

Handbook Insert – Learning Objectives and Assessment

Rationale: Graduate students, faculty, staff, and administrators benefit from common language to describe the expectations of a graduate program. As TGS strives to build a more diverse academy, we cannot assume that all stakeholders have the same knowledge about the program’s learning objectives, expected skill sets, and assessment criteria.

The purpose of this template is four-fold:

- 1) To promote transparency in academic learning objectives and assessment criteria.
- 2) To empower students by providing language with which they can describe the skills/capacities they have developed through their graduate studies.
- 3) To support faculty as they articulate clear learning objectives. This could be a starting point for programs to develop more tailored learning objectives and assessment strategies and provide it to students.
- 4) To position TGS as a leader across Northwestern and in graduate education broadly in creating a culture of transparent learning objectives and assessment criteria, that will also comply with the Higher Learning Commission’s accreditation requests.

Each program will create and revise its own learning objectives, align those objectives to program-specific milestones/requirements, and consider assessment criteria and strategies to be inserted into the program’s handbook annually.

Instructions: According to the Council of Graduate School’s 2011 report on assessment and review of graduate programs, assessment strategies and learning objectives can improve graduate programs by identifying “what students are expected to learn as a result of their educational experience,” evaluating the extent to which students have learned those objectives, and applying the findings of the assessment to improve the program.¹

Consider all the requirements for students in your program and think critically about what you aim for students to learn. How does your program’s courses and milestones prepare students to achieve those learning objectives? Grades tell part of the story, but do not give a holistic view of the learning objectives students achieve. (More information can be found on [Northwestern’s Assessment Webpage](#).)

Please be as comprehensive as possible; the examples attached provide a few starting points, but your document may have many more learning objectives. You may borrow the format and content of the templates if they fit the learning objectives of your program.

One way to begin is to ask yourself and other faculty the following questions:

- What knowledge, skills, values, attitudes and behaviors do you expect students to be able to demonstrate (potentially in the core capacities listed below: research, communication, literacies, teaching, leadership/collaboration, career development, personal effectiveness, and organization/management)?
- How will you know if the program has effectively taught these skills, values, attitudes, and behaviors?
- Do the current program requirements and milestones achieve these objectives?

¹ Baker et al., “Assessment and Review of Graduate Programs | Council of Graduate Schools.”

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Program: - **Example – Arts and Humanities MA/MFA/PhD**

Graduate Program Goals/Mission Statement: *examples below, approximately one paragraph*

EX1: This is a cross-school program involving faculty from the Humanities, Social Sciences, Fine Arts, and Performing Arts. We train outstanding students for lifetime careers in academia, emphasizing simultaneous development of intellectual excellence in scholarship with pedagogical skills. Each student works with a committee unique to his or her interests and, in consultation with the Director of Graduate Studies and advisors, designs a program of study incorporating theatre with one or more other fields.

EX2: The graduate program as a whole is constructed to develop the two principal dimensions of scholarship: new research and enlivening teaching. Close attention is paid to the graduate student's skills as a writer and as a communicator. The department includes a highly acclaimed group of instructors, who are themselves committed to fostering an engaging pedagogical environment, to which graduate students contribute as both language instructors and teaching assistants. The goal of the program is to prepare students to become productive scholars and capable members of the academic profession. Students should acquire the proficiencies expected of faculty at a research university and an understanding of the three obligations of academic work: teaching, research, and institutional service.

Learning objective(s) <i>Students should be able to...</i>	Milestone/ Requirement/ Capacity	Assessment Strategies and Criteria* <i>How do we know this objective has been achieved?</i> <i>What criteria do we have to measure success?</i>
Contribute original research to scholarly community.	Dissertation Prospectus/ Research	Assessment Strategy: Committee assesses dissertation prospectus using collaboratively-constructed rubric, demonstrating levels of achievement. Criteria: Offers an original thesis; Defines appropriate methodology; Delineates sources.
Develop original materials for undergraduate teaching and demonstrate pedagogical rationale.	Oral Qualifying Exam/ Teaching	Assessment Strategy: Committee evaluates syllabi and oral presentation prioritizing specific criteria, demonstrating levels of achievement. Criteria: Ability to answer questions and take critical feedback; ability to provide rationale for course content, primary and secondary source readings, and pedagogical goals.
Articulate broader impacts of research	Dissertation writing funding application/ Communication	Funder reviews proposals; Student receives feedback from advisor, peers, Office of Fellowships, and TGS Proposal-writing workshop.
Create and communicate professional development plan.	Annual Meeting/ Career Development	Student shares plan annually with advisor and Director of Graduate Study at annual meeting; Student seeks appropriate resources in response to professional development plan, such as identifying career paths of program alumni.

*Please attach any existing criteria or rubrics for assessment models/milestones/requirements.

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Program: - **Example – Life Science MS/PhD/MPH**

Graduate Program Goals/Mission Statement: *examples below, approximately one paragraph*

EX1: The primary mission of the program is to foster an academic and research environment that allows students to gain experience, skills and knowledge to become scholars, leaders, and practitioners in plant biology and conservation.

EX2: The mission of the program is to train young scientists to apply epidemiologic and biostatistical reasoning and methods when engaged in biomedical research in a range of applications.

EX3: The mission of the program is to improve the health of the people of Chicago, the United States, and the world, by engaging students, faculty, and community partners in innovative and replicable education, research, and service programs in population health.

The primary mission of the program is to encourage the development of our Ph.D. students as independent, creative research scientists and teachers.

Learning objective(s) <i>Students should be able to...</i>	Milestone/ Requirement /Capacity	Assessment Strategies and Criteria* <i>How do we know this objective has been achieved? What criteria do we have to measure success?</i>
Contribute original research to scholarly community.	Master's Thesis or Dissertation / Research	<p><u>Assessment Strategy:</u> Committee assesses dissertation using collaboratively-constructed rubric, demonstrating levels of achievement.</p> <p><u>Criteria:</u> Offers an original thesis; Defines appropriate methodology; Delineates sources; Adheres to scientific method.</p>
Manage effective lab subgroup.	Organization and Management/Leadership and Collaboration	<p><u>Assessment Strategy:</u> Assessed annually by PI with information gathered from postdoctoral fellows, lab managers and peers.</p> <p><u>Criteria:</u> demonstrates effective time management; execution and documentation of experiments; interest and curiosity; maturity and effective communication; productive mentoring.</p>
Articulate broader impacts of research	Application for NSF funding/Communication	NSF reviews funding proposals; Student receives feedback from advisor, peers, Office of Fellowships, and TGS Proposal-writing workshop.
Create and communicate professional development plan.	Annual Meeting/Career Development	Student shares plan annually with advisor and Director of Graduate Study at annual meeting; Student seeks appropriate resources in response to professional development plan, such as identifying career paths of program alumni.
Develop classroom activities for a specific discussion section.	Teaching	Teaching assistant collaborates with professor and fellow TAs. TA conducts pre- and post-classroom assessment of undergraduate knowledge.

*Please attach any existing criteria or rubrics for assessment models/milestones/requirements.

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Program: - **Example – Physical Sciences, Mathematics, and Engineering MS/PhD**

Graduate Program Goals/Mission Statement: *examples below, approximately one paragraph*

EX1: We empower our students to gain technical, design, and management skills needed for leadership. The graduate program teaches engineers how to address design problems using a human-centered approach and introduces design thinking — an innovative process of user observation, visualization, rapid prototyping, and iteration.

EX2: The graduate program is aimed at guiding students toward original research. At the end of the program (normally by the end of the fifth year of study) students are expected to submit and defend a PhD thesis that contributes new results to the body of mathematical knowledge.

EX3: The goal of the program is to provide opportunity, education, and mentoring to develop each PhD student into a productive scientist in two phases: education and scientific activity. In graduate classes, students learn fundamentals and also develop more specialized knowledge. In fulfilling teaching duties, PhD students learn communication skills and how to effectively teach science. Through scientific activity, students become increasingly effective at pushing knowledge forward in their area of study, at communicating their results to a broad audience through publications and oral presentations, and at becoming leaders of scientific thought.

Learning objective(s) <i>Students should be able to...</i>	Milestone/ Requirement/ Capacity	Assessment Strategies and Criteria* <i>How do we know this objective has been achieved? What criteria do we have to measure success?</i>
Design a research project.	Master's Thesis or second year project/ Research	<p><u>Assessment Strategy:</u> Faculty committee and external industry leaders review projects with specific criteria, demonstrating levels of achievement.</p> <p><u>Criteria:</u> Offers an original thesis; Defines appropriate methodology; Delineates sources; Adheres to scientific method.</p>
Manage effective lab subgroup.	Organization and Management/ Leadership and Collaboration	<p><u>Assessment Strategy:</u> Assessed annually by PI with information from postdoctoral fellows, lab managers and peers.</p> <p><u>Criteria:</u> demonstrates effective time management; execution and documentation of experiments; interest and curiosity; maturity and effective communication; productive mentoring.</p>
Articulate broader impacts of research	Application for NSF funding/ Communication	NSF reviews funding proposals; Student receives feedback from advisor, peers, Office of Fellowships, and TGS Proposal-writing workshop.
Create and communicate professional development plan.	Annual Meeting/ Career Development	Student shares plan annually with advisor and Director of Graduate Study at annual meeting; Student seeks appropriate resources in response to professional development plan, such as identifying career paths of program alumni.
Develop classroom activities for a specific discussion section.	Teaching	Teaching assistant collaborates with professor and fellow TAs. TA conducts pre- and post-classroom assessment of undergraduate knowledge.

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Program: - **Example – Social and Behavioral Sciences MA/MS/PhD**

Graduate Program Goals/Mission Statement: *examples below, approximately one paragraph*

EX1: The main goal of the Ph.D. program is to train students to become thoughtful, independent, and exceptional researchers. The program expects students to contribute to its collaborative and collegial culture and to take an active part in this community. We train graduate students to harness the strengths of different approaches in basic research, in effective teaching, and in the application of the discipline both inside and outside of academia.

EX2: The mission of the program is to educate students to become knowledgeable, competent, systemic, culturally sensitive, ethical, and empirically-informed practitioners and scholars. Graduates of the program are expected to exhibit a beginning level of competence with a variety of presenting problems, utilize the IPCM framework to integrate knowledge from the field into practice, demonstrate cultural sensitivity in their work, and have an appreciation for research, particularly research on family relationships and the process and outcome of therapy. In this program, students will explore the depth and complexities of the psychodynamic perspective, its emphasis on the centrality of the therapeutic relationship, and the importance of therapist self-reflection.

Learning objective(s) <i>Students should be able to...</i>	Milestone/ Requirement/ Capacity	Assessment Strategies and Criteria* <i>How do we know this objective has been achieved? What criteria do we have to measure success?</i>
Contribute original research to scholarly community and apply appropriate research methodology and analyses given particular research question.	Dissertation/ Research	<u>Assessment Strategy:</u> Committee assesses dissertation using collaboratively-constructed rubric, demonstrating levels of achievement. <u>Criteria:</u> Offers an original thesis; Defines and uses appropriate methodology; Delineates sources; Evaluates scholarly discourses.
Create and communicate professional development plan.	Annual Meeting/ Career Development	Student shares plan annually with advisor and Director of Graduate Study at annual meeting; Student seeks appropriate resources in response to professional development plan, such as identifying career paths of program alumni.
Articulate broader impacts of research	Application for research funding/ Communication	Funder reviews proposals; Student receives feedback from advisor, peers, Office of Fellowships, and TGS Proposal-writing workshop.
Enact ethical research methodologies and practices.	Research Methods Course XXX/ Research	Criteria: Fosters ethical problem-solving skills; increase the ability to recognize ethical issues in design and conduct of research; identify and understand clinical ethics regulations, policies, and resources.
Develop classroom activities for a specific discussion section.	Teaching	Teaching assistant collaborates with professor and fellow TAs. TA conducts pre- and post-classroom assessment of undergraduate knowledge.

*Please attach any existing criteria or rubrics for assessment models/milestones/requirements.

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Program: _____

Graduate Program Goals/Mission Statement:

Learning objective(s) <i>Students should be able to...</i>	Milestone/ Requirement /Capacity	Assessment Strategies and Criteria* <i>How do we know this objective has been achieved?</i> <i>What criteria do we have to measure success?</i>

*Please attach any existing criteria or rubrics for assessment models/milestones/requirements.

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The Graduate School Core Capacities – July 2017

Mearah Quinn-Brauner, Associate Director, Graduate and Postdoctoral Professional Development

The Graduate School Core Capacities (Knowledge, Engagement, Strategy) define areas of professional skill, knowledge, and experience required for success at Northwestern and in the wide range of fields Northwestern students and postdoctoral fellows pursue. Graduate students and postdoctoral fellows develop these capacities through their research, teaching, leadership and community engagement activities, and through TGS-supported professional development opportunities.

KNOWLEDGE Capacities for creating knowledge	How do graduate students and postdoctoral fellows build these capacities?
Research <ul style="list-style-type: none"> • Pursue answers to complex questions • Frame research questions • Meet expectations of your Northwestern graduate program • Develop depth and breadth of knowledge • Understand and navigate culture and values of your discipline • Work with peers and colleagues across disciplines 	<ul style="list-style-type: none"> • Graduate curriculum and milestones (seminars, qualifying exams, dissertation) • Mentoring from academic advisors • Independent research • Participation in Northwestern Clusters and workshops
Communication <ul style="list-style-type: none"> • Master oral and written genres of your discipline (e.g., essay, article, thesis, dissertation, grant proposal, chalk talk, lecture, poster, conference presentation) • Navigate the academic publishing landscape • Garner support through writing grants, fellowships, and proposals • Communicate significance of research to specialists through writing and presentations • Communicate significance of research to non-specialists in writing and presentations 	<ul style="list-style-type: none"> • Graduate curriculum and milestones (seminars, qualifying exams, dissertation) • Mentoring from academic advisors • Presenting at conferences • Participation in such activities as: <ul style="list-style-type: none"> ○ SSRC Dissertation Proposal Development Program ○ The Graduate Writing Place (Dissertation Bootcamp, one-on-one advising) ○ Office of Fellowships ○ TGS Proposal Writing Workshops ○ Advanced Professional and Presentation Skills for PhDs workshop and coaching ○ Ready Set Go workshop ○ HELIX Magazine ○ Science Writing and Careers Course
Literacies (digital, quantitative, and narrative) <ul style="list-style-type: none"> • Understand and communicate information presented in quantitative form • Visualize data and understand visual representations of data • Select and use appropriate technology for research and communication 	<ul style="list-style-type: none"> • Graduate curriculum and milestones (seminars, qualifying exams, dissertation) • Mentoring from academic advisors • Libraries and NUIT Researcher's Toolkit workshops • Digital Humanities workshops

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ENGAGEMENT Capacities for engaging communities within and beyond Northwestern	How do graduate students and postdoctoral fellows build these capacities?
Teaching <ul style="list-style-type: none"> • Develop measurable learning objectives • Implement evidence-based teaching practices • Design classroom activities that facilitate achievement of learning objectives • Develop assessments aligned with objectives • Collect evidence to determine if students have met learning objectives • Promote equitable and inclusive classrooms • Employ principles of active learning in teaching approaches • Provide constructive feedback 	<ul style="list-style-type: none"> • Seminar on teaching • Mentorship from academic advisors • Teaching or TAing • Participating in programs offered by the Searle Center for Advancing Learning and Teaching • Advanced Professional and Presentation Skills for PhDs workshop and coaching
Leadership and Collaboration <ul style="list-style-type: none"> • Identify and articulate values, strengths, and social identities • Learn from and work with people from diverse cultural and geographic backgrounds • Build and maintain relationships • Identify opportunities for growth • Negotiate effectively among people with different interests and motivations • Resolve conflict between people or groups • Demonstrate initiative and follow through • Mentor others • Contribute to a positive environment 	<ul style="list-style-type: none"> • Graduate seminars • Teaching and TAing • Graduate student organizations • Student-run conferences • Center for Leadership (coaching and fellowships) • Graduate Engagement Opportunities (GEO) • Graduate Assistantships • TGS Professional Development Grant
STRATEGY Capacities for defining goals and creating strategies to meet them	How do graduate students and postdoctoral fellows build these capacities?
Career Development <ul style="list-style-type: none"> • Assess skills, values, and interests • Explore diverse career pathways • Create and follow a professional development plan • Develop knowledge of career fields • Maintain a professional online presence • Network with professionals in career fields of interest • Communicate relevant skills, experience, accomplishments in job application documents (CV, resume, cover letter) and interviews 	<ul style="list-style-type: none"> • Mentoring from academic advisors • Mentoring from professionals in a wide range of fields • Northwestern Career Advancement • Alumni panels and workshops • Interdisciplinary Graduate Assistantships (e.g., Public Humanities Assistantship at Chicago Humanities Festival, Northwestern Press, Block Museum) • Humanities Without Walls Predoctoral Workshop • Graduate Engagement Opportunities • INVO Internship • NEXT Program

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<p>Personal Effectiveness</p> <ul style="list-style-type: none"> • Practice intellectual self-confidence • Demonstrate resilience • Cultivate physical, emotional, and financial health • Develop effective mentoring relationships • Manage time effectively • Stay organized 	<ul style="list-style-type: none"> • Graduate curriculum and milestones (seminars, qualifying exams, dissertation) • Teaching and TAing • Counseling and Psychological Services (CAPS) • Advanced Professional and Presentation Skills for PhDs workshop and coaching • Mentoring workshops
<p>Organization / Management (of resources, projects, people)</p> <ul style="list-style-type: none"> • Manage projects from inception to completion • Supervise and/or mentor others • Provide constructive feedback • Manage resources, budgets 	<ul style="list-style-type: none"> • Graduate curriculum and milestones (seminars, qualifying exams, dissertation) • Teaching and TAing • Management for Scientists and Engineers and Business for Scientists Executive Education Certificate Programs

Note: These capacities have been defined based on research on advanced degree employment trends, employer preferences, PhD career outcomes, alumni survey data, and graduate and postdoctoral training programs.

Selected References:

The Career Diversity Five Skills. (2016). American Historical Association.

Denecke, D., Feaster, K., & Stone, K. (2017). *Professional development: Shaping effective programs for STEM graduate students*. Washington, DC: Council of Graduate Schools.

Hora, M. (2017). "Beyond the Skills Gap." NACE Center for Career Development and Talent Acquisition.

Mason, J., Johnston, E., Berndt, S., Segal, K., Lei, M., & Wiest, J. (2016). "Labor and skills gap analysis of the biomedical research workforce." *The FASEB Journal*.

Nyquist, J., & Wulff, H. (2000). "Recommendations from National Studies on Doctoral Education." *Re-envisioning the Ph.D.*

Porter, S., & Phelps, J. (2014). "Beyond Skills: An Integrative Approach to Doctoral Student Preparation for Diverse Careers." *Canadian Journal of Higher Education*.

Smith, Sidonie (2015). *Manifesto for the Humanities: Transforming Doctoral Education in Good Enough Times*. Ann Arbor, MI: University of Michigan Press.