ADVANCE WOMEN IN RESEARCH CAREERS
NCWIT Extension Services for Graduate Programs

EXTENSION
NCWIT&
SERVICES

The National Center for Women & Information Technology (NCWIT) Extension Services (ES) provides higher education change leaders with evidence-based strategies and resources for recruiting and retaining women in computing degree programs. NCWIT ES is creating a resource collection and consultation service for graduate programs (ES-Grad) that advocates systemic change, rather than helping women to cope with existing structures.[1] The central theoretical model that informs ES-Grad consists of six elements for successfully admitting and retaining doctoral degree seeking students of all genders, racial and ethnic groups, ability statuses, income levels, and sexual orientations. Shown on the next page, these elements are admissions, advisors, the doctoral lifecycle, social ecosystems, policies and accountability, and evaluation.

In the U.S., women are underrepresented in computing at every level, from secondary school classes to research and development teams to top management in industry. Women also leave technology jobs at higher rates than women in other STEM fields. Currently, about 19% of PhDs in computer and information science are awarded to women. NCWIT ES-Grad supports doctoral programs in admitting women into their programs, retaining them through completion, and placing them in research careers.

THE IDEA OF PARITY

The goal of ES-Grad is to achieve parity among all women and men in doctoral programs. Parity includes:

- The percentages of students enrolled are proportional to identities found in U.S. society.

- All students are offered admission at similar rates.

- All students advance through program milestones and graduate at similar rates and within similar time frames.

- All students participate in internal and external activities and opportunities at similar rates.

- All students are placed in jobs upon graduation at similar rates, and these jobs are similarly prestigious.

EFFECTIVE PRACTICES LIBRARY AND CUSTOMIZED CONSULTATION

ES-Grad is developing a collection of effective practices for designing or reforming graduate programs for each of the six elements of the model shown on the next page. In addition, ES-Grad provides customized consultation to graduate programs in computing-related disciplines to help them develop, implement, and evaluate high-impact reform efforts. Each client is matched with an expert Extension Services Consultant (ESC) who assists them in identifying opportunities, resources, allies, and assessment plans. Departmental participation in the ES-Grad program follows these steps:

1. The department obtains upper administration buy-in and forms or charges a committee.

2. Working with the consultant, the committee develops vision and values statements, collects data, evaluates the current situation in the department, and develops a strategic plan for improvement, focusing on strategies that address the most pressing issues.

3. The client implements the plan, evaluating outcomes in an ongoing way so that efforts can be refined as needed.

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EVALUATION

Ongoing data collection and analyses identify what is working and what is not, and inform decisions. Data covers recruiting (through enrollment); social climate and experiences; parity in meeting milestones; and post-graduation placements. Graduating and departing students are interviewed when they leave.

ADMISSIONS

Active recruitment is always ongoing, including at conferences that faculty attend. Faculty establish and use explicit evaluation criteria, and share them with applicants and letter writers. Departments cement acceptances by making early, firm funding offers and by communicating regularly with applicants. Faculty and students help incoming students with relocation issues.

SOCIAL ECOSYSTEMS

Interactions in classes, labs, and the department contribute to a sense of belonging in the local intellectual community. Peer and faculty mentoring programs foster students' psychosocial well-being and grow their professional networks. Graduate student group(s) facilitate cohort and community building.

ADVISORS

Advising roles are explicit, and advisors fulfill their responsibilities. Advisors meet regularly with students to support progress; supervise acquisition of technical skills and professional development; and champion students within the department and the field. Departments proactively address non-optimal advising relationships.

Circle diagram labels: Evaluation, Admissions, Advisors, Doctoral Lifecycle, Policies and Accountability, Social Ecosystems

POLICIES AND ACCOUNTABILITY

Policies and expectations for faculty and students are clearly articulated in time-stamped, regularly updated faculty and student handbooks. Formal annual reviews of students use explicit criteria for progress and provide supportive solutions. Flexibility and support for family and life events are institutionalized. Mechanisms for preventing and addressing uncomfortable or difficult situations are codified and enforced. Successful reform strategies become official policies.

DOCTORAL LIFECYCLE

Students know where they are and what they need to do because there is a clear timeline, a checklist of milestones, and criteria for how they will be evaluated. Students gradually gain responsibility over the course of the doctoral lifecycle and acquire a sense of ownership, autonomy, and meaningful progress.

For more information, please contact ES-Grad at es-grad@ncwit.org.