and BPC can be used
 - Some require a separate Project BPC Plan:
 - E.g., Core, SaTC, CPS (depending upon the size)
 - Some require an integrated BPC plan
 - E.g., Expeditions

Summary of Departmental BPC Plan Overview

- Departmental BPC Plans and activities are not novel
- Contents:
 - Header, Context, Goals, Activities, Measurement
- Templates: bpcnet.org/departmental-bpc-plans/
 - Template A: Label Activities with Goals
 - Template B: Cluster Activities with Goals
- Verification by BPCnet.org at least every 2 years
- Departmental BPC Plans are incomplete and imperfect

Overview of the Departmental BPC Plan Checklist

Luther Tychonievich

Departmental BPC Plan Checklist



Departmental BPC Plan Checklist



- Document structure: Use the template, PAPPQ rules and submit the file as a 2-page word document.

1. Context

- Includes relevant, currently available data that is related to the goals
 - For example, if your goal is to increase the representation of women faculty, included data should relate to gender.
 - If data are not available, you can collect data as a goal. BPCnet.org has a curated list of resources for Data and Evaluation/Measurement (<https://bpcnet.org/resources-one-page/#data-evaluation>)
- Includes data that does not violate privacy or make people feel singled out.
 - If including the numerical measure you seek to improve would violate privacy, you may include a note that the data has been omitted.

2. Goals

- Identifies the BPC goals the department is focusing on.
- Sets all goals to be specific, measurable, attainable, relevant, and time-bound (SMART).
- Focuses all goals on at least one population included in the NSF CISE definition of BPC (<https://www.nsf.gov/cise/bpc/>).
 - You must include at least one of these populations who are identified by NSF CISE as underrepresented in computing: Women, American Indians, Alaska Natives, Blacks and African Americans, Hispanics and Latinos, persons with disabilities, Native Hawaiians, and Other Pacific Islanders.*
 - You may also include additional populations for BPC (e.g., veterans, first generation, LGBTQ). For example, a goal could focus on increasing representation of students who identify as Black or LGBTQ, and every activity aligned with this goal needs to focus on both populations. A goal may not focus only on LGBTQ students.
- Includes an identifier for each goal for reference elsewhere in the document (e.g., G1, G2).



August 3- 5, 2022



Departmental BPC Plan Checklist



3. Activities and Measurement

- Includes identifiers for each activity for easy reference in a Project BPC Plan (e.g., AI, A2).
- Identifies which goal(s) each activity is intended to help achieve using the identifiers set in the goals section (e.g., G1, G2).
- Includes a clear description of what will occur as part of each activity.
- Identifies how outcomes will be measured for each activity.
 - Some intended outcomes may be difficult to measure; in such cases, it is sufficient to measure an intermediate outcome. For example, it is sufficient to measure the number of students who receive funding to attend a diversity conference instead of the long-term impact of their attendance.
- Identifies a contact person for each activity.

Tone and Clarity Checklist:

- Uses respectful, person-centric language when describing people.
 - Population descriptors should be combined with person descriptors, for example "Hispanic students" rather than just "Hispanics"
 - A person cannot be "diverse" - diversity is a characteristic of a population having many dissimilar constituents.
- Defines any terms used to describe multiple populations of people.
 - For example, "Our Plan will focus on [students/faculty] who are [insert your intended population(s)]. In the rest of the document, we will refer to these [students/faculty] as "[students/faculty] from underrepresented populations in computing.".
- Does not imply that populations that are underrepresented in computing are homogeneous or deficient in some way.
 - For example, an activity description should not say "all women want to contribute to society."



August 3- 5, 2022



Departmental BPC Plan Checklist



Tone Pitfalls: Selections from "Common Mistakes in Departmental Plans" from BPCnet.org

- Don't omit definitions of acronyms that describe groups of people.
 - Instead, enumerate the groups covered by the acronym. For example, instead of "historically underrepresented groups (HUG)" say "students from historically underrepresented groups in computing (HUG, i.e., students who are American Indian or Alaska Native, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander)".
- Don't imply that students or faculty from groups underrepresented in computing are lacking ability or other individual characteristics that would require you to lower your standards.
 - Instead, identify how your plan addresses biases in evaluation or gaps in opportunity.
- Don't refer to individuals as "underrepresented".
 - Instead, describe the populations they are part of (or identify with) as underrepresented. For example, "students from populations underrepresented in computing" rather than "underrepresented students".
- Don't refer to individuals as "diverse" as a euphemism for their race, gender, or disability status.
 - Instead, use "diverse" only when you mean that a population contains a mix of people not typically considered part of the same population.

Content Pitfalls: Selections from "Common Mistakes in Departmental Plans" from BPCnet.org

- Don't assume your BPC activities need to be novel or creative.
 - Instead, use or adapt existing programs or develop partnerships in your local context.
- Don't necessarily include everything your department is doing.
 - Instead, describe the activities that would benefit from faculty involvement during the timeline of the plan. Consider having an internal document to list all activities and additional department-specific context.



August 3- 5, 2022



Departmental BPC Plan Checklist



- Don't provide instructions to your faculty about how they can get involved.
 - Instead, include that information in an internal document.
- Don't plan to improve a number you don't know.
 - Instead, include a goal to measure it first.
- Don't assume that all K-12 student outreach will broaden participation in computing.
 - Instead, create a plan that uses an inclusive curriculum and pedagogy within a context that serves K-12 students who are from groups underrepresented in computing.



August 3- 5, 2022

Activities and their support

- Change is made by people engaging in activities
- Effective activities have
 - A clear goal appropriate to your context
 - A contact person
- Terminology matters
- To be integrated into NSF proposals, also need
 - Descriptions suitable for an external reader
 - Identifiers for ease of reference
 - Faculty participation
 - Clear connection to NSF's BPC initiative
 - PPAPG formatting

Goals and Context

- Concrete goals
 - Clear BPC relationship
 - Time-bounded, measurable
- Vision vs Goal
 - Vision: “We are committed to supporting all”
 - Goal: “By 2024 retention rates will no longer differ by race”
 - Both OK, goals needed
- Several activities may share one goal, but don’t have to
- Sufficient context
 - Appropriate to scope of activities
 - What you know about the current status of things you plan to change

Presentation

- Language and Terminology
 - Use NSF BPC-call population names
 - May define collective terms for multiple such populations
 - Include person-specifiers (e.g. “Hispanic students” not “Hispanics”)
- Header content
- Formatting

More on <https://bpcnet.org/departmental-bpc-plans/>

Common Mistakes in Departmental Plans

The following list of common mistakes may help you with your Departmental BPC Plan.

Writing your BPC plan:

- Don't omit definitions of acronyms that describe groups of people.
 - Instead, enumerate the groups covered by the acronym. For example, instead of “historically underrepresented groups (HUG)” say “students from historically underrepresented groups in computing (HUG; i.e., students who are American Indian or Alaska Native, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander)”.
- Don't imply that students or faculty from groups underrepresented in computing are lacking ability or other individual characteristics that would require you to lower your standards.
 - Instead, identify how your plan addresses biases in evaluation or gaps in opportunity.
- Don't forget to describe your context through comparisons.
 - Instead, include your local context (e.g., the number and demographics of students in your department compared to people at your institution, region, state). If you don't have the relevant data, include collecting this data as part of your activities.
- Don't provide instructions to your faculty about how they can get involved.
 - Instead, include that information in an internal document.
- Don't claim current activities are successful without evidence.
 - Instead, hedge your claims, include currently available evaluation data, or include activities to collect relevant data.
- Don't conflate group and individual terms in your writing.
 - Instead, if an activity is benefiting people, use terms where people are the subject. For example, instead of saying you will fund participation by groups that are underrepresented in computing, say you will fund participation by *students belonging to* groups that

Departmental BPC Plan Overview and Checklist Clarifying Questions

Colleen Lewis & Luther Tychonievich

Working Session: Verified Example BPC Plans and Checklist

Colleen Lewis

Working Session Instructions - Independent Work

Part 1: For each example Departmental BPC Plan:

- **Read the activities** - note which ones might be appropriate for your plan
- **Read the goals** - note which ones might be appropriate for your plan
- **Read the context** - note how it motivates the goals and activities and what you might replicate in your plan

Part 2: Read the checklist

Up Next: Q&A about the example plans and rubric

Done early?

- Make notes of any questions you have for the Q&A
- Practice applying the rubric to one of the example plans



Verified Example BPC Plans and Checklist Discussion and Q&A

Colleen Lewis & Luther Tychonievich

Lunch

Next session will begin at 12:45 PM

Creating Your Departmental BPC Plan Activities

Luther Tychonievich

Activity selection overview

- Generally, use best-practices others have also used
 - (sources next)
- Describe what will occur
- Connect to a clear BPC goal, context, and whom to contact for more

Checklist text:

- Includes identifiers for each activity for easy reference in a Project BPC Plan (e.g., A1, A2).
- Identifies which goal(s) each activity is intended to help achieve using the identifiers set in the goals section (e.g., G1, G2).
- Includes a clear description of what will occur as part of each activity.
- Identifies how outcomes will be measured for each activity.
- Identifies a contact person for each activity.

Places to find activities

- Collect what's ongoing:
 - Activities you know are ongoing or planned
 - From your school/college/unit's officer of diversity, equity and inclusion
 - Note: may be several officers at different levels
 - From your department head and/or dean(s)
- Circulate ongoing activity list to faculty, asking them to add things you missed
- Add activities from examples and/or other Verified Departmental BPC Plans

Remove activities as needed to meet 2-page limit

Advice for Activities in Departmental BPC Plans

Things that the department does where PIs can get involved

- OK if only one PI can do it, but probably not the best use of space

Broadly Applicable Activities

- BPC-focused REU program
- BPC education – i.e., learning opportunities for faculty
- BPC-oriented data collection
- Diversity conference attendance with students
- Affinity groups with opportunities for faculty involvement
- BPC Committee will _____
 - For Connected Project BPC Plans where PIs role is “join the BPC Committee”

Departmental BPC Plan Activities Q&A

Luther Tychonievich

Writing Session: Drafting Your Departmental BPC Plan Activities

Creating a new Departmental BPC Plan

1. Copy the Departmental BPC Plan template from BPCnet.org
 - a. It matches NSF formatting rules
 - b. It includes a line for effective dates, which will be filled by BPCnet staff.
 - c. It includes a 1" square where BPCnet staff will add a verified stamp.
2. Update the header with your information (don't fill in the dates)
3. Brainstorm a list of BPC activities to include
4. Write the goals and context of the plan (later sessions of this workshop)
5. Check the Departmental BPC Plan checklist on BPCnet.org
6. If over two pages, cut
 - a. context that does not motivate a goal
 - b. activities few PIs could join

Writing session: Activities

1. Copy the Departmental BPC Plan Template ([A](#) or [B](#)) from bpcnet.org
2. Add activities you like from
 - [Our list](#) of example BPC activities and goals
 - [Verified plans](#)
3. Describe any activities you know are ongoing at your institution
4. Describe any activities you know are planned at your institution
5. Share your list with others to see if they have ideas to add

Each activity needs an **identifier**, a **contact** person, a clear **description** of what will occur, and a **measure** of engagement or success. **Goals**, also required, will be added later in the workshop.

Common Departmental BPC Plan Questions

Wendy DuBow

Content Questions...

1. What do we do if we don't have any data about our department or our surrounding community for the Context section?
2. What do we do if our department's focus is on first-generation students since that is not an NSF BPC category?
3. Is the Contact Person listed with an activity responsible for doing it?
4. What if our campus Institutional Research office doesn't give us data?
5. How can I fit everything into 2 pages?

Logistics Questions...

6. What if we don't get our departmental plan verified in time for the NSF deadline?
7. Who is reviewing the Departmental BPC plans?
8. Who is reviewing the Project BPC plans submitted with proposals?
9. What if in a collaborative proposal, only one of the partnering institutions has a verified Departmental Plan?

Bigger Questions...

10. What happens if we don't achieve the SMART goals specified in our departmental plan?
11. What else can we (as a department) do to support PIs?

Advice for Goals in Departmental BPC Plans

- Few BPC-focused SMART Goals that can cover ALL activities
 - **Option 1:** What data do you have that shows a BPC problem? Make a goal to improve it.
 - **Option 2:** Make a goal to collect it and then improve it.

Advice for Context in Departmental BPC Plans

- Include ONLY what is necessary to motivate the goals.
- Say “omitted” if data would violate privacy

Write the content of the Departmental BPC Plan

1. Write goals that motivate all BPC activities (goal, not vision)
 - a. E.g., "G1: By (date), (BPC measure) will improve from (current value) to (goal value)"
 - i. Also include the number of people if the value is a ratio or percentage
 - b. Provide data relevant to each goal or an additional activity to collect that data
 - c. Multiple activities may share the same goal, but do not need to do so
2. Describe each activity, including
 - a. An activity identifier, like "A1"
 - b. A contact person (a single name is sufficient)
 - c. The identifier of the goal it serves, like "G1"
 - d. A clear description of what will occur as part of the activity
 - e. How its outcomes will be measured
3. Add additional institutional context
 - a. Describe the type of your institution and how many people do you serve
 - b. (Optional) Provide additional demographic information

Checklist overview

- Concrete goals
 - Clear BPC relationship
 - Time-bounded, measurable
- Vision vs Goal
 - Vision: “We are committed to supporting all”
 - Goal: “By 2024 retention rates will no longer differ by race”
 - Both OK, goals needed
- Several activities may share one goal, but don’t have too
- Sufficient context
 - Appropriate to scope of activities
 - What you know about the current status of things you plan to change

Context: Common Content

- **Background:** A brief department/institution introduction
- **Size:** Number of students in different degree programs
- **Terminology:** Definition of a term you'll use to describe people from groups underrepresented in computing
- **Demographics:** Summary of IPEDS data or other demographic information
- **Status Quo:** Any known information about current retention rates, feelings of inclusion etc., especially if disaggregated
- **Other:** Optional descriptions that could include:
 - **Local Context:** Description of specific historically-underrepresented populations that are represented in the area
 - **Vision:** A statement of commitment to equity that may extend beyond the populations covered by the BPC initiative
 - **Awesomeness:** Something that your department would like to highlight

Departmental BPC Plan: Context and Goals

Dorian Arnold
Emory University

Writing Session: Drafting Your Departmental BPC Plan Goals and Context

Break

Next session will begin at 4:00 PM

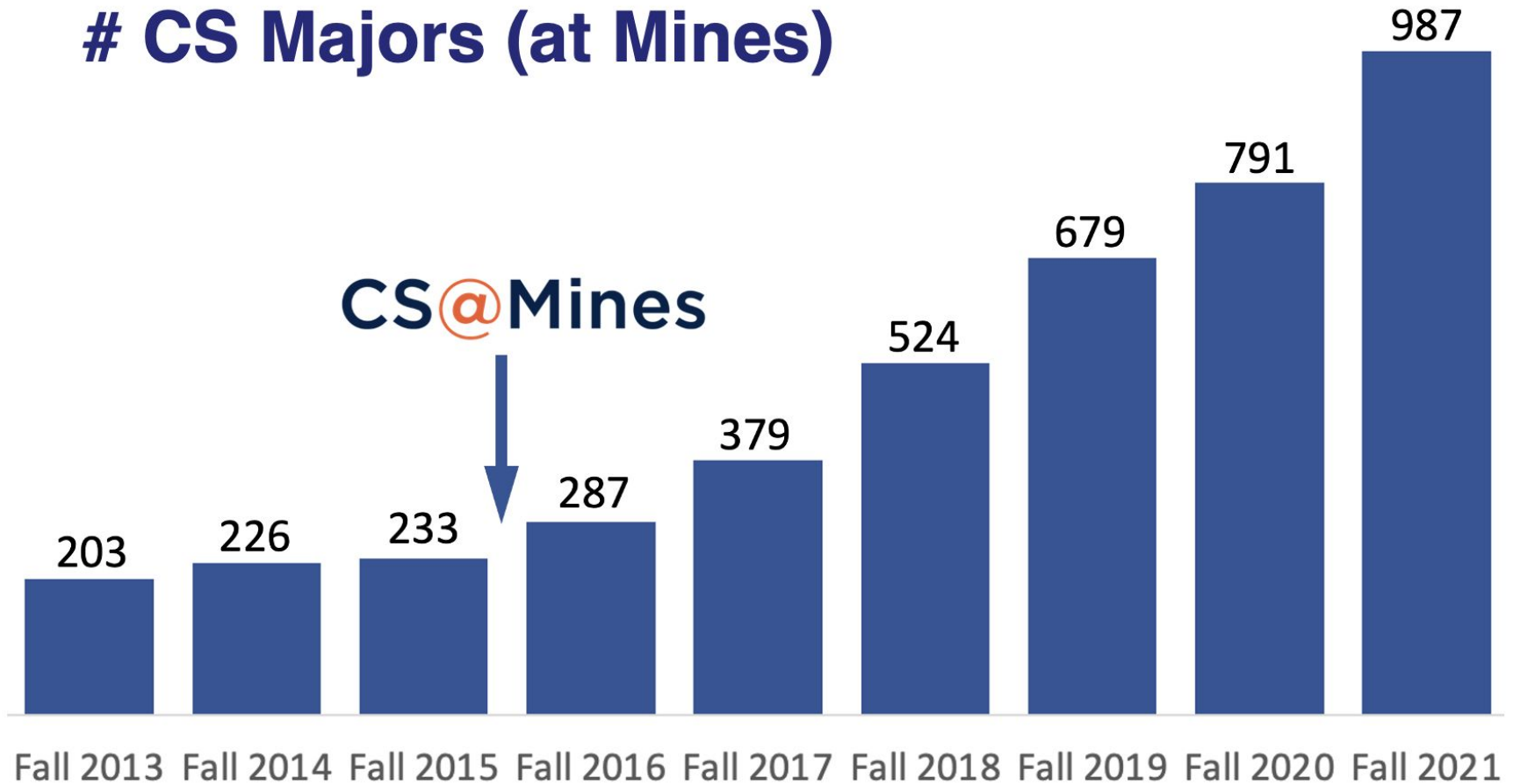
How Can Evaluation Drive BPC Actions?

Tracy Camp

A few musings ...

CS@Mines

CS Majors (at Mines)



	Fall 2008	Fall 2021	Change
UG Majors	157	987	~6.3x
Women (#)	17	226	~13.3x
AHN (#)	12	180	~15x

	Fall 2008	Fall 2021	Change
UG Majors	157	987	~6.3x
Women (%)	10.8%	22.9%	~2.1x
AHN (%)	7.6%	18.8%	~2.5x

	Fall 2008	Fall 2021	Change
UG Majors	157	987	~6.3x
Women (%)	10.8%	22.9%	~2.1x
AHN (%)	7.6%	18.8%	~2.5x

Women at Mines: ~31.7%

URG at Mines: ~18%

What did **CS@Mines** do?

Several Impactful BPC Activities

Recruitment activities

Retention activities

Welcoming culture (space/activities)

Transfer efforts

Visible signs that diversity is important

etc.

List of BPC Activities: <https://tinyurl.com/BPC-NCWIT-Activities>

Extension Services for Undergraduate Programs Activity Reference Sheet

Increase Enrollment

- Participate in events held by admissions or other campus offices (e.g., give presentations at orientation)
- Develop and deliver messaging that will inform potential majors about career opportunities and the nature of computing and engineering work
- Have students or faculty act as ambassadors for the major at admissions events (e.g., orientation)
- "Market" your major to undeclared majors
- Create a strategic recruiting plan that targets qualified and readily available potential students
- Offer a minor
- "Market" your minor to students with other majors
- Provide relevant and accurate information (e.g., "Talking Points") to the admissions, advising, and other offices that might speak on your behalf
- Have faculty inform and personally recruit capable students in non-major introductory courses
- Develop an appealing web site and brochures for diverse prospective students
- Print and distribute posters about your program
- Provide information to K12 teachers, guidance counselors, etc.
- Have students conduct "roadshows" in high schools (and have local current undergrads recruit from their high schools)

Measurement: KEY for Success



CRA
Computing Research
Association

BPCnet
RESOURCE PORTAL

Overall Process

- 1. Determine Context and Set Goals**
- 2. Implement Activities Strategically**
- 3. Measure**
- 4. Feedback loop**

Overall Process

1. **Determine Context and Set Goals**
2. **Implement Activities Strategically**
3. **Measure (Tracy)**
4. **Feedback loop**

BPCnet.org Resources for Data and Measurement

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BPC PLAN CONSULTANCY

SUBMIT YOUR PLAN

WRITING RESOURCES ▾

NEWS & EVENTS ▾

STATISTICS

Customizing Your BPC Plan

The following resources may be helpful to you writing Project and Departmental BPC Plans. Please [contact](#) us for feedback or recommendations for additional resources.

Resources for Selecting BPC Activities

Departments should aim to deepen, improve or expand their BPC activities and data collection each year. The following categories may serve as a resource for guiding that work.

OVERVIEW OF BPCNET
RESOURCES

CUSTOMIZING YOUR BPC PLAN

ACTIVITY LIBRARY

FAQ

EXAMPLE SMART BPC GOALS

Activities

Measurement

Available Data

Data

Measurement Data

Student and Faculty Retention

Curriculum and Pedagogy

Building Community



BPCnet.org Resources for Data and Measurement

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Student and Faculty Retention

Retention is an important focus for BPC work. The following five categories can drive effective retention efforts.

Selecting BPC Activities

- [Data and Evaluation/Measurement](#)
- [Publicly Available Data](#)
- [Institutional Data](#)
- [Evaluation/Measurement Data](#)

Student and Faculty Retention

[Curriculum and Pedagogy](#)

[Building Community](#)

[Departmental Policy](#)

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[Selecting BPC Activities](#)

[Data and](#)

[Evaluation/Measurement](#)

[Publicly Available Data](#)

[Institutional Data](#)

[Evaluation/Measurement Data](#)

[Student and Faculty Retention](#)

[Curriculum and Pedagogy](#)

[Building Community](#)

[Departmental Policy](#)

Public Data:

U.S. postsecondary data (IPEDS)

U.S. K-12 Students (CCD)

NCWIT Scorecard

CRA Taulbee

ACM NDC

BPCnet.org Resources for Data and Measurement

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Data and

Evaluation/Measurement

Publicly Available Data

Institutional Data

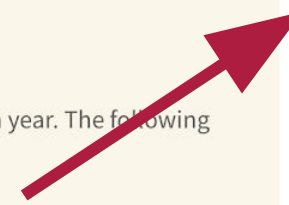
Evaluation/Measurement Data

Student and Faculty Retention

Curriculum and Pedagogy

Building Community

Departmental Policy



Monitor your data:



Institutional Data:

**Applications, Acceptances, Enrollments
Retention/Attrition**

Institutional Data:

**Applications, Acceptances, Enrollments
Retention/Attrition**

**e.g., 21.2% accept vs. 16.7% enrolled (females)
⇒ 24% enrolled (females)**

Institutional Data:

**Applications, Acceptances, Enrollments
Retention/Attrition**

DFW rates (esp for early courses)

Institutional Data:

**Applications, Acceptances, Enrollments
Retention/Attrition**

DFW rates (esp for early courses)

CS@Mines Data Chair

BPCnet.org Resources for Data and Measurement

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Curriculum and Pedagogy

Building Community

Departmental Policy



Understand your STUDENTS



Understand your STUDENTS



CERP

Computing Research
Association
Evaluation

CRA Data Buddies Survey

BPCnet
RESOURCE PORTAL

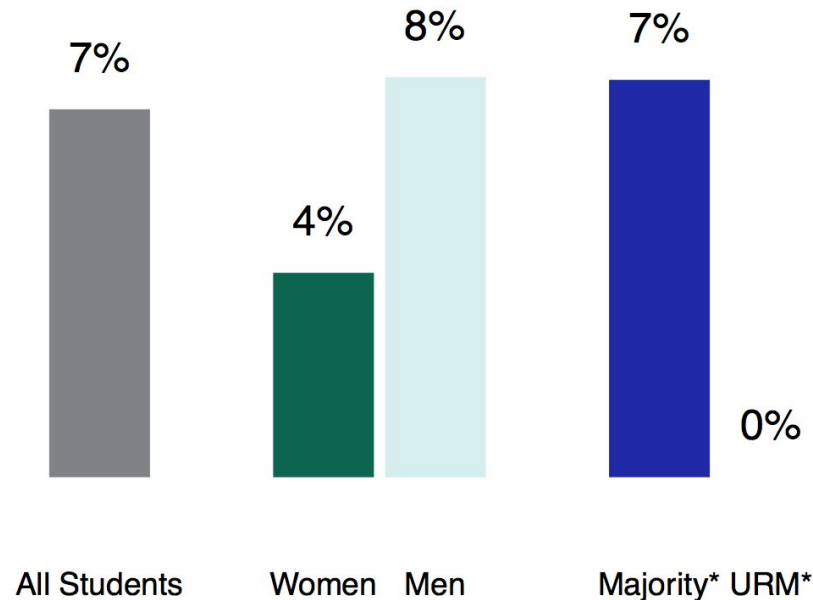
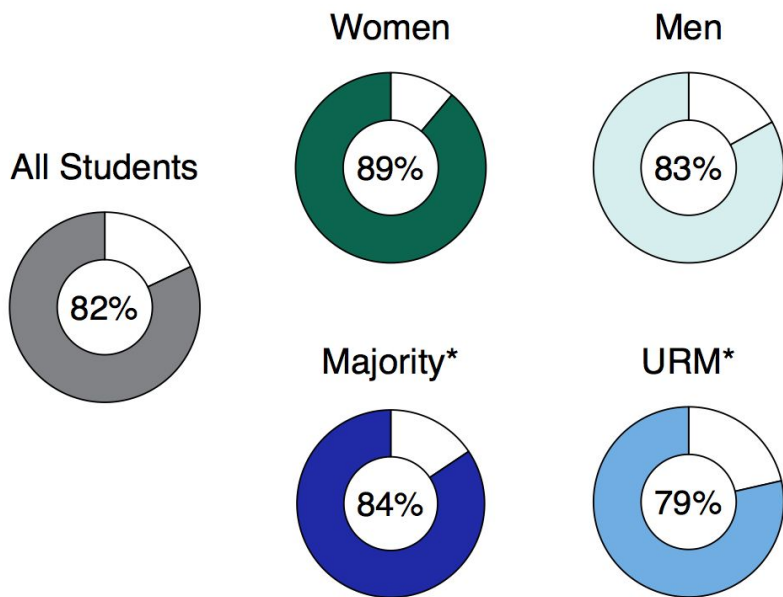
Satisfaction with the computing program

At your institution, the following are satisfied with the computing program**:

Thought about leaving computing major

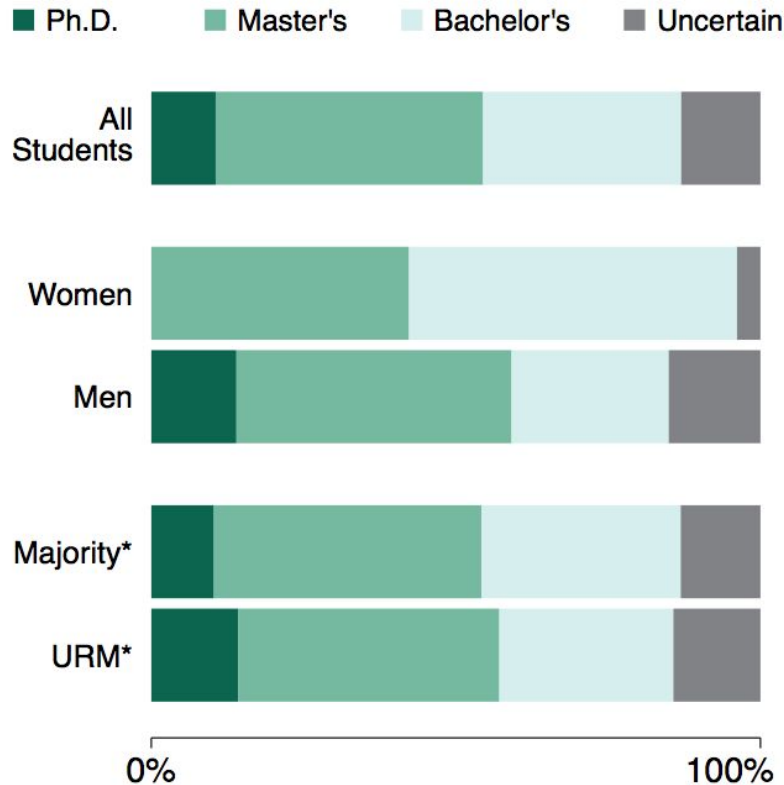
At your institution, the following thought about leaving their computing major**:

CS@Mines



Highest degree plans of your students

Your students' highest intended degree**:



Plans

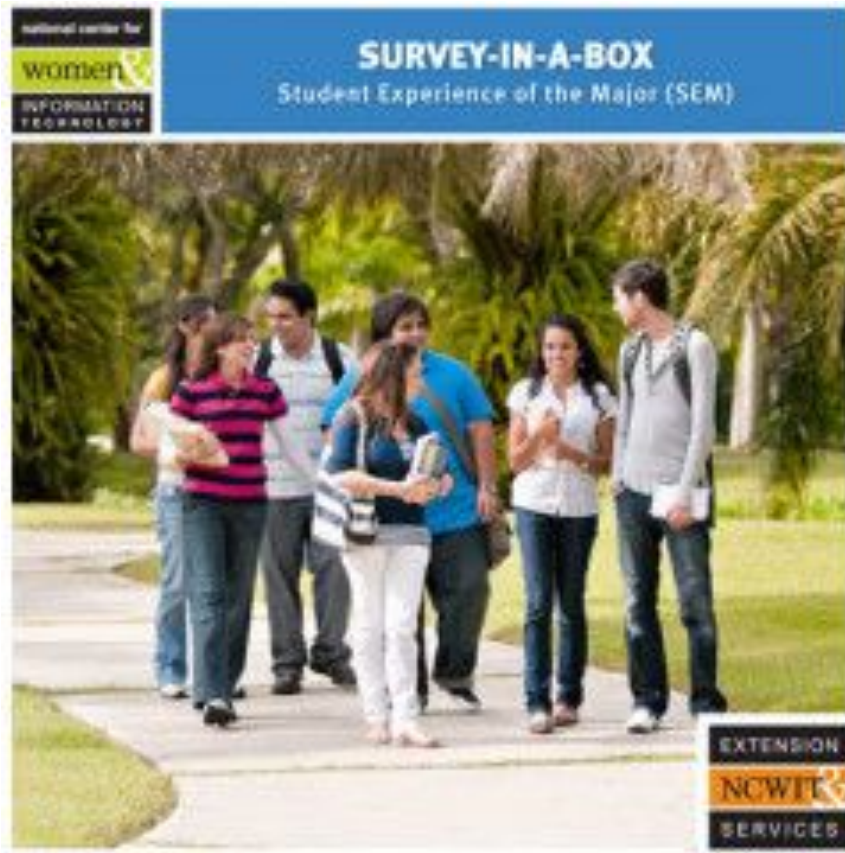


What is the highest degree you plan to attain?	Women	Men
Bachelor's degree (significant)	52%	26%

Shared with Dean (significant)

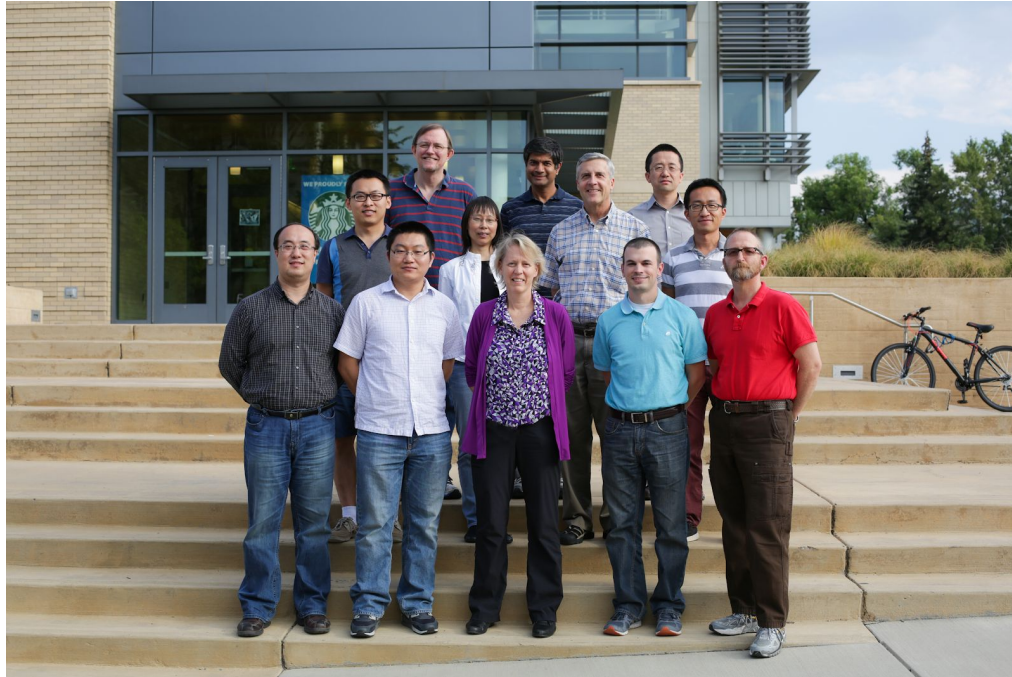
Question	Mines	Comparison group
I am confident that I can complete my undergraduate degree in computing	4.89 (0.32)	4.51 (0.85)
Overall, I am satisfied with the computing program at my institution	4.33 (0.85)	3.90 (1.07)
The department is NOT very supportive of its students	1.81 (0.93)	2.43 (1.10)
My department cares about its students	4.37 (0.71)	3.73 (1.00)
Who do you consider to be a mentor? (prof within my department)	61%	40%

Understand your STUDENTS



NCWIT Student Experience of the Major (SEM)

Understand your DEPARTMENT



Example BPC Activity

Implicit bias training

Metrics:

% of faculty/staff who attend training

% of students who attend training

Data and Measurement

DO:

Collect data to iteratively improve activities

DON'T

Assume each activity will work as intended

Overall Process

- 1. Determine Context and Set Goals**
- 2. Implement Activities Strategically**
- 3. Measure**
- 4. Feedback loop**

What questions do you have?



Conversation with NSF

Michelle Rogers

Wrap-up

Tracy Camp

Writing Session

Welcome

Day 2 - August 5, 2022

Tracy Camp

Overcoming Institutional Barriers

Dorian Arnold

Working Session: Peer Discussion

Peer Discussion Report Out

Break

Next session will begin at 11:10 AM

Next Steps in Writing and Implementing Your Departmental BPC Plan

Mary Hall

Next Steps Q&A

Mary Hall

Wrap-up

Tracy Camp