

New Program Proposal for the Northeastern University “Doctor of Philosophy”

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Changes from the version internally distributed on October 18, 2021:

- Editorial changes
- Clarity about the role and structure of the Graduate Group
- Statement that the Specialization will be presented to Graduate Council
- Removal of the Dissertation Committee with the Dissertation Committee responsibility including the oversight of curriculum
- Clarity that a number of features in this degree are possible with existing PhD programs
- Clarity that this degree is to be used only when an existing degree across the university is not appropriate for the research plan of study and that colleges may refer applicants and current Ph.D. students to the program
- Recognition that many Ph.D. programs are inherently interdisciplinary or transdisciplinary and this degree program should not be considered a replacement
- Removed Ph.D. milestone requirements consistent with the Graduate Council By-Laws (e.g. residency)
- Added description about Graduate Group oversight for Ph.D. milestone progression

New Program Proposal for the Northeastern University “Doctor of Philosophy”

EXECUTIVE SUMMARY

In the proposed **University – Level Doctor of Philosophy** Ph.D. students will embark on an individually tailored program of study that will enable them to draw from the disciplines supporting their research, and provide flexibility to train them as the next-generation of multidisciplinary researchers. Students will have the flexibility to perform their dissertation research at a location most appropriate for their research program and to draw on the most appropriate disciplines for their research. These locations may be at a research partner in industry, the public sector, a national laboratory, in a faculty mentor’s laboratory, at another higher education institution, or across Northeastern’s global campus system. Graduates will be experts at the frontiers of new and emerging research fields who will be well-positioned to address high impact research questions, recognize the challenges in translating their research findings into use, and have the professional skills to navigate their careers as future faculty, in industry, or as public sector leaders.

The proposed Northeastern University Doctor of Philosophy will complement, but not replace, existing Ph.D. programs. It will be available only when the desired research curriculum cannot be supported by one of Northeastern’s existing Ph.D. programs (disciplinary or college-based interdisciplinary). Therefore, enrollment in this new degree is expected to be small. Ph.D. students in this innovative program will have the flexibility to:

1. Create a research-driven curriculum pathway with Doctor of Philosophy requirements that are appropriate to their innovative research area, under the guidance of their **Dissertation Committee**.
2. Pursue the Ph.D. from various locations, including across Northeastern’s global university system and its research partners.
3. Engage scholars at Northeastern’s partner institutions for research supervision and as instructors for coursework, including special topics and discussant courses.
4. Pursue the Ph.D. as a joint or dual degree with another higher education institution, provided a university level partnership agreement is in place.

Structure & Approach

Each individually proposed Ph.D. program will initially be supported administratively through the PhD Network within the Office of the Provost. Additionally, a **Graduate Group** will be created, composed of faculty from Ph.D. granting Colleges within Northeastern to provide oversight for the proposed University-Level Ph.D. program. The Graduate Group is the faculty led committee that provides academic oversight and will review and recommend admission into the program consistent with the caliber of research preparation and rigor demanded by

Ph.D. study. Upon admission the Graduate Group will create the **Dissertation Committee** that will establish the required curriculum for the Ph.D. student. The Dissertation Committee will oversee the student's academic progress to candidacy. After candidacy, the **Dissertation Committee** will guide the student to completion of the Ph.D. It is strongly recommended that each Dissertation Committee include at least one member that is external to Northeastern University. Each student will be approved a **Specialization**, which will be listed on their transcripts along with the foundational disciplines supporting their research. To ensure that there is no duplication with existing Ph.D. programs each new **Specialization** will be presented to Graduate Council for notification and discussion.

Precedence

The proposed Ph.D. aligns Northeastern's drive to push the frontiers of knowledge-combining disciplines in new and innovative ways to address society's greatest challenges, with its programmatic offerings. Other institutions that have addressed the need for university-wide interdisciplinary Ph.D. research—through the Individualized Interdisciplinary Ph.D.—include the University of Washington and Pennsylvania State University (the latter through the Intercollege Graduate Degree Programs they offer). These institutions employ Graduate Groups (or other cross college faculty committees) to provide academic oversight. At the University of California at Davis, fifty percent of their graduate programs are interdisciplinary and governed by Graduate Groups. UC Davis also offers a university-wide interdisciplinary Ph.D.

The proposed Ph.D. meets the unique needs and opportunities available through Northeastern's Global University System, research Institutes and future Impact Engines as defined in Experience Unleashed. Northeastern's University-Level Ph.D. is structured to offer flexibility in choice of disciplines and research locations and provide real-world experiences. This degree differs from existing interdisciplinary pathways described in the Northeastern Graduate By-Laws or through existing college-based interdisciplinary Ph.D. degrees because it is a degree awarded by the Office of the Provost rather than a single academic college. This degree is only an option to Ph.D. students when it is determined by admissions committees that an existing program is not a good fit. With a growing number of interdisciplinary Ph.D. programs housed within colleges, increased mobility of our Ph.D. students and expanding partnerships that result in co-advising and dissertation committee membership, enrollment in this degree program is expected to be small.

OVERVIEW

i. Program Description

The proposed new university-level Doctor of Philosophy (Ph.D.) is aligned with Northeastern's new academic plan, Experience Unleashed. This degree, aligned with Graduate Council by-laws, paves a pathway for innovative and experiential Ph.D. and offers the ability to create an individualized curriculum for a field of study that has the capacity to span multiple disciplines. We propose offering this new university-level Ph.D. as an option when other Ph.D. programs are not a good fit; therefore, we expect the potential audience to be a niche population and initial enrollment to be small.

The proposed University-Level Ph.D., which we refer to as the **Doctor of Philosophy** or the **Northeastern University Doctor of Philosophy**, is an unspecified Ph.D. degree with an individually tailored program of study that will enable students to draw from the disciplines that support their fields of research and will provide the flexibility to train next-generation multidisciplinary researchers, whose expertise will be needed to address society's most pressing problems, many of which cross disciplinary boundaries. Thus, the proposed Doctor of Philosophy:

- Provides an opportunity for students with their Dissertation Committee to design their own interdisciplinary program to address the needs of their research and career goals.
- Supports research at partners and across the Global University System by having a single Ph.D. degree approved at our regional campus locations, thereby avoiding the need to have each of the University's Ph.D. programs approved individually by the current and future network locations before student and research demand is demonstrated.
- Encourages scholars at Northeastern's partner institutions to serve as course instructors and members on Dissertation Committees.
- Allows for joint or dual degrees with other institutions of higher education, provided a university level partnership agreement is in place.

The following administrative details specified in the New Degree Proposal Format section i are as follows:

- **Degree level:** Doctor of Philosophy
- **Administrative unit initially supporting this degree:** PhD Network, Office of the Provost
- **Number of Credit Hours Required:** 30 SH for the full program and 12 SH for students admitted through the Advanced Standing pathway
- **Program Length:** 5-year program of study or less
- **Proposed Implementation Date:** Fall 2022 with referred applicants considered during Spring 2022

ii. Program contributions to the university mission

This university-level Ph.D. is aligned with Northeastern University's mission as it incorporates research, entrepreneurship, and experiential components, where students may pursue their research while leveraging global connections to maximize their research impact at the intersection of disciplines. Specifically, this newly proposed degree will address the three challenges below:

Interdisciplinary Programming: Northeastern's Research Institutes and the Impact Engines conceptualized in Experienced Unleashed are designed to push the frontiers of research into new and unforeseen areas. Thus, these institutes and Impact Engines are designed to address large societal challenges and require interdisciplinary research and training of Ph.D. students. Thus, a gap will be created in our current Ph.D. offerings that will be filled by the proposed program, which will build on the disciplinary pillars of existing Ph.D. programs.

Research across our Global Network of Campuses: Research is growing across the Northeastern Global University System. This new degree will promote student agility and mobility as we continue to strengthen research initiatives across our global system. Research active faculty in all colleges will have the opportunity to guide and mentor Ph.D. students, and faculty groups may wish to build small cohorts and supervise Ph.D. students centered around an emerging field or in a field not currently represented by an existing Northeastern degree program. Specialized research areas such as "Global Supply Chains" or "Quantum Materials" or "Social Change" may be pursued at any Northeastern campus or partner site, each with individualized and unique curricula. The degree also provides for flexible offerings at campuses across our global system.

iii. Program market analysis

Since the proposed Doctor of Philosophy is intended to meet the needs of a niche group, it is not necessary to justify its development with a high volume of interested students or opportunities for career placement post-graduation. Rather, the justification is to promote distinction, research impact, and the need for flexibility for students and faculty advisors to pursue new and emerging areas of research, as well as to integrate our research education with partners via Impact Engines and Research Institutes.

The University of Washington, University of California at Davis, and Pennsylvania State University each have structures to support university-wide interdisciplinary Ph.D. education.

- The University of Washington offers an [Individual Interdisciplinary Doctor of Philosophy](#) "for exceptionally able students in high academic standing whose objectives for study are so truly interdisciplinary that they cannot be met within one of the University units authorized to grant the Ph.D. degree. The program is intended for dissertation topics that require supervision from two or more of the programs through which the University offers the Ph.D. degree." This program enrolls between zero to three new students a year, and at any point in time has about twelve active Ph.D. students. To be accepted, applicants need to justify why the existing Ph.D. programs are not a good fit to their planned research and

create a research proposal and committee. These conditions result in a very limited number of high caliber students pursuing this degree. The University of Washington has instituted Graduate Groups to oversee interdisciplinary programs. These graduate groups oversee a portfolio of interdisciplinary Masters and Doctoral programs in addition to this Individual Interdisciplinary Ph.D. Separately, academic oversight is provided for disciplinary graduate programs through the departments.

- The University of California at Davis also has a university-level Ph.D. This degree has few students in part because it isn't publicized. About half of the Ph.D. programs at UC Davis are interdisciplinary and managed by [Graduate Groups](#). Each Graduate Group establishes their own policies and procedures within university graduate policies. Similar to the University of Washington, the departments manage the disciplinary programs, and the two—department curriculum committees and graduate groups—co-exist within the University.
- Pennsylvania State University offers a portfolio of [Intercollege Graduate Degree Programs](#) delivered by faculty across two or more colleges. Most of these intercollege offerings are at the Ph.D. level. Example degrees include the Ph.D. in: “Bioinformatics and Genomics” and “Integrative and Biomedical Physiology.” These programs represent a small percentage of the university's Ph.D. enrollment.

The proposed university-level Doctor of Philosophy will not compete with existing Ph.D. programs at Northeastern because admissions criteria include ensuring that an existing program does not fit the research needs of the applicant. Termed differently, the new Ph.D. could be viewed as a more appropriate pathway for certain students and attract exceptional students to Northeastern who may not ordinarily enroll. The benefit of this new degree program is that it creates a better fit for student research, resulting in more faculty engagement and more opportunities for experience and interdisciplinary work.

Potential risks have been identified, and this proposal includes plans to mitigate these risks. The lack of specificity in the degree that the general degree title, “Doctor of Philosophy” rather than “Doctor of Philosophy in xxx”, is a potential risk as it may disadvantage employment opportunities. To mitigate this risk, transcripts will explicitly state the areas of “specialization” that were involved in the research and a description of the new Ph.D. program. The Graduate Group (described in Section iv.b) will review the proposed specializations for marketability. Students who are concerned about their first employment opportunity will have the option to apply to one of Northeastern's traditional Ph.D. programs. Another potential risk is the possibility of a small cohort size. This will be addressed by consciously creating a community of students through Institutes, Impact Engines and/or faculty research groups.

Graduates from the proposed Ph.D. program will be prepared for a broad range of high-impact research careers within academic, national laboratories, industry, and the public sector.

iv. Program requirements

a) APPLICATION TO THE UNIVERSITY-LEVEL Ph.D.

Students will apply directly to the University-Level Ph.D. program. Applicants will be required to provide a justification as to why one of the Northeastern University Ph.D. programs does not meet their specific research and professional goals. Given the flexible nature of this degree, applicants must be self-starters and highly motivated to independently pursue a rigorous research project. Applicants to the Northeastern Ph.D. will be strongly encouraged to include a tentative faculty committee. Colleges may refer Ph.D. applicants if the student seems better suited for this program.

A standing committee called the **Graduate Group**, consisting of faculty representation from the Ph.D. granting Colleges within Northeastern, will provide a comprehensive analysis of each applicant. This comprehensive assessment will be carried out to identify the applicants well-positioned to pursue high-impact and interdisciplinary research. The Graduate Group (described below) will serve as the admissions committee. Applicants will be admitted only if an advisor and / or cohort of faculty (such as in an Institute or Impact Engine) are committed to mentoring the student. All students will be admitted with an assurance of 5 years of continuous funding provided they remain in good academic standing and continue to make research progress. Application decisions will be communicated by a Provost designee.

b) DEGREE REQUIREMENTS:

Students entering the program with a Bachelor's degree are required to take a minimum of 30 SH (refer to the Appendix). Students who are accepted with advanced standing (e.g. with a Master's degree) are required to take 12 SH of coursework.

Ph.D. student degree requirements and oversight are through faculty committees and advisors related to the student's research area of specialization as described below.

- **GRADUATE GROUP:** This refers to the standing committee consisting of faculty holding Ph.D. degrees from Northeastern's academic colleges. The Graduate Group will include at least one faculty member from each academic college as well as faculty from research Institutes and Impact Engines representing the breadth of Northeastern's research portfolio. Faculty are nominated to serve on the Graduate Group by their college Deans with consultation with the Provost. Collectively these faculty should represent a comprehensive view of Ph.D. education, new and emerging research fields, and knowledge creation. The Graduate Group will provide admission and academic oversight for the University-Level Ph.D. program. For each Ph.D. applicant, the Graduate Group will review and recommend admission consistent with the caliber of research preparation and rigor demanded by Ph.D. study. Prior to enrollment, the Graduate Group will endorse the

Dissertation Committee (see below) that will then establish all coursework and milestone requirements following the guidelines set herein. The Graduate Group will monitor students' academic progress. The administrative unit will provide the student services functions, such as registration needs, auditing of degree requirements, reporting to the Graduate Group and other student needs as they arise.

- **DISSERTATION COMMITTEE:** Formed by the student, and endorsed by the Graduate Group for each Ph.D. student, the Dissertation Committee (DC) consists of at least three, and generally no more than six, faculty qualified to supervise the student's research, and establishes the curriculum requirements in support of the student's anticipated dissertation research. One of the Northeastern University faculty members will be nominated as the Chair of the committee, who will usually serve as the Ph.D. advisor. It is strongly encouraged that one of the committee members be an individual external to Northeastern. The external member must be qualified to supervise and guide Ph.D. level research. The DC will establish the milestone requirements, specifically the particulars of the qualifying exam at the time of admission. One member of the DC will serve as the Committee Chair.
- **PH.D. ADVISOR:** Each student shall nominate one member of the DC to serve as their day-to-day Ph.D. advisor. When justified, students may choose to have co-advisors provide day-to-day advising. The advisor will usually serve as the chair of the DC and be approved by the Graduate Group. The role of the Ph.D. advisory in this scenario will be to provide space for the student to conduct their work, guidance and support, as well as provide 5 years of stipend (funding) and other relevant benefits. Ph.D. students will be encouraged to serve as teaching assistants, and they will be candidates for teaching assignments in the departments where their faculty members (from their Dissertation Committee) hold appointments.
- **AREA OF SPECIALIZATION:** Students may choose to select an area of specialization, which is supported by their approved coursework and research areas and denoted on the student's transcript. The area of specialization will be recommended by the DC. The Graduate Group will review these areas of specialization within the context of existing Ph.D. specializations. The Graduate Group will make the final decision about the area of specialization for each student. Area of specialization should be established by the end of the first year of academic study. The first time the area of specialization is used, the Graduate Group will present the specialization and how it differs from existing Ph.D. programs to Graduate Council.

PH.D. MILESTONES: Requirements involving the dissertation committee, Ph.D. advisor, admissions to candidacy, residency, and other milestones shall be in accordance with the University Graduate Council Bylaws. Specific requirements are described below. Curriculum that will be presented in the Graduate Catalog is shown in Program Requirements (Appendix).

- **ADMISSION TO CANDIDACY:** To achieve Ph.D. candidacy, students must demonstrate their research ability through the application and synthesis of skills and knowledge and their ability to pose questions and solve problems. Students will be expected to achieve candidacy by the end of their second year of study. Ph.D. students who require more than two years to meet the requirements for candidacy will need to petition the DC and the Graduate Group to request an extension. Candidacy will be achieved through qualifying examinations consisting of the following:
 - The qualifying examination subject areas will be established at the time of admission, which will be aligned with the student's proposed research project. A representative from the Graduate Group will convene the DC for the qualifying exams. To assess the student's ability to perform impactful research, it is strongly recommended that an evaluator outside Northeastern University (and not a member of the DC) be included as an examiner. The qualifying examination will normally include: a written exam, oral exam, response to a journal paper, and/or other format deemed acceptable by the DC for the involved disciplinary areas.
 - Progression to candidacy may also require a research paper requirement. Any paper requirements will be communicated at admission.
 - The committee may require a presentation from the student before making its recommendation.

The DC will submit the qualifying exam results to the representative from the Graduate Group who will review and communicate the result to the student. The student may take the qualifying examination at most two times.

- **DISSERTATION COMMITTEE (DC):** After candidacy, new members may be added or members may be removed. It is strongly recommended that each Dissertation Committee include at least one member external to Northeastern University. One of the Northeastern University faculty members will be nominated as the Chair of the committee, which will usually be the Ph.D. advisor
- **DISSERTATION PROSPECTUS / PROPOSAL:** After the student has achieved sufficient depth in a field of study, they will prepare a proposal for a Ph.D. dissertation. This process should take place within eighteen months of achieving candidacy. The student prepares a dissertation proposal, which describes the proposed research, including the relevant background materials from literature. The proposal should clearly specify the research questions to be addressed, the methods to be used, and a schedule of milestones to completion. A representative from the Graduate Group will convene the DC for the dissertation proposal. The dissertation proposal must be approved by the DC. Upon approval of the written proposal, the student must present the proposed work orally in a public forum, followed by a closed-door oral examination by the DC. The DC will submit the dissertation proposal results to the representative from the Graduate Group who will

review and communicate the result to the student. The student may take the dissertation proposal examination at most two times.

- **DISSERTATION DEFENSE:** The dissertation defense is held in accordance with the regulations of the University Graduate Council. The defense is convened by a representative from the Graduate Group and is chaired by a Northeastern faculty member outside the DC who is approved by the Graduate Group. The DC will include an external examiner who is an individual with expertise in the area of study, but not affiliated with the Northeastern University Global System or previously involved with the Ph.D. candidate's research. The Defense Chair will communicate the results with the Ph.D. candidate.
- **DISSERTATION:** Following successful completion of the defense the Ph.D. candidate will submit the written dissertation with signatures from the Ph.D. advisor and the full DC. The dissertation will be submitted to the Graduate Group for final review. Final approval of the dissertation will be certified by the signature of a Provost designee.

v. Program assessment (based on the NECHE E-series)

As a research degree, the Ph.D. requires independent work and immersion in environments that will promote and encourage research.

Learning outcomes

- New knowledge the Ph.D. student creates that extends a field of research.

Learning objectives

- Propose impactful research questions
- Synthesize skills and knowledge necessary to advance a field of knowledge.

These learning outcomes will be published on the associated Graduate Catalog page and on the PhD Network programs website, <https://PhD.northeastern.edu/program/>. During their degree programs, Ph.D. students publish papers and present at conferences as indicators of independent research. In addition, the dissertation defense will be used to determine if individuals meet these learning outcomes. To assess outcomes over time, post-graduation surveys will collect information about impact on careers. The Graduate Group will perform an annual review of all Ph.D. students in the program to assess their academic progress and the extent to which the learning outcomes are met. In addition, external members of the qualifying exam and dissertation committees will provide an independent assessment of each student. At admission, each Ph.D. student will create an individualized plan to chart their education and professional development. The student and the DC will meet regularly (at least once a year) to review this plan. In addition, the annual review process will provide important formative feedback to each student. Collectively, these data will inform program improvement over time. In Year 3 and then every 5 years thereafter, an external advisory board will perform a review of the program as a whole and make recommendations to the Provost.

vii. Resources

a. The faculty resources contributing to this university-level Ph.D. program are sourced from the collective research strength among Northeastern's faculty, including the faculty across its global system. It is expected that Ph.D. student research will benefit from the relevant research performed by faculty in Northeastern's research Institutes and Impact Engines. Ph.D. funding will draw from the research programs in these Institutes and Impact Engines where faculty are expected to support students through research grants. The new Ph.D. students will be encouraged to serve as teaching assistants, and they will be presented as candidates for teaching assignments in the departments where their faculty advisors hold appointments. All Ph.D. students will be encouraged to compete for externally funded fellowships.

b. Space needs for this new degree are minimal. Ph.D. students will join existing faculty research groups, laboratories, or Institutes and they will receive desk space and access to facilities as full members of these research teams.

c. There are no additional library resources required.

viii. Budget:

Will be submitted separately to the Office of the Provost.

APPENDIX

PROGRAM REQUIREMENTS

Ph.D. students who enter with the Baccalaureate Degree:

Milestones

- Core Requirements – Curricula established by the DC; minimum 30 SH
- Annual progress review
- Admission to candidacy:
 - Qualifying Examination
- Dissertation prospectus/proposal
- Dissertation defense

Core Requirements: The Dissertation Committee (DC) will provide oversight in coursework selection provided that each student has training (via courses or experience) in pre-requisite domain knowledge, research methods and specific contexts. Students are required to enroll in a minimum of 30 SH of coursework approved by the Dissertation Committee. This coursework may include traditional courses, Special Topics courses, Independent Study, Discussant or other coursework taken via partner institution. The coursework should also include opportunities to develop the professional skills (such as communication, teaching, and leadership) required for the student's field of research. Courses delivered at a partner outside Northeastern may satisfy these course requirements provided an education or Experiential Ph.D. agreement exists with that organization. The DC will ensure that the 30 SH represents a balance of coursework across domain knowledge, research methods, application contexts, research integrity, colloquia, the research itself, and professional development. The DC should submit a "Plan of Study" to the Graduate Group during the first semester of a Ph.D. student's enrollment.

Dissertation:

Complete the following:

- INPR 9990 Dissertation Term 1
- INPR 9991 Dissertation Term 2

Program Credit / GPA Requirements

30 total semester hours required; Minimum 3.000 GPA required.

ADVANCED ENTRY PH.D. PROGRAM REQUIREMENTS

Ph.D. students who enter with a Master's degree or equivalent.

Milestones

- Core Requirements – Curricula established by the DC, 12 SH required
- Annual progress review
- Admission to candidacy:
 - Qualifying Examination
- Dissertation prospectus/proposal
- Dissertation defense

Core Requirements: The Dissertation Committee (DC) will provide oversight in coursework selection provided that each student has training (via courses or experience) in pre-requisite domain knowledge, research methods and specific contexts. Students are required to enroll in a minimum of 12 SH of coursework approved by the Dissertation Committee. This coursework may include traditional courses, Special Topics courses, Independent Study, Discussant or other coursework taken via partner institution. The coursework should also include opportunities to develop the professional skills (such as communication, teaching, and leadership) required for the student's field of research. Courses delivered at a partner outside Northeastern may satisfy these course requirements provided an education or Experiential Ph.D. agreement exists with that organization. The DC will ensure that the 12 SH represents a balance of coursework across domain knowledge, research methods, application contexts, research integrity, colloquia, the research itself, and professional development. The DC should submit a "Plan of Study" to the Graduate Group during the first semester of a Ph.D. student's enrollment.

Dissertation:

Complete the following:

- INPR 9990 Dissertation Term 1
- INPR 9991 Dissertation Term 2

Program Credit / GPA Requirements

12 total semester hours required; Minimum 3.000 GPA required.