

**Departmental BPC Plan  
Department of Computer Science  
Worcester Polytechnic Institute**



**Effective dates of Plan:** 03/02/2023- 03/02/2025

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**1. Context:**

Worcester Polytechnic Institute, a global leader in project-based learning, is a distinctive, top-tier technological university founded in 1865 on the principle that students learn most effectively by applying the theory learned in the classroom to the practice of solving real-world problems. Recognized by the National Academy of Engineering with the 2016 Bernard M. Gordon Prize, WPI's pioneering project-based curriculum engages undergraduates in solving scientific, technological, and societal problems throughout their education and at more than 45 project centers around the world. WPI offers over 70 bachelor's, master's, and doctoral degree programs across 17 academic departments in science, engineering, technology, business, the social sciences, and the humanities and arts.

In the following table, data for nonbinary and intersex people were unavailable; gender and sex were presented as binary as a limitation of the institutional data dashboard. The Native column includes Native American and Alaska Native, but not indigenous cultures outside the US. The data for disabled (D) people comes from the Office of Accessibility and is limited as it only represents the number of students registered with the office. Many disabilities go unreported.

Overall statistics for undergrad (UG), Grad (Gr) & Current Estimate for Full-Time Faculty (Fac). The first row shows 4-year (2019-2022) sum of *degrees granted*. The second and third rows show the average across 4 years of the number of students that were enrolled during that year.

4Yr #(%)	All	Women	Men	Native	H+L	Black	D
WPI	4057	1486 (37)	2570 (63)	9 (.002)	271 (.67)	63 (.16)	780
CS UG	918	225 (25)	693 (75)	<5	77 (.08)	25 (.03)	-
CS Gr	142	38 (27)	104 (73)	0	<5	<5	-
CS Fac	37	10	27	0	<5	<5	-

**2. Goals, Activities, and Measurement**

**G1. Faculty Engagement with BPC:** From 2024 onward, all faculty will participate in at least one completed BPC activity per year.

**A1a. Faculty BPC Awareness and Collaboration (Rundensteiner):** Maintain and contribute to a shared list of ongoing BPC initiatives and activities in the department (Women in Data Science Symposium, outreach to Women in Computer Science, Women in Cybersecurity, AI4ALL, REU site BPC activities) and institution (K-12 outreach events such as Frontiers, etc.) that aim to expand participation in computing or target specific URGs (Women, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities).

**A1b. Integration with CS Department (Solovey):** Incorporate BPC into standard department committees and initiatives (e.g. all department service assignments such as graduate admissions, social events, TA hiring, faculty recruiting, colloquium, 1st-year student mentoring program, project coordination)

**A1c. BPC Visibility and Reach (Solovey, Neamtu):** Add inclusive posters to lecture halls and other locations. Revise the department website to include BPC in mission, statements, faculty profiles, events, links to BPC activities led or facilitated by faculty and other BPC-related content. Collect data from students to determine how many participated in DEI activities and in which year of their academic career.

**Measures:** Annual faculty reporting on BPC activities; number and demographics of students participating in activities; list of departmental BPC activities.

**G2. Student Retention and Experience Annual Report:** Beginning in 2023, we will create an annual report on the previous 5 years to identify gaps in persistence and sense of belonging in the undergraduate and graduate programs among different URGs.

**A2a. BPC Metrics (Solovey):** To better define and monitor our BPC metrics, track the representation of people who identify as members of URGs and intersections among students enrolled and degrees

received in the PhD, MS, BS/MS and BS programs. Also track URGs within computing minors enrolled, computing minor degree recipients, students in introductory courses, students earning C/NR in a course.

A2b. **Data Sources (Solovey)**: Identify existing and new sources of data related to G2.

A2c. **Data Buddies (Solovey)**: Faculty will coordinate student participation in the Data Buddies Survey and disseminate insights about the department climate for students from URGs.

A2d. **Data Review (Neamtu, Solovey)**: At the beginning of the academic year, at a department meeting or retreat, faculty will review our department BPC data in comparison to WPI and to peer institutions.

A2e. **Connecting with Student Leaders and Groups (Whitehill, Murai)**: Faculty work with department leadership and the DEI committee to conduct twice yearly focus groups with leaders of diversity-focused student organizations (e.g. Women in CS, Women in CyberSecurity, CSC, and groups outside the department) to gain insight into these students' experiences and to identify opportunities to attract and better serve students from URGs in CS.

A2f. **Expert Support (Neamtu, Solovey)**: Work with a NCWIT consultant and/or apply to Northeastern University Center for Inclusive Computing Diagnostic Grants to initiate and evaluate systemic change in both our undergraduate and graduate computing programs.

**Measures**: Report with analysis of existing and new data sources, as well as student focus group data. Results, opportunities and initiatives that come from A2e. Size, demographics, retention in student clubs.

G3. **Faculty Diversity**: By the end of 2023, we will devise and implement a plan to assess and improve our ability to recruit and retain faculty from URGs.

A3a. **COACHE analysis (Dougherty, Neamtu)**: Analyze the results of the last two COACHE surveys, which are conducted every 4 years. Discuss in a department meeting.

A3b. **Faculty Diversity Data Monitoring (Rundensteiner, Roberts)**: Create a mechanism to monitor and make available the overall representation of faculty by rank and track, broken down by demographics, including URGs and intersection of these. Track application data, not just who gets hired.

A3c. **Faculty Recruiting and Hiring (Rundensteiner, Shue)**: Examine and implement strategies to improve our recruiting and hiring practices to support G3. Integrate implicit bias training. Continue inclusion of diversity advocate.

A3d. **Faculty Retention and Experience (Roberts, Solovey)**: Identify and implement strategies to improve retention and overall experience (e.g. mentoring groups, informal meetups, inclusive support for children and pets, fostering connections, discussions on how non-URG faculty can support G3)

**Measures**: Report on COACHE survey, demographics of current faculty, faculty candidate applications, interviews, offers; Attendance and participation demographics for activities related to A3d.

G4: **Inclusive Pedagogy**: At least 50% of the faculty will implement inclusive pedagogy practice by the end of 2023.

A4a: **Training Opportunities (Smith, Wong)**: Create and maintain a list of appropriate internal (e.g., Morgan Center) and external opportunities related to G4. Identify ways to train students in embracing diversity in team and group work (e.g. Supporting WPI through Effective and Equitable Teamwork (SWEET), Access Computing, Teach Access)

A4b: **Training Attendance (Murai, Mortensen)**: Faculty attend inclusive pedagogy or transparent teaching training session.

A4c: **Self-Assessment and Implementation (Bohrer)**: Through Morgan Center, external programs and resources, faculty assess their own teaching to identify and implement changes to better support students from URGs.

A4d: **Sharing expertise (Guo, Wong)**: Create opportunities for sharing expertise among faculty on the use of inclusive teaching pedagogy, strategies, and best practices.

A4e. **Inclusive TAs (Neamtu)**: Faculty will revise TA assisting practices as pertaining to their own courses to be more inclusive for students from URG.

A4f: **Introductory Sequence (Ahrens, Bohrer)**: Identify and apply for grants/programs that will work with departments to evaluate the *inclusiveness* of the introductory sequence. (e.g. Northeastern University Center for Inclusive Computing Diagnostic Grant, NCWIT programs)

**Measures**: Number of faculty attending training each year; grants that have been identified and pursued; aggregated list of individual faculty activities to document department-wide activities; documentation of new TA practices; faculty changes in teaching to improve student outcomes and/or expand the use of effective pedagogical strategies that have been shown to have a positive impact for students from URG.