Interdisciplinary Graduate Training in Sustainability:
Priority Aptitudes and Skills for Training Programs

7 Aptitudes

- JEDI Practices
- Emotional Intelligence
- Collaborate for Impact
- Communicate & Engage
- Strategic Thinking & Planning
- Working Productively & Efficiently
- Ensuring Work Matters

"Training graduate students as the next generation of sustainability leaders... was a SESYNC priority."

Sustainability leaders encounter unprecedented socio-environmental problems that challenge traditional modes of disciplinary scholarship and conventional, top-down leadership styles. Training graduate students as the next generation of sustainability leaders to confront these problems was a SESYNC priority. A multi-institutional, interdisciplinary working group met at SESYNC with goals of enhancing and expanding such training by synthesizing existing resources, best practices, and institutional knowledge in widely accessible formats. The group drew from their collective expertise and developed a framework of seven aptitudes and corresponding skills to identify priorities for today's and tomorrow's leadership programs for graduate students in sustainability.

To assist trainers in understanding recommended aptitudes, the skills students need to cultivate them, and how trainers might approach aptitude development, the group created a curricular database that pairs each aptitude with real-world training examples. The database links to a network map of programs across the U.S. and Canada to facilitate further collaboration and information sharing beyond what is included on the website. Below is a summary of the team's findings, which are fully described in their more comprehensive article.

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Aptitude 1

Fostering Justice, Equity, Diversity & Inclusion (JEDI) Practices

Building sustainable futures for all requires inclusive decision-making and just problem-solving around a diversity of lived experiences, outcomes, and needs. Programs can foster JEDI by prioritizing it in graduate students themselves in addition to in the curricula, by providing experiences that reduce opportunity gaps, and by creating community through robust networks of underrepresented mentors and peers. The [Global Sustainability Scholars Program](#) at the University of Colorado Boulder is an example.

1.1 Understanding what it means to be just, equitable, diversity-seeking, and inclusive

1.2 Appreciating the why of JEDI

1.3 Approaching work and making decisions informed by JEDI

1.4 Fostering belonging and empowering others

Aptitude 2

Building Emotional Intelligence

Knowing how to value, inspire, and empathize with others' experiences and mindsets will lead to stronger support for sustainability initiatives and to more relevant solutions. Proficiency in this area will also build resilience and maintain integrity despite challenges and setbacks. Programs can help graduate students build emotional intelligence through assessment-based learning that encourages a growth mindset as well as tailored coaching around self-awareness. The [Boreas Leadership Program](#) at the University of Minnesota provided an example.

2.1 Building and maintaining personal integrity

2.2 Recognizing one's strengths and weaknesses

2.3 Recognizing one's values and motivations

2.4 Having an empathetic mindset

2.5 Valuing other's strengths, weaknesses, and values

2.6 Aligning one's personal values and intent with the actions and strategy chosen

2.7 Rebounding from failure

2.8 Identifying one's leadership style

Aptitude 3

Learning to Collaborate for Impact

Working in teams is essential when the urgency and complexities of sustainability challenges transcend any one interest or expertise, and thus demand novel integration of resources and approaches. Teamwork also ensures all who are affected by such challenges have a seat at the table. Programs can help students learn to collaborate towards meaningful problem-solving and solution-finding by facilitating team-based experiences, interdisciplinary engagement, and co-production across boundaries. Arizona State University's Earth System Science for the Anthropocene is an example of such an approach.

- **3.1** Understanding and applying conflict resolution and negotiation skills
- **3.2** Understanding team interactions and establishing shared visions, norms, processes, and trust
- **3.3** Synthesizing and drawing connections among disparate ideas, information, theories, methods, evidence, and bodies of work
- **3.4** Appreciating diverse views, priorities, values, and epistemologies
- **3.5** Leveraging differences for improved lines of inquiry and problem solving
- **3.6** Empowering others by recognizing their skills and expertise
- **3.7** Co-developing and delivering outcomes

Aptitude 4

Enhancing Capacity to Communicate & Engage

Listening, questioning, and sharing are important for conveying important sustainability messages, gaining broader world views, and facilitating exchanges between the wide array of perspectives, positions, and priorities that surround sustainability. Programs can teach communication and engagement to graduate student trainees by organizing opportunities to practice active listening, storytelling, and non-academic writing. The Sustainability Leadership Fellows Program at Colorado State University is an example.

- **4.1** Asking good questions and having good conversations
- **4.2** Listening well and active listening
- **4.3** Giving and receiving feedback
- **4.4** Offering opposing points of view respectfully
- **4.5** Knowing your audience and tailoring your communication accordingly
- **4.6** Presenting and conveying information effectively

Aptitude 5

Thinking & Planning Strategically

Accounting for high uncertainty and complex interdependencies requires a clear vision, creative approach, and a means of measuring progress against goals. Programs can encourage strategic thinking and planning by incorporating a "learning-by-doing" approach in which students work with external community groups on projects to practice research, analysis, response, and action in relation to real-world issues. The [Training Our Future Ocean Leaders Program](#) at the University of British Columbia illustrates this approach.

5.1 Straddling the frontiers of ambiguity with comfort

5.2 Brainstorming, visioning, and scenario-planning

5.3 Mastering risk analysis and decision-making under uncertainty

5.4 Seeing the big picture and thinking at the systems level

5.5 Evaluating, adapting, and re-evaluating strategy

5.6 Aligning actions with intentions

5.7 Prioritizing creativity and innovation in your work

5.8 Planning and executing your career path

5.9 Scaling solutions

Aptitude 6

Working Productively & Efficiently

The ability to make the most of what you have, while advocating for what more you need, is critical when it comes to balancing competing priorities, over-coming resource scarcity and accomplishing goals in the name of sustainability. Programs can engender working productively and efficiently by supporting student-led initiatives, promoting student ownership and leadership of these, and ensuring initiatives mimic real-world experiences and consequences. [SESYNC's Graduate Pursuit Program](#) is an example of this philosophy in practice.

6.1 Curating one's workload to have an impact

6.2 Organizing and strategizing personal priorities, boundaries, and progress

6.3 Managing time

6.4 Managing people

6.5 Managing projects

6.6 Managing finances

6.7 Understanding and navigating one's organization

6.8 Leveraging assets, networks, relationships, and resources

6.9 Advocating for one's self and others

Aptitude 7

Ensuring Work Matters

Aligning personal and professional values is essential to ensuring sustainability leaders get where they want to go in their careers. Cultivating relationships and trust outside of one's immediate circle will help garner attention for sustainability efforts and needs and put one in a position to enact changes requiring buy-in from diverse stakeholders and decision-makers. Programs can train graduate students to make their work matter by curating activities in line with how research translates to policy and public understanding, providing values-driven career coaching, and providing opportunities for them to understand different styles of thinking. The Environmental Impact Fellows Program at Duke University exemplifies this strategy.

7.1 Designing one's work for sustained impact

7.2 Building relationships and meaningful networks

7.3 Engaging with the media

7.4 Engaging with and understanding needs of stakeholders

7.5 Engaging with and understanding needs of government and policymakers

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