Health Sciences Integrated Program
PhD Student Handbook
2014-15

Updated February 16th, 2015
Updated sections are highlighted in yellow in Table of Contents
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1. Welcome and Contacts
Welcome to the Health Sciences Integrated PhD Program. Northwestern University offers Doctor of Philosophy degrees through The Graduate School. The PhD degree, as distinct from professional doctorate degrees, is primarily oriented toward research that will advance knowledge. The Health Sciences Integrated Program (HSIP) offers doctoral student training across multiple disciplines and the opportunity to focus on a broad array of tracks within the Health Sciences including: health and biomedical informatics, health services and outcomes research, healthcare quality and patient safety, and translational outcomes science.

1.1 Program Overview
The Health Sciences Integrated Program (HSIP) is housed within the Center for Education in the Health Sciences at the Institute for Public Health and Medicine (IPHAM) at the Feinberg School of Medicine (FSM). HSIP is a collaboration across IPHAM Centers and FSM Departments including: Center for Healthcare Studies; Northwestern University Biomedical Informatics Center; Department of Medical Social Sciences; and Department of Preventive Medicine, among others. Other clinical and research-based departments provide mentorship and research opportunities.

1.2 Program Contacts

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Program Assistant
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E-mail: eric.kanouse@northwestern.edu
Office: 633 N St. Clair, 20th floor

1.3 Oversight Committee
As an interdisciplinary program, an HSIP Oversight Committee with faculty representatives from each track governs the program, collectively agrees on admissions, reviews student progress reports each Spring, and oversees the approval process for new courses in the program. The HSIP Oversight Committee is chaired by the HSIP Director.
2. Program Requirements

2.1 Program Curriculum

The wide range of opportunities provided within the HSIP serves both those students committed to a specific research field when they enter and those who begin with several potential interests. During the first year of the HSIP doctoral program, each student will identify a specific curriculum/research track while also achieving a set of core competencies that applies across all tracks.

The core competencies include:

- Ethics
- Informatics
- Measurement and Outcomes
- Research Design
- Statistical Methodology
- Writing and Communication

To achieve the core competencies students are required to take one course in each of the following areas:

- Measurement and outcomes
- Research design
- Statistical methodology
- Writing

Additionally, all students will be required to take HSIP 400, Interdisciplinary Health Sciences Doctoral Colloquium, a one-unit course that will run across Fall, Winter and Spring quarters of the first year. The
course introduces students to the disciplines within the Health Sciences and will be taught collectively by HSIP faculty. The core competencies of Ethics, Informatics and Communication will be part of the Interdisciplinary Health Sciences Doctoral Colloquium.

Tracks and/or certain fellowships may require additional courses or training.

The program contains the following active tracks:

- Health and Biomedical Informatics (HBMI)
- Health Services and Outcomes Research (HSOR)
- Healthcare Quality and Patient Safety (HQPS)
- Translational Outcomes Science (TOS)

The other tracks may be phased in during subsequent years.

### 2.2 Track-specific Curriculum

**Health and Biomedical Informatics**

Informatics is the study of information: how you collect it, how you organize it, and how you use it to solve problems. Health and Biomedical Informatics is informatics applied to healthcare and biomedical research. This track contains many different sub-fields that use similar techniques and tools but apply them to different problem areas.

<table>
<thead>
<tr>
<th>Required Courses</th>
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<tbody>
<tr>
<td>HSIP 400 Interdisciplinary Health Sciences Doctoral Colloquium</td>
</tr>
<tr>
<td>HSIP 440 Introduction to Medical Informatics</td>
</tr>
<tr>
<td>EPI_BIO 301 Introduction to Biostatistics</td>
</tr>
<tr>
<td>HSIP 441, 442, 443 Informatics Methods I, II, III</td>
</tr>
<tr>
<td>HSIP 401 Introduction to Health Measurement Science</td>
</tr>
</tbody>
</table>

**Choose one Writing Course**

- HSR 462 Grant Writing (0.5 credit)
- PH 445 Writing and Peer Reviewing for Publication

**Choose one Health Care and Biomedical Knowledge**

- HQS 420 Introduction to Health Management
- HSR 470 Health Policy
- IGP 401 Biochemistry
- IGP 405 Cell Biology
- IGP 410 Molecular Biology and Genetics
- IGP 430 Genetics
- MED_INF 401 American Healthcare System
- MED_INF 402 Introduction to Clinical Thinking
- PH 301 Behavior, Society, & Health
- PH 420 Introduction to Health Management

**Choose one Computation**

- EPI BIO 305 Data Management and Programming
• EPI BIO 428 Bioinformatics and Data Mining
• MED_INF 406 Decision Support Systems and Health Care
• MED_INF HIT Integration, Interoperability & Standards
• MED_INF Introduction to Databases
• MED_INF Telecommunications & Computer Networks
• MSCI 305 Introduction to Bioinformatics

**Recommended Electives (choose 3 or more)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI_BIO 302</td>
<td>Intermediate Biostatistics</td>
</tr>
<tr>
<td>HQS 440</td>
<td>Fundamental Methods for Healthcare Quality and Patient Safety</td>
</tr>
<tr>
<td>HSR 425</td>
<td>Introduction to Quantitative Methods in Health Services and Outcomes Research</td>
</tr>
<tr>
<td>HSR 433</td>
<td>Health Economics and Healthcare Financing</td>
</tr>
<tr>
<td>HSR 460</td>
<td>Applied Ethical Issues in Health Services Research</td>
</tr>
<tr>
<td>IBIS 401</td>
<td>Molecular Biophysics</td>
</tr>
<tr>
<td>IBIS 401</td>
<td>Quantitative Biology</td>
</tr>
<tr>
<td>IBIS 403</td>
<td>Proteomics, Genomics, and Variation</td>
</tr>
<tr>
<td>IBIS 407</td>
<td>Genome Scale Science</td>
</tr>
<tr>
<td>IBIS 426</td>
<td>Signal Transduction and Molecular Pharmacology</td>
</tr>
<tr>
<td>IGP 422</td>
<td>Introduction to Translational Research</td>
</tr>
<tr>
<td>IGP 466</td>
<td>Structural Basis of Signal Transduction</td>
</tr>
<tr>
<td>MED_INF</td>
<td>Advanced Decision Analysis</td>
</tr>
<tr>
<td>MED_INF</td>
<td>Health Care Enterprise Operations</td>
</tr>
<tr>
<td>MED_INF</td>
<td>Legal, Ethical &amp; Social Issues in Informatics</td>
</tr>
<tr>
<td>MED_INF</td>
<td>Medical Technology Acquisition &amp; Assessment</td>
</tr>
<tr>
<td>MSCI 303</td>
<td>Drug Development Process</td>
</tr>
<tr>
<td>PH 425</td>
<td>Introduction to GIS and Spatial Analysis for Public Health</td>
</tr>
</tbody>
</table>

*Other electives may be taken with advisor approval.*
Health Services and Outcomes Research

This track covers a multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations.

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<tbody>
<tr>
<td>HSIP 400 Interdisciplinary Health Sciences Doctoral Colloquium</td>
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<tr>
<td>EPI_BIO 301 Introduction to Biostatistics</td>
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<tr>
<td>EPI_BIO 402 Intermediate Biostatistics</td>
</tr>
<tr>
<td>HSIP 401 Introduction to Health Measurement Science</td>
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<tr>
<td>HSR 425 Introduction to Quantitative Methods in HSOR</td>
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<tr>
<td>HSR 433 Health Economics and Healthcare Financing</td>
</tr>
<tr>
<td>HSR 456 Applied Qualitative Methods &amp; Analysis for Health Researchers</td>
</tr>
<tr>
<td>HSR 462 Grant Writing (0.5 credit)</td>
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<tr>
<td>HSR 465 Intermediate Quantitative Methods in HSOR</td>
</tr>
<tr>
<td>PH 438 Survey Design &amp; Methodology</td>
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<tr>
<td>PH 445 Writing and Peer Reviewing for Publication</td>
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<table>
<thead>
<tr>
<th>Recommended Electives (choose 3 or more)*</th>
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<tbody>
<tr>
<td>HSIP 440 Introduction to Medical Informatics</td>
</tr>
<tr>
<td>HSR 440 Disparities in Healthcare</td>
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<tr>
<td>HSR 460 Ethical Issues in Health Services Research (0.5 credit)</td>
</tr>
<tr>
<td>HSR 470 Health Policy</td>
</tr>
<tr>
<td>PH 323 Social Determinants of Health</td>
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</tbody>
</table>

*Other electives may be taken with advisor approval.
Healthcare Quality and Patient Safety

This track focuses on the knowledge, skills, and methods required for improving healthcare delivery systems in regard to quality and safety. The topics covered include: healthcare quality context and measurement, changing systems of care delivery, healthcare disparities, accountability and public policy, safety interventions and practices, health information technology, simulation and the science of teamwork, human factors, risk assessment methods, and leadership and governance.

<table>
<thead>
<tr>
<th>Required Courses</th>
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<tbody>
<tr>
<td>HSIP 400 Interdisciplinary Health Sciences Doctoral Colloquium</td>
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</tr>
<tr>
<td>HQS 401 Introduction to Healthcare Quality</td>
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<tr>
<td>HQS 402 Introduction to Patient Safety</td>
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<tr>
<td>HQS 420 Introduction to Health Management</td>
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<tr>
<td>HQS 440 Fundamental Methods in Healthcare Quality and Patient Safety</td>
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<tr>
<td>HQS 501 Advanced Healthcare Quality</td>
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<td>HQS 502 Advanced Patient Safety</td>
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<tr>
<td>HQS 510 The Business of Quality and Safety Improvement</td>
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<tr>
<td>HSIP 401 Introduction to Health Measurement Science</td>
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<tr>
<td>PH 445 Writing and Peer Reviewing for Publication</td>
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<tr>
<td>Choose one Research Design</td>
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<tr>
<td>EPI_BIO 301 Introduction to Epidemiology</td>
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<tr>
<td>HSIP 403 Research Design for the Health Sciences</td>
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<tr>
<td>HSR 425 Introduction to Quantitative Methods in HSOR</td>
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</tr>
<tr>
<td>Recommended Electives (choose 2 or more)*</td>
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<tr>
<td>HEMA 441 Health Policy</td>
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<tr>
<td>HEMA 451 Legal Issues in Health Care Delivery</td>
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<tr>
<td>HSR 433 Health Economics and Healthcare Financing</td>
<td></td>
</tr>
<tr>
<td>HSR 440 Disparities in Healthcare</td>
<td></td>
</tr>
<tr>
<td>HSR 456 Applied Qualitative Methods and Analysis for Health Researchers</td>
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<tr>
<td>HSR 470 Health Policy and Health Services Research</td>
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<tr>
<td>MGMT 444 Health Economics</td>
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<tr>
<td>MGMT 945 Healthcare Strategy</td>
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<tr>
<td>MHB 401 Foundations of Bioethics</td>
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<tr>
<td>MHB 402 Medicine and Law</td>
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<tr>
<td>MHB 403 The History of Medicine</td>
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<tr>
<td>MORS 430 Leadership in Organizations</td>
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<tr>
<td>MORS 452 Leading the Strategic Change Process</td>
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<tr>
<td>MORS 460 Leading and Managing Teams</td>
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<tr>
<td>PUB HLTH 301 Behavior, Society, and Health</td>
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<tr>
<td>PUB HLTH 415 Disease Prevention and Health Promotion</td>
<td></td>
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<tr>
<td>PUB HLTH 421 Intermediate Biostatistics</td>
<td></td>
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<tr>
<td>PUB HLTH 431 Decision Analysis and Models of Medical Decision Making</td>
<td></td>
</tr>
<tr>
<td>PUB HLTH 438 Survey Design and Methodology</td>
<td></td>
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<tr>
<td>PUB HLTH 439 Qualitative Research Methods</td>
<td></td>
</tr>
<tr>
<td>PUB HLTH 444 Advanced Decision Analysis</td>
<td></td>
</tr>
<tr>
<td>PUB HLTH 449 Public Health Policy</td>
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<tr>
<td>*Independent Study or other approved Elective</td>
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</tbody>
</table>
Translational Outcomes Science

The educational mission of this track is to prepare its graduates for scholarly and research careers in patient centered outcomes, their mechanisms, and intervention applications via training at the scientific interface of biomedical and social sciences. Particular emphasis is placed on measurement of quality of life, behavioral and functional outcomes, applications that improve quality of life, health and health care at the individual and systems levels, as well as the developmental mechanisms that shape these outcomes across the lifespan. The overarching goal of this track is to train scientists who are experts in a particular area of patient-centered outcomes research (e.g. outcomes science, developmental mechanisms, behavior and health), while also developing proficiency in multiple areas of relevance to leading an innovative team.

<table>
<thead>
<tr>
<th>Required Courses</th>
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</thead>
<tbody>
<tr>
<td>HSIP 400 Interdisciplinary Health Sciences Doctoral Colloquium</td>
</tr>
<tr>
<td>EPI_BIO 301 or PH 302 Introduction to Biostatistics</td>
</tr>
<tr>
<td>EPI_BIO 302 Introduction to Epidemiology or HSR 425 Introduction to Quantitative Methods in Health Services and Outcomes</td>
</tr>
<tr>
<td>HSIP 401 Introduction to Health Measurement Science</td>
</tr>
<tr>
<td>PH 301 Behavior, Society, and Health</td>
</tr>
<tr>
<td><strong>Choose one of the following required courses:</strong></td>
</tr>
<tr>
<td>STAT 348 Applied Multivariate Analysis</td>
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<tr>
<td>ANTHRO 306 Evolution of Life History Strategies</td>
</tr>
<tr>
<td>PSYCH 401-2 Psychology Proseminar: Social &amp; Personality Bases of Behavior</td>
</tr>
<tr>
<td><strong>Choose one of the following required courses:</strong></td>
</tr>
<tr>
<td>EPI_BIO 402 Intermediate Biostatistics</td>
</tr>
<tr>
<td>HSR 465 Intermediate Quantitative Methods in Health Sciences and Outcomes Research</td>
</tr>
<tr>
<td>PH 323 Social Determinants of Health</td>
</tr>
<tr>
<td>PH 447 Behavioral Medicine Interventions: From the Individual to the Population</td>
</tr>
<tr>
<td><strong>Choose a required writing course:</strong></td>
</tr>
<tr>
<td>PH 445 Writing an Peer Reviewing for Publication</td>
</tr>
<tr>
<td>HSR 462 Grant Writing (0.5 credit)</td>
</tr>
<tr>
<td><strong>Recommended Electives (choose four)</strong></td>
</tr>
<tr>
<td>HSR 440 Disparities in Healthcare</td>
</tr>
<tr>
<td>HSR 460 Ethical Issues in Health Services Research (0.5 credit)</td>
</tr>
<tr>
<td>HSR 470 Health Policy</td>
</tr>
<tr>
<td>PH 438 Survey Design and Methodology</td>
</tr>
<tr>
<td>PSYCH 405 Psychometric Theory</td>
</tr>
<tr>
<td>PSYCH 451 Statistics in Experimental Design</td>
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</table>

*Other electives may be taken with advisor approval*
General Guidance on Electives

In addition to the courses listed above, students may select from graduate-level courses at the following Northwestern University Colleges and Schools:

- School of Communication [Visit the School of Communication website.](#)
- School of Education And Social Policy [Visit the School of Education and Social Policy website.](#)
- McCormick School of Engineering And Applied Science [Visit the McCormick website.](#)
- The Graduate School [Visit the Graduate School website.](#)
- Kellogg School of Management [Visit the Kellogg website.](#)
- School of Continuing Studies [Visit the School of Continuing Studies website.](#)

The course(s) must meet the following criteria:

- It is a graduate-level course and is approved for graduate credit by The Graduate School.
- It is NOT a Law School or course in the MD program.
- It is a campus-based course (NOT a "DL" Distance Learning or Online Course), although certain exceptions may apply.
- It is approved by your Academic Advisor.

Course Options through CIC (Committee on Institutional Cooperation) and CME (Chicago Metropolitan Exchange)

Northwestern Graduate students may enroll in courses offered at other institutions if recommended by their advisor. The two facilitating programs are the CIC Traveling Scholar Program (funded PhD candidates only) and the Chicago Metropolitan Exchange (all graduate students). Classes taken through the CME and CIC programs may count toward TGS requirements for PhD residency and the minimum requirement of nine graded courses. Students are allowed to participate in these programs up to three quarters.

**CIC Traveling Scholar Program:**
[http://www.cic.net/Home/Projects/SharedCourses/TScholar/Introduction.aspx](http://www.cic.net/Home/Projects/SharedCourses/TScholar/Introduction.aspx)

**Chicago Metropolitan Exchange:** [http://grad.uic.edu/cms/?pid=1000979](http://grad.uic.edu/cms/?pid=1000979)
2.3 General Timeline to Degree

Health Sciences Integrated Program
Course Timeline

Year 1
- Interdisciplinary Colloquium
- 3 Core Competencies
- 5 Track Requirements

Year 2
- 3 or more courses from track requirements, electives, or electives
- Core Writing Course
- Qualifying exams
- Mentor-evaluated research/dissertation development course

Year 3
- Additional courses if deemed necessary by student and advisor for dissertation
- Dissertation proposal and proposal defense

Year 4 and beyond
- Dissertation project

2.4 Residency, Waived Courses, and Minimum Course Requirements

Northwestern University requires PhD candidates to complete eight quarters of residency (full-time registration of 3 credits or more) consecutively over two years, including summers. See Leaves of Absence Section for accepted alterations to this timeline.

The HSIP tracks require between 11 and 14 graded courses (see track-specific curricula) as part of the required curriculum. The Graduate School does not provide residency or course credit for graduate level work completed at another accredited institution, other than those taken through CIC or CME. Students may waive out of certain courses by submitting syllabus and graded transcript showing completion of the course. The Director reserves the right to waive course requirements and may defer to the Oversight Committee in certain cases.

All students must complete a minimum of 9 graded courses. Waived courses may not count towards the 9-course minimum.
2.5  Independent Study (HSIP 499) and Research Credit (HSIP 590)

**HSIP 499** is the designation for an Independent Study. Independent Study may be requested specifically in the case where a student requires additional study that is not available through a graded course. To request an Independent Study, please contact the Associate Director to discuss potential course instructors and course content. A form (available on Current Students section of website) must be completed and signed by the student and instructor and submitted to the Associate Director for review prior to approval. HSIP 499 is a graded course.

For students who have waived out of several required courses but need to meet the minimum residency requirement, up to one half of courses taken during full-time residency may consist of graded HSIP 499.

**HSIP 590** is the designation for Research (either independent or mentored). A student should register for HSIP 590 to indicate time in the term schedule that he/she will spend conducting research for comprehensive exams, dissertation proposal, and dissertation research and writing. HSIP 590 is graded pass-fail.

For terms during residency during a student’s first two years, a student should register for HSIP 590 (1-3 credits) to ensure that full-time enrollment is maintained at 3-4 total credits (graded courses plus research time).

2.6  Registration

Registration is completed by the student online and starts 6-8 weeks before the beginning of the quarter. Program staff will email a listing of the available courses for the quarter and a description of the registration procedures to all PhD students shortly before registration opens.


2.7  Permission numbers

Permission numbers may be required to register for certain classes. Permission numbers are often distributed on a “first come, first served” basis once registration opens. If the number of interested students exceeds the number of “seats” in the class, students are added to a waiting list.

Permission numbers are time limited. If the student has not used the number to enroll in the course by the Wednesday (at 5pm) prior to the start of the quarter, the number will become inactive. If a student whose permission number expired before he/she enrolled is still interested in taking the course, his/her name will be added to the waiting list.

If a course requires an instructor’s permission, the student should email the instructor and obtain written permission (in the form of an email) before asking for a permission number.

As space permits, students on the waiting list will be given permission numbers.
2.8 Adding or dropping a class

The last day to drop a class is noted in Registration information for each term, [http://www.registrar.northwestern.edu](http://www.registrar.northwestern.edu).

If you decide to drop a class, please notify both the instructor and program administration. However, the student must officially drop the class in CAESAR; program staff cannot do this. If you fall below full-time registration, your funding will be affected.

Please note the date for dropping the class in Summer term is much earlier in the quarter. Please speak with program staff if you intend to drop a summer quarter.

2.9 Instructional Experience

Students in HSIP will be required to fulfill the TGS requirements that all PhD students serve in some instructional capacity for at least one academic quarter during their graduate education at Northwestern. The experience will be coordinated by the HSIP administrative team, with an aim to find Teaching Assistant positions in a course relevant to the student’s area of expertise. The TA experience will allow for direct contact with and contribution to the assessment and evaluation of students. Whenever possible the TA will be given an opportunity to assist in course planning, possibly through a discussion or lab section. Other potential teaching experiences will include organizing and leading a multi-week section of the HSIP Colloquium course and other introductory courses within the Master’s programs. The Searle Center offers training for new TAs [http://www.northwestern.edu/searle/programs/graduateandpostdoctoral/index.html](http://www.northwestern.edu/searle/programs/graduateandpostdoctoral/index.html).

A Teaching Experience form (available on the Current Students section of the website) must be submitted to the Associate Director and Program Coordinator in quarter prior to teaching experience. Please note, you will be required to turn in evaluation forms from your students, so please arrange for these to be distributed through the instructor or with the Program Coordinator.

2.10 Monitoring Progress toward the PhD

Each student is required to submit an annual progress report that is completed jointly with their Academic Advisor (available on the Current Students section of the website). The purpose of completing this annual review is to assess the progress being made through the academic milestones and toward scholarship activities as well as to provide constructive feedback to both the student and the Academic Advisor.

The HSIP Student Progress Report is due on June 15th of each year. The student first completes the assessment form and writes a brief paragraph summarizing their long-term career goals and research interests. The student may also note any concerns or plans that are not indicated on the form. The
student meets with the Academic Advisor to review the completed form and discuss the student’s progress and plans for the upcoming year. It is expected that the Academic Advisor and the student confer and make any changes before submitting the form to the HSIP Oversight Committee. The advisor’s final comments are to be entered on the appropriate space on the form, and supporting materials (such as abstracts) attached, before the progress report is submitted as a packet to the HSIP Coordinator. It is recommended that the review process be started sufficiently early, or at least one month in advance, to meet the June 15th deadline.

The HSIP Oversight Committee reviews the progress of each student as recorded by the Academic Advisor and student. An email or letter will be sent to PhD students and their advisors indicating that their progress has been reviewed and, where appropriate, noting any recommendations regarding the adequacy of the progress, particularly of academic milestones. While the yearly review is required, the process does not in itself constitute a review that leads to academic sanctions. It is intended and viewed as a means of supporting PhD students in their effort to graduate in a timely manner and to achieve the milestones needed to be successful in their career paths. The annual review can help identify, at earlier points in their program, students who may need attention with regard to their progress toward their career goals.

2.11 Academic Advisor
The student’s first year Academic Advisor is assigned by the HSIP Oversight Committee in conjunction with the Track leader and is an HSIP faculty member. Students are responsible for scheduling and planning meetings with their advisor and meeting advisor milestones defined by this handbook. Academic Advisors and students confer prior to the beginning of each quarter to discuss course registration, teaching assistantship opportunities, and other academic matters. Student course selection must be approved by the Academic Advisor and appropriately documented on the PhD Program Plan form (available on the Current Students section of the website http://www.feinberg.northwestern.edu/sites/cehs/phd-program/current-students.html). Students are encouraged to meet with their advisor during the course of each quarter to discuss ongoing progress and formulate plans for acceptable academic progress. The Director and Associate Director are also available for advising. The Academic Advisor serves as the primary advisor until a Dissertation Chair is identified.

Request for a change in Academic Advisor should be submitted to the Associate Director. Requests will be discussed with the student and advisor separately, and a final decision will be approved by the Director.

2.12 Dissertation Chair and Committee
For the dissertation stage of the PhD, each student enrolled in a PhD program at Northwestern must have a principal research advisor (Dissertation Chair) and a committee.

The Dissertation Chair (also known as mentor, PI, dissertation director, advisor) is a member of the Northwestern University Graduate Faculty who works with the student to develop a research topic, formulate ideas and structure for, and guides the progress of the dissertation. In some cases, although rare, there is a Dissertation Co-Chair (principal research co-advisor) who also works with the student to develop a research topic, formulate ideas and structure for, and guides the progress of the dissertation.
The Dissertation Chair should be identified during the first or second year with the aim of having identified the Dissertation Chair by the end of year 2. The Dissertation Chair will serve as the primary mentor for the development, research and writing of the dissertation project.

Request for a change in Dissertation Chair should be submitted to the HSIP Director. Requests will be discussed with the student and Chair separately, and a final decision will be approved by the HSIP Oversight Committee.

The student, in consultation with his/her Dissertation Chair, will identify the other members of the Dissertation Committee. The Committee members are those who have expertise in and inform the student's area of research, serve as a reader of the thesis, prospectus, or dissertation, and vote on the outcome of the proposal defense/final exam. A minimum of three individuals must serve on the final exam committee. At least two members of this committee, including the Chair, must be members of the Northwestern University Graduate Faculty. The student will then complete the Dissertation Committee Selection form (http://www.feinberg.northwestern.edu/sites/cehs/phd-program/current-students.html) and send it to the HSIP Coordinator for approval by the HSIP Director and Track Leader. Requests for change in membership either from the student or a faculty member should be submitted in writing to the HSIP Director. Changes will be approved by the HSIP Oversight Committee.

### 2.13 Timeline of PhD Advising and Monitoring of Progress

<table>
<thead>
<tr>
<th>After acceptance of offer of admission:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• If not already established, student meets with Associate Director to discuss track selection.</td>
</tr>
<tr>
<td>• HSIP Coordinator emails regarding assigned Academic Advisor.</td>
</tr>
<tr>
<td>• Student corresponds with Academic Advisor prior to first term regarding course selection for Year 1 and potential research interests for future.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
</tr>
<tr>
<td>• Student meets with Academic Advisor to discuss:</td>
</tr>
<tr>
<td>o course planning</td>
</tr>
<tr>
<td>o research interests</td>
</tr>
<tr>
<td>o potential research assistantships</td>
</tr>
<tr>
<td>• Student should complete PhD Program Plan form (available on website) with Academic Advisor and submit to Program Coordinator.</td>
</tr>
</tbody>
</table>

| **Winter** |
| • Student meets with Academic Advisor to discuss: |
| o Year 2 funding |
| o course planning |
| o research interests |
| o potential research assistantships |
| o qualifying exams |
| • Student should revise and resubmit PhD Program Plan form as needed. |

<p>| <strong>Spring</strong> |
| • Student meets with Academic Advisor to discuss: |
| o Annual PhD Progress Report (submit by June 15) |
| o course planning |
| o qualifying exams |
| o Year 2 funding |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
</table>
| Summer     | • Student continues full-time enrollment to meet 2-year continuous residency requirement.  
|            |   • Student meets with Academic Advisor to discuss:  
|            |     o qualifying exams  
|            |     o review status of funding  
|            |     o teaching experience plans/opportunities  
|            |     o begin planning for dissertation  
|            |     o outstanding coursework  
|            | • Revise and resubmit PhD Program Plan form as needed.                    |
| Year 2     | • Student meets with Academic Advisor to discuss:  
| Fall       |   o qualifying exams  
|            |   o review status of funding  
|            |   o teaching experience plans/opportunities  
|            |   o planning for dissertation (aim to identify the Dissertation Chair, and if possible, meet with the student to review the dissertation topic, committee, and proposal defense)  
|            | • Revise and resubmit PhD Program Plan form as needed.                    |
| Winter     | • Student meets with Academic Advisor to discuss:  
|            |   o qualifying exams  
|            |   o review status of funding  
|            |   o teaching experience plans/opportunities  
|            | • Revise and resubmit PhD Program Plan form as needed.                    |
| Spring     | • Student continues to meet with Dissertation Chair to discuss dissertation, committee selection, and proposal defense.  
|            | • Student meets with Academic Advisor to prepare Annual PhD Progress Report form (submit by June 15) and discuss course selection if required.  
|            | • Once Dissertation Chair has been identified, meet with the student to review the dissertation topic, committee, and proposal defense.  
|            | • Revise and resubmit PhD Program Plan form as needed.                    |
| Summer     | • Student continues full-time course enrollment to meet 2-year continuous residency requirement.  
|            | • Once Dissertation Chair has been identified, meet with the student to review the dissertation topic, committee, and proposal defense. Revise and resubmit PhD Program Plan form as needed.  
|            | • Overview Committee will provide feedback on annual progress.             |
| Year 3     | • Student meets with Academic Advisor to review progress on dissertation proposal and status of funding.  
| Fall       | • Student meets regularly with Dissertation Chair to plan dissertation proposal process and select and invite Dissertation Committee.  
|            | • Revise and resubmit PhD Program Plan form as needed.                    |
| Winter     | • Student should revise and resubmit PhD Program Plan form as needed.     |
- Student continues to meet regularly with Dissertation Chair.
- Revise and resubmit PhD Program Plan form as needed.

**Spring**
- Student works with Academic Advisor to complete Annual PhD Progress Report form by June 15.
- Student defends dissertation proposal and incorporates feedback and revises as necessary, with assistance from Dissertation Chair.
- Revise and resubmit PhD Program Plan form as needed.

**Summer**
- Student continues full-time course enrollment to meet 2-year continuous residency requirement.
- Student continues to meet regularly with Dissertation Chair.
- Overview Committee will provide feedback on annual progress.

<table>
<thead>
<tr>
<th>Year 4 and beyond</th>
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**Fall**
- Student continues to meet regularly with Dissertation Chair.

**Winter**
- Student continues to meet regularly with Dissertation Chair.

**Spring**
- Student completes Annual PhD Progress Report form with Academic Advisor, submitting by June 15.
- Meets with Dissertation Chair to plan dissertation defense.
- Dissertation defense feedback is incorporated and dissertation is revised as necessary.
- Oversight Committee provides feedback on annual degree progress.
3. The PhD Program

3.1 First Year of Study

3.1.1 Interdisciplinary Health Sciences Doctoral Colloquium (HSIP 400)
This course is a year-long colloquium designed as an overview of foundational issues in each of the disciplines that comprise the interdisciplinary health sciences doctoral program. The series enables participants to explore theories and methodologies that comprise each discipline and apply them as appropriate to their own developing research. This class meets one and a half hours every other week for the first three quarters of the first year of study.

3.1.2 Core Competencies
There are core competencies in which all HSIP students must take coursework. Track faculty may designate which course fulfills the competency for students in the track. A more advanced course can be substituted if the student already has completed the equivalent of an introductory course.

<table>
<thead>
<tr>
<th>Core competency</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics</td>
<td>HSIP 400 Interdisciplinary Health Sciences Doctoral Colloquium</td>
</tr>
<tr>
<td>Informatics</td>
<td>EPI_BIO 302 Introduction to Biostatistics</td>
</tr>
<tr>
<td>Communication</td>
<td>PH 302 Introduction to Biostatistics</td>
</tr>
<tr>
<td>Statistical Methodology</td>
<td>HQS 440 Fundamental Methods in Healthcare Quality and Patient Safety</td>
</tr>
<tr>
<td>Research Design</td>
<td>EPI_BIO 301 Introduction to Epidemiology</td>
</tr>
<tr>
<td></td>
<td>HSR 425 Introduction to Quantitative Methods in Health Services &amp; Outcomes Research</td>
</tr>
<tr>
<td></td>
<td>HSIP 441, 442, 443 Informatics Methods I, II, III</td>
</tr>
<tr>
<td>Measurement and Outcomes</td>
<td>HSIP 401 Introduction to Health Measurement Science</td>
</tr>
<tr>
<td></td>
<td>HSIP 441, 442, 443 Informatics Methods I, II, III</td>
</tr>
<tr>
<td>Writing</td>
<td>PPH 445 Writing and Peer Reviewing for Publication</td>
</tr>
</tbody>
</table>

3.1.3 Additional coursework as required by each track
Please refer to section 2.2 Track-specific Curriculum for additional course requirements that should be completed during years 1-3 as agreed with your Academic Advisor.
3.2 Second and Third Years of Study

3.2.1 Additional coursework as required by each track

Please refer to section 2.2 Track-specific Curriculum for additional course requirements that should be completed during years 1-3 as agreed with your Academic Advisor.

3.2.2 Registration after eighth quarter

After eight quarters, students have three registration options:
1. Continue to register for graded courses if required.
2. If you are receiving stipend funding, register for 3 credits of HSIP 590.
3. If you are not receiving stipend funding, register for TGS 500. This is full time registration and continues until graduation if the student remains at Northwestern.

Per the continuous registration policy, all doctoral students must be registered at Northwestern University in each of the fall, winter and spring terms until all degree requirements have been completed, including dissertation submission to The Graduate School. Full-time registration is required for use of University facilities, access to the Student Health Service, and insurance coverage. Any alterations in the residency timeline can be managed through Leave of Absence requests.

TGS registration policies and timeline can be found at: http://www.tgs.northwestern.edu/academics/academic-services/registration/continuous-registration-policy

3.2.3 Qualifying Exams

During the second year, the student should prepare for a set of comprehensive qualifying exams (with recommendation that most students could complete exams by the end of their second year). The plan for the exams will be developed in conjunction with the Academic Advisor. The HSIP model for qualifying exams will consist of a two-part exam.

Part 1) Track-specific
- Goal: Demonstrate knowledge, understanding, and proficiency in track-related content and methodology. Exam preparation should be related but not identical to student’s dissertation topic. One of the purposes is to challenge students to discover relevant literature and deepen their knowledge of interests within track.

Part 2) Integrated
- Goal: Demonstrate breadth of knowledge across health sciences disciplines through a task or question that requires synthesis of knowledge from HSIP core areas.

General Structure of exam
1. Topics will be defined by the Exam Committee with student input.
2. Defining materials to be used for exam preparation: materials will depend on track-specific exam descriptions.
   - For example, if student is conducting a literature review or grant application for an exam, then the student would compile a list of literature (using alphabetical order of first author’s last name) to be read with input from the Exam Committee Chair.
   - Student will submit the following documents to the Exam Committee and HSIP Associate Director at least 1 month prior to Exams:
- Planning forms and proposals for specific exams (available on Current Students section of the website)
- Final literature lists, if relevant

3. Preparation period:
   - Once planning forms have been approved, the students will have a defined amount of time to prepare for the exams. Timing should be agreed upon by the Exam Committee and HSIP Director.

4. Exam period:
   - Duration of the Exam period should be agreed upon by the Exam Committee and HSIP Director.

**Timing**
- The timing of Exams is flexible depending on each student’s requirements and course timing.
- It is anticipated that most HSIP students should be able to start preparing for exams in year 2, with an aim to complete by Winter Quarter of year 3 (this allows for revision by Spring of Year 3).
- TGS deadline is end of Spring Quarter in Year 3. Failure to complete exams by this deadline will result in a report of inadequate progress toward degree and probation. (This will compromise funding status until resolved).
- Students can follow Exam specifications from the Handbook on record at the time of matriculation to HSIP.
- Students also have the option of following subsequent (or newer) Exam specifications at their discretion.

**The exam committee**, chosen by the student and the Academic Advisor and approved by the HSIP Director, will objectively evaluate the student’s qualifications to enter PhD candidacy.
   - Part 1) Track-specific exam committee (3 or more members): 2 or more faculty from student’s track + HSIP Director or Associate Director
   - Part 2) Integrated exam committee (3 members): 1 from student’s track + 1 from a related track + HSIP Director or Associate Director
      - For the integrated exam, the related track faculty member should be from a track that’s the same or close to the secondary area identified by the student with guidance from HSIP Director.

**Grading:** Committees will assign a grade of Pass, Conditional Pass, or Fail to the student’s performance.

- If a Conditional Pass is given, then the Exam Committee will outline required changes and timeline for submission of changes.
- If a student fails one exam or both exams, the Exam Committee will determine the timing and requirements for re-taking the exam(s). Students will be limited to one re-take. Students who fail the exam(s) after re-taking may be able to transfer to the relevant Master’s degree if their grades and other academic performance are acceptable to that program’s administration. Where possible, the HSIP administration will facilitate these transitions.

3.2.4 **Doctoral Candidacy**
Admission to The Graduate School (TGS) does not constitute or guarantee a student’s admission to candidacy for the PhD degree. Admission to candidacy is contingent upon the recommendation of the student’s department or program and upon approval of the Graduate Faculty.
A student must be admitted to candidacy by the end of the third year of study, which falls on the last date of the 12th quarter. A student failing to meet this milestone will be considered “not in good standing” and therefore will be placed on probation. Deadlines may only be altered in the case of a medical or family leave, requiring that a petition for deadline extension be submitted to and approved by TGS.

Admission to candidacy is reached by passing comprehensive qualifying examinations. Specifications of the HSIP qualifying exams can be found in the previous section. At the time of admission to candidacy, proficiency in the major and related fields is certified and additional requirements for the PhD degree are stipulated. Students should be aware of requirements for admission to candidacy established by both the department and the Graduate Faculty.

The PhD Qualifying Exam form must be submitted online via TGS Forms in SES. The program must submit approval of this form before the end of a student’s third year. Following the completion of the Qualifying Exam, students will be admitted to candidacy. Students are notified via email by TGS of approval of their Qualifying exam form and admission to candidacy.

3.2.5 Dissertation Proposal

Following the completion of exams, each student must submit a dissertation proposal and give an oral presentation of their completed and proposed work to their Dissertation Committee. The Committee may require resubmission revisions, which should be resubmitted to the Dissertation Chair for approval. Approval of the dissertation proposal is required for continued progress towards the degree.

The written dissertation proposal should include sections as outlined in the Dissertation Proposal Form (http://www.feinberg.northwestern.edu/sites/cehs/phd-program/current-students.html).

Proposal Format

You should propose a focused research question and describe the research plan. Be explicit—do not assume the reader understands your thoughts without a good written explanation. Please use 11 pt Arial font, single-spaced, and 0.5" margins. The suggested format is as follows below. Alternative formats may be used if approved by the Dissertation Chair.

Abstract
1/2 page - Describe the problem being addressed (WHAT), its significance (WHY) and your overall approach to achieve your goals (HOW).

Specific Aims
1 page - Describe your hypothesis and the specific goals and approaches you will take to achieve the goals. This section should delineate (usually as numbered statements) what SPECIFIC goals your proposed study will address. The reader should be able to get a clear sense of what you want to do by reading your "Specific Aims". This section is often described as the most important section in a research proposal. It is also useful here to tell the reader WHY the study is important to do.

Background, Significance, Innovation and Preliminary Results
4 - 6 pages - Provide sufficient background, in a clear, concise manner, so that the reader will not have to go off to the library to read the original papers. Try to envision someone reading the proposal who is not familiar with the subject. Tell the reader what has been accomplished, what has not, and point out
what is novel and technically and/or conceptually innovative. In doing so, set up the context for what needs to be accomplished in your particular area of interest. Provide supporting evidence (your own preliminary data, if available) that led to the hypotheses and convincing information that suggests the approach is logical and likely to succeed. The preliminary data figures and figure legends must be integrated into the text. The figure legends can be of smaller font than the text of the proposal (10 pt). A PhD dissertation should add new knowledge to the scientific domain. Make sure you articulate what new knowledge will be contributed by your project.

**Research Plan**
5-20 pages - Describe the research plan to achieve each one of the specific aims. Clearly explain the "rationale" behind the activities. Usually this section is written to follow, temporally, the individual Specific Aims. Be sure that the study design and analytic approach proposed will unambiguously address the goals outlined in the Specific Aims. In cases where innovative technologies will be used, describe the plan in sufficient detail so that the reader can evaluate it. Identify potential limitations of your study approach and propose alternate strategies to help overcome these limitations. It is very important to present hypotheses of anticipated results and how they will be interpreted. Include a theoretical or conceptual framework that informs your hypotheses and study design. Include a study timeline showing what study tasks will be accomplished each month or quarter. An appropriate rule of thumb is that all the proposed aims should be independent of each other, such that the success of one aim does not rely on the outcome of another.

**References**
Cite key references for the background and research plan. Include the entire author list of each citation, full titles of papers, year of publication, journal, volume and inclusive pagination. Original research articles are generally preferred over review papers and textbooks. Use a standard journal style for your field (please note in proposal what style you are using).

If you are proposing to use the article format, then you should also include (in addition to the above):
- Copies of any completed articles (published or not),
- Outline of articles in progress,
- List of proposed journals, and
- Timeline for completion of the work.

In summary, the proposal should be of sufficient length and detail for the Dissertation Committee to be able to assess the plans for the dissertation and comment on its importance to the field and feasibility. The suggested length for the proposal is 12-30 pages.

**Proposal Defense (approx. 2 hours)**
The proposal defense can be scheduled by the student when the Dissertation Chair notifies the student that she/he is ready to defend the proposal. The student must send the proposal, via email, to all Dissertation Committee members, HSIP Associate Director, HSIP Director, and HSIP coordinator at least 2 weeks prior to the proposal defense date.
The proposal defense will include an oral presentation to the Dissertation Committee with a question and answer period.
- The Committee asks the student to step out of the room for a few minutes while they discuss the status of the dissertation proposal.
- The student presents their proposed project (approx. 15 minutes), highlighting the background and significance of the project, the purpose of the study questions, hypotheses, the
methodology including subject selection criteria, research design, data collection procedures, and data analysis procedures.

- The Dissertation Committee asks the student questions and makes recommendations to the student concerning the topic and methods.
- The Committee asks the student to step out of the room for a few minutes while they discuss the merit of the proposal and required revisions. The committee will also vote whether to approve the proposal, assuming revisions will be made.
- The student is invited back into the meeting to hear the Committee’s decision regarding approval and details of necessary revisions, if applicable.
- If required, revisions should be submitted to the Dissertation Chair.
- Once the Dissertation Committee has approved the proposal, the Dissertation Chair must notify HSIP administration via a signed, program specific form. HSIP administration will then submit an online form to TGS.

After successful completion of the qualifying exams, to remain in good academic standing, the dissertation proposal (prospectus) must be approved by the Dissertation Committee and submitted through TGS Forms in CAESAR no later than the end of the fourth year of study.

- Both TGS and HSIP strongly encourage students to meet this requirement sooner, if possible. Doing so allows students to compete for internal and external fellowships in the fall.
- Note also that almost all dissertation projects will necessitate a submission to the Institutional Review Board (IRB).

3.2.6 Responsible Conduct of Research (RCR)
All graduate students and post-doctoral fellows (and some undergraduates) are now required to go through a program of RCR training. This is a requirement that comes from the National Science Foundation (NSF), so universities and departments that have any NSF funding must get their students RCR certified. As it is being implemented at NU, there are two components to certification. Students will have to complete and pass a series of online CITI modules (like the human subjects training modules that people now go through before they can get IRB approval for research projects). Students also must complete a discussion component, which is to be designed by the department. We are offering three options for the discussion component:

- HSR 460: Ethical Issues in Health Services Research (0.5 credit) will be offered in Winter 2014 [http://www.feinberg.northwestern.edu/chs/education/healthsvcs/hsr_coursescurriculum.html](http://www.feinberg.northwestern.edu/chs/education/healthsvcs/hsr_coursescurriculum.html)
- Public Health 441: Ethical issues in Clinical Research [http://www.publichealth.northwestern.edu/docs/mph/PH441_Summer2013.pdf](http://www.publichealth.northwestern.edu/docs/mph/PH441_Summer2013.pdf)

Please email the HSIP Coordinator to indicate which option you are taking.

3.3 Fourth Year of Study and Beyond

3.3.1 Dissertation Project
The exact PhD program duration for an individual student will depend on the time required to complete an original and substantial dissertation of publishable quality. There are two formats that will be acceptable for completion of an HSIP dissertation. Both formats require an abstract and other elements
delineated in the TGS dissertation guidelines (http://www.tgs.northwestern.edu/about/policies/phd-degree-requirements.html#dissertation). Other formats may be appropriate depending on the project; approval from the Dissertation Chair and the HSIP Oversight Committee is required for use of alternative formats.

A. **Traditional Format**: Generally includes five chapters as follows:
   1. **Introduction** should include:
      - Background of previous research in the area and how it informs your proposed dissertation research
      - Thorough review of the literature in your area of dissertation research
      - Purpose of your study
      - Research questions
      - Significance: describe how your dissertation research adds to the field, highlighting novel contributions
      - Innovation: describe any innovative questions, methods, tools or instruments that you will use in your dissertation research

   2. **Theoretical basis and conceptual model** for the research

   3. **Methods**
      - Describe the complete methods that will be used to conduct your study
      - Describe any tools or instruments that you will use or develop
      - Provide detailed definitions and any necessary development of measures
      - Describe in detail the steps, methods, sources of data, logistics of data collection
      - Provide details of the study sample selection and sample size/power calculation
      - Provide a detailed description of the analytic approach and specific statistical methods that will be applied and why
      - A brief description of the project’s IRB status.

   4. **Results**: describe the results of your study including appropriate graphs, tables, and depictions

   5. **Conclusions**
      - Describe the significance of your results in terms of:
        - What you found,
        - What it means to the broader field,
        - What unique contributions your study has made in terms of findings and novel methods, and
        - What next steps or further research would follow your dissertation project. Articulate an agenda for future research on the issues addressed in the dissertation.

   6. **Complete bibliography** using the format agreed upon with your Dissertation Chair.

B. **Article Format**: includes the following sections:
   1. **Introduction** including
      - Background of previous research in the area and how it informs your proposed dissertation research
• Thorough description of the literature in your area of dissertation research that sets the context for your 3 papers
• Purpose of your study
• Research questions
• Significance: describe how your dissertation research adds to the field, highlighting novel contributions
• Innovation: describe any innovative questions, methods, tools or instruments that you will use in your dissertation research
• The introduction should provide a narrative that weaves the articles together in a greater body of work. It should describe the articles’ collective contribution to the field.
• Introduction should describe the overall methodology to be used to answer larger research question(s).
• The length of this section should be determined in consultation with the Dissertation Chair.

2. **Theoretical basis and conceptual model** for the research (may possibly be included in Section 1)

3. **The Three Articles**
• Students need to develop a minimum of three articles, which should comprise a cohesive body of work that supports a theme or themes that are expressed clearly in the introduction of the dissertation.
• One article, at least, must be published (or accepted for publication) prior to Final Defense.
• All articles must represent work undertaken during the PhD program.
• All articles must also connect to the theme or themes of the dissertation.
• Submission of all articles to peer-reviewed journals prior to the dissertation defense is required unless the Dissertation Committee grants an exception.
  o If an article has been published before the defense, the student must, as required by US law, obtain copyright permission from the publishing journal to include the article in their dissertation. If there is difficulty acquiring permission, contact the HSIP Director for guidance.
• At least two (2) of the articles should be based on data that are analyzed by the student.
• If one article is conceptual in nature, or based on a synthesis of the literature, it must be connected to the theme or themes of the dissertation without relying heavily on the contents of the other articles. The student’s Dissertation Committee will determine if the overlap is acceptable or not.
  o An acceptable amount of overlap includes portions of the literature review, which needs to be cited under mentorship of Committee Chair in various articles because it delineates the entire historical background of the study’s focal topic.
• The student must be the first author on all articles. As the first author, the student is responsible for development and articulation of a concept or idea for research, development of the research proposal, development of a research design, conducting research and analysis, writing all major portions of the manuscript, designing an intervention or assessment, and interpreting results. Please see the following references for expectations of a first author.
  [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3010799/#CIT2](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3010799/#CIT2)
• Co-authors and order of authorship should be discussed with and approved by the Dissertation Chair.
• If an article is rejected by a journal during the dissertation process, the student may submit it to another journal upon approval by the Dissertation Chair.
• Any changes to the article prior to resubmission must also be approved by the Dissertation Chair and Co-authors.
• If an article is rejected by a journal after the successful completion and defense of the dissertation, co-authorship decisions that were made prior to end of dissertation process will no longer be in effect and submission (including changes in authorship and/or article content) to a new journal will be at the sole discretion of the PhD graduate.
• The Graduate School is developing new rules to allow a student to embargo their dissertation publication (essentially delaying publication in the ProQuest Dissertation Database by one year). Embargoing is beneficial if a journal does not allow other publication of the same results prior to submission of the manuscript.

4. Conclusion
• Summarize the dissertation’s major findings, limitations, discussion, and recommendations.
• Discuss similarities and differences between the three articles.
• Tie everything together and help the reader see how the articles, taken together, make a contribution to the knowledge base regarding the problem.
• Discuss research imperatives and knowledge gaps.
• Articulate an agenda for future research on the issues addressed in the dissertation.

5. References

3.3.2 Dissertation Defense

At the conclusion of the research project and, after it has been written to the satisfaction of the Dissertation Chair, a dissertation defense meeting is held with the student, Chair, and other members of the student’s Dissertation Committee. The purpose of the meeting is to verify to the Committee’s satisfaction that the research and the dissertation or articles adhere to the highest standards of scholarly work.

The student’s presentation at the dissertation defense may be open to the public. The student is responsible for scheduling the dissertation defense at a suitable 2-hour time period.

Prior to the defense:
• The student must send the dissertation to all Committee members and HSIP administration at least three weeks prior to dissertation defense.
• All members of the Dissertation Committee will be expected to read the dissertation in advance of the defense, and members must be present at the defense. Video-conference participation may be allowed at the discretion of the Dissertation Chair.

Logistics of the dissertation defense meeting:
• The student should prepare a 15-30 minute presentation that includes: a brief overview of field, theoretical background/conceptual model, the purpose of study, research questions, hypotheses, predictions, methods, results, conclusions, and further directions.
• Format for the question and answer period will be decided by the Committee in advance of the defense.
• The question and answer period may include both public and closed sessions at the discretion of the Dissertation Chair.
After discussion, the student leaves the room, and the Committee evaluates the document and student’s performance and decides whether or not student has passed.

Revisions may be required, including expansion of a particular section of the document or additional analyses.

When revisions are required, the Dissertation Committee will specify the timeframe for submitting revisions, who will review the revisions, and criteria for successful revision.

The student is invited back into the room and the committee presents their evaluation and informs student of their passing (and any conditions) or failing.

The Dissertation Committee members and the student complete, sign and turn in appropriate TGS forms.

Please also note that, however much fun graduate school is, the graduate school career is intended to come to an end. On the timing of degree completion, TGS’s official statement is that “Only rarely under extenuating circumstances will students be granted permission to continue beyond 9 years.” Those who are permitted to continue beyond nine years also face a stiff requirement to pay tuition of $1000/quarter.

3.3.3 Graduation: Checklist for Doctoral Degree Completion

Required Items:

Check deadlines for submission of all paperwork listed below. Deadlines may be found on the webpage http://www.tgs.northwestern.edu/academics/academic-services/calendar/

Application for Degree form: This can be filled out via CAESAR. Login to CAESAR, click on "For Students" -"TGS Forms" and navigate to "Application for Degree" online form

PhD Final Exam form (this is for dissertation, not for qualifying exams): Login to CAESAR to complete and submit the form. Print out a hard copy of the completed form to take to your final dissertation defense. Have each committee member sign the form next to their name. The signed form should go to your DGS (or DGS designate), who will finish the approval process online; the form will be submitted to The Graduate School electronically for final approval, with the signed hard copy to follow.

Dissertation submission via ProQuest, http://www.etdadmin.com/cgi-bin/home. Once your dissertation has been approved by your committee and all edits and revisions are complete, submit online via ProQuest. The dissertation must conform to TGS formatting standards: http://www.tgs.northwestern.edu/docs/guidelines_for_students.pdf

Survey of Earned Doctorates (SED). Take the web survey via https://sed.norc.org/survey

If you have any Y or K grades on your transcript, your department will need to submit the appropriate change of grade form to The Graduate School by the published deadline.

**Additional Reminders:**

If you have student health insurance through Northwestern University and you would like to cancel it, see the cancellation instructions: [http://www.tgs.northwestern.edu/graduate-life/health-services/health-plan/cancellation/index.html](http://www.tgs.northwestern.edu/graduate-life/health-services/health-plan/cancellation/index.html)

For information on commencement and hooding ceremonies see: [www.tgs.northwestern.edu/academics/academic-services/hooding/index.html](http://www.tgs.northwestern.edu/academics/academic-services/hooding/index.html).

The Intent to Participate form is required for students taking part in The Graduate School Hooding Ceremony and must be filled out by the deadline: [www.tgs.northwestern.edu/academics/academic-services/hooding/faq/index.html](http://www.tgs.northwestern.edu/academics/academic-services/hooding/faq/index.html)

For regalia rental/purchase deadlines: [http://www.northwestern.edu/commencement/students/index.html](http://www.northwestern.edu/commencement/students/index.html)

Check CAESAR for holds on your record. Your diploma and copies of your transcript may not be released if you have holds. Contact the Office of Student Accounts with questions: [http://www.northwestern.edu/sfs/](http://www.northwestern.edu/sfs/)

If you have questions about the above, or would like to verify what The Graduate School has received to date, please contact your student services representative at gradservices@northwestern.edu or call The Graduate School at 847-491-5279 and ask to speak with a student services representative.
4 Funding and Financial Support

4.1 Funding the PhD
Students will be supported (tuition and stipend) by a FSM Fellowship funded by the FSM for the first six quarters. In subsequent quarters (7 and beyond), each department/center will support the students in their tracks through training grants, pre-doctoral fellowships, and research assistantships. Should the student’s research mentor be unable to provide full support, funding is guaranteed by the Track or the University. Students are guaranteed full stipend and tuition as long as they maintain academic performance and make progress towards their degree. This progress will be reviewed and monitored by the HSIP Oversight Committee annually as described in the section on ‘Monitoring of progress towards the PhD.’

It may be helpful to review the Financial Aid section of the Graduate School website (www.tgs.northwestern.edu/financialaid).

Quarters 1-6
Students not receiving funding from an outside source will receive an 18-month FSM Fellowship subject to the policies and procedures outlined in fellowship letters. The fellowship offers a stipend and covers full tuition. The stipend amount is determined each year by the Graduate School and the Feinberg School of Medicine. FSM also determines the number of fellowships HSIP is allowed to offer.

Quarter 7 and beyond
Students not receiving funding from an outside source may receive either a Research Assistantship or Graduate Assistantship for the academic year. An appropriate assistantship on a sponsored project or within a Department will be arranged in conjunction with the Associate Director. Students should begin looking for opportunities during Quarters 3-4.

Although students are guaranteed funding, that guarantee is contingent on students remaining in good academic standing. It is imperative that students not jeopardize funding by accumulating incompletes or by missing program and Graduate School deadlines.

4.2 Fellowships
The Department encourages eligible students to compete for fellowships, both internal (such as the prestigious Presidential Fellowship) and external. The HSIP Coordinator will announce fellowship opportunities on a rolling basis. Check links on the Current Students section of the HSIP website.

4.3 Working
Fellows and scholars must refrain from remunerative work (other than teaching or research directly related to their assistantships) unless a written request for a waiver is approved by The Graduate School after a thorough review of the circumstances. If any of these conditions is violated, financial support may be withdrawn.
5 General policies and information

5.1 Master’s Option in lieu of PhD Candidacy
The HSIP is a PhD training program; however, there are situations when pursuit of the PhD cannot be completed and therefore an option for a terminal Master’s degree will be provided. Eligible applicants for the degree are those who have successfully completed the required letter-graded courses, have passed their qualifying exams, and have done sufficient research to write a Master’s thesis as required but are unable to complete the PhD program for personal and/or professional reasons. PhD students in good academic standing who wish to obtain a terminal Master’s degree will petition the HSIP Oversight Committee and the Director of HSIP explaining why they cannot complete the PhD program. In these cases, the respective track’s Master’s program would have to agree to accept the student, and the student must still meet the Master’s requirements for that track.

5.2 Overview of TGS Rules and Policies

Cases of improper academic and/or research conduct, and inappropriate or unprofessional behavior, are considered outside the boundaries of “satisfactory academic progress”. These cases are addressed according to the University’s existing disciplinary procedures, and may result in a range of sanctions up to and including exclusion from the University. Resources for these cases can be found here:

- TGS Academic Integrity policy
- Office for Research Integrity
- Office of Equal Opportunity and Access
- Student Handbook

Per federal regulation, recipients of federal financial aid must meet certain requirements (in addition to those listed below) to maintain satisfactory academic progress. Recipients of federal aid should be aware of the Federal Financial Aid Satisfactory Academic Progress Policy.

5.2.1 Criteria for Satisfactory Academic Progress

TGS sets the minimum standard for satisfactory academic progress. Programs may have additional criteria beyond TGS’s for determining a student’s academic standing. There are three sets of criteria that The Graduate School takes into account in determining whether or not students are making satisfactory academic progress:

- **Program length.** Doctoral students must complete all requirements for the Ph.D. within nine years of initial registration in TGS. Master’s students must complete all requirements for the master’s degree within five years of initial registration in TGS. Students who do not complete degree requirements by the established deadlines will not be considered in good academic standing, will not be eligible for financial aid and will be subject to TGS 513 (advanced continuous registration). Students may submit a petition to extend the degree deadline, but those students will not be eligible for financial aid and will be subject to TGS 513.

- **Grades and cumulative GPA.** A student whose overall grade average is below B (3.0 GPA) or who has more than three incomplete (Y or X) grades is not making satisfactory academic progress and will be placed on probation by TGS.
• **Internal milestone deadlines.** Doctoral students who have not been admitted to candidacy by the end of their third year (i.e., passed the qualifying exam), or who have not completed the dissertation prospectus by the end of the fourth year are not making satisfactory academic progress and will be placed on academic probation by TGS.

**Programs may have additional criteria beyond TGS’s for determining a student’s academic standing.** Failure to make satisfactory academic progress, as determined by the program, may be a result of (but is not limited to): unsatisfactory performance in classes, unsatisfactory performance on qualifying exams, unsatisfactory research progress, or failure to meet other program requirements (such as language proficiency or publication requirement). Each student’s academic progress must be reported annually by the student’s program to the student and to TGS. Failure to make satisfactory academic progress as determined by either The Graduate School or the program will result in probation or exclusion (dismissal).

5.2.2 Additional HSIP Progress Requirements
It is the goal of the HSIP that all students identify a mentor, obtain outstanding research training and complete their PhD requirements in a timely fashion. The Dissertation Committee’s primary duty is to review the student’s research progress and provide both scientific and personal advice and support. Nevertheless, it is also the Committee’s responsibility to evaluate the student’s work and to report to the HSIP whether or not the student is making appropriate progress towards completion of the PhD. Students who fail to make adequate progress are subject to dismissal.

Academic Advisors and Dissertation Chair and Committee members are encouraged to openly and honestly communicate to students any perceived difficulties or deficiencies so that the student may address and correct the problems. Likewise, students are encouraged to openly and honestly communicate to their advisors any mentoring difficulties or deficiencies so that the advisor may address and correct the problems. If at any point a student and Dissertation Chair mutually agree that the student would be better served in another research team, the student will be permitted to find another dissertation research home. The decision should be communicated to the HSIP Director. The HSIP office will aid the student as much as possible in finding a new home. The student must secure a new research home within three months or be subject to possible dismissal from the HSIP.

In cases where a student fails to make adequate progress or engages in disruptive behavior, the procedures below are to be followed.

5.2.3 Failure to make adequate academic progress
It is the Dissertation Committee’s responsibility to evaluate a student’s work and to report to the HSIP whether or not the student is making appropriate progress towards completion of the PhD. In a case where the Committee determines that a student is not making adequate progress appropriate for the stage of their graduate career, the Committee will complete an evaluation report that indicates the specific deficiencies. Following a Dissertation Committee meeting report that indicates a lack of progress toward completion of the degree, the Dissertation Chair will inform HSIP in writing of the problem and submit copies of other supporting documentation. Such documentation might include, but would not be limited to, written communication with the student outlining the problem areas, email correspondence between the Dissertation Chair and the student, notes of private or team meetings at which the student was informed of problems with their work, or any other such materials that notify the student of problems in their performance and progress.
If such documentation does not exist, at this time the Dissertation Chair should notify the student and the HSIP in writing of any problems in their performance and progress. The Dissertation Chair will meet with the student’s Dissertation Committee in the absence of the student to formulate a plan for improvement. This plan will be communicated to the student in writing and should include the scheduling of another Committee meeting within three to six months. The student may meet with the Committee members in the absence of the Dissertation Chair to learn firsthand the expectations of the Committee. Importantly, such a meeting allows the student to articulate their view of the problems, some of which may be due to the Dissertation Chair.

If at the next full meeting (within six months) the Committee determines that the student has failed to make adequate progress, the Committee will complete an evaluation report indicating the failure. The advisor will notify the HSIP Director of his/her intent to dismiss the student from their research team. The HSIP Director will make sure the appropriate documentation is in place and procedures have been followed. The Dissertation Chair can then elect to dismiss the student from the team without further obligation. The HSIP Director will advise the student on his/her options. A student who is dismissed from a team for academic reasons may petition the HSIP Oversight Committee for permission to seek a new dissertation research home.

Where appropriate, the Oversight Committee may allow a student one month to find a new Dissertation Chair. Failure to secure a new research home in that time frame will result in dismissal from the HSIP. The TGS policy on adequate academic progress and dismissal (exclusion) can be found at: http://www.tgs.northwestern.edu/academics/academic-services/satisfactory/

5.2.4 Disruptive Behavior
As stated in the Compact Between Biomedical Graduate Students and Their Research Advisors, students are expected to maintain a high level of professionalism, self-motivation, engagement, scientific curiosity, safety and ethical standards. In all cases, HSIP students are subject to the code of conduct detailed in the Northwestern University Student Handbook. Any faculty, students and staff who observe behavior that disrupts the university community may notify the HSIP administration and/or TGS in confidence. The HSIP will refer these cases to appropriate University officials. As outlined in the Northwestern University Student Handbook, consequences may include dismissal from the University.

If a student is perceived to act in a manner that disrupts normal research team function, the advisor or should notify the student and the HSIP office in writing of the problem behavior and request a meeting of the student, advisor, and HSIP representative(s) in order to identify ways to potentially remedy the problem. If appropriate, support staff from another University office(s) can also be included in this meeting. If, after this meeting, the student does not correct the behavior in a timely manner, the Academic Advisor or Dissertation Chair will notify the HSIP Director in writing of the details of the continuing problems and submit a petition for permission to dismiss the student from the lab.

The HSIP Director will meet with the student, the advisor and any relevant parties to make a final determination on dismissal. A student who is dismissed from a research team for behavioral reasons may petition the HSIP Oversight Committee for permission to seek a new research home. When appropriate, the Oversight Committee may allow a student one month to find a new research home and dissertation advisor. Failure to secure a new research home in that time frame will result in dismissal from the HSIP.
5.2.5 Petitioning for Extension

Students who have exceeded their time to degree deadline or a milestone deadline for the qualifying exam or prospectus may petition TGS for an extension. The petition for an extension must contain the following information:

- The specific length of the extension: Please list the exact date by which the requirement will be met. The extension time frame should be realistic.
- A detailed rationale for the extension
- A detailed timeline for meeting the new deadline: What work remains to be completed and what is the specific timeline, with proposed deadlines, by which that work will be completed within the extension period?
- A detailed letter of support for the extension from the HSIP Director
- A detailed letter of support for the extension from the student’s Academic Advisor or Dissertation Chair

5.2.6 Probation

A student who is not making satisfactory academic progress due to one of the reasons outlined above will be placed on academic probation by The Graduate School and/or HSIP.

When a decision to place a student on probation is made by The Graduate School, the student will be notified in writing, along with the HSIP Director, and will be given at most two quarters (not including summer quarter) to resume satisfactory academic standing. The Graduate School notifies students of probation status on a quarterly basis.

During the probationary period, students will remain eligible to receive federal and institutional assistance (except when they have exceeded their degree deadline). At the end of the probationary period, progress will be reviewed. If a student cannot re-establish satisfactory academic standing during the two probationary quarters, the student will become ineligible to receive financial aid and will be excluded (dismissed) from TGS.

When a decision to place a student on probation is made by the program, the student and The Graduate School must be notified in writing.

5.2.7 Exclusion (Dismissal)

The University defines exclusion in the Student Handbook.

A student who fails to resume satisfactory academic standing after at most two quarters (excluding summers) after being notified of placement on probation by The Graduate School will be excluded from The Graduate School.

Under certain circumstances, a student can be excluded by a program without first being placed on probation. This may occur only if:

- the criteria for exclusion have been stated clearly by the program and have been disseminated to the students effectively.
• both the Director of Graduate Study and either the Chair of the graduate program’s student advisory committee or the Chair of the student’s department approve the exclusion.

Funding will cease on the effective date of the exclusion unless other arrangements are made.

5.2.8 Notification of Exclusion (Dismissal)

When TGS determines that a student is to be excluded, both HSIP and the student will be informed in writing (e-mail communication is considered to be “in writing”) within five business days of the determination.

Similarly, when a decision to exclude a student is made by HSIP, both the student and TGS must be informed in writing within five business days of the decision.

The exclusion (dismissal) notification must include the effective date of the exclusion and a clear statement of the reason(s) for exclusion.

5.2.9 Appeal Process

Students wishing to appeal a program’s exclusion decision may appeal the final program exclusion decision to The Graduate School. To appeal a program decision, students should submit a request in writing to the attention of the Director of Student Services within ten days of the date of the program’s final written determination of exclusion to the student and include any supporting materials at that time. If no appeal is filed within the ten-day appeal period, the program’s decision becomes final and not subject to appeal.

Exclusion appeals are reviewed by the Dean of The Graduate School (or his designate) who may request additional information from, or a meeting with, the student and/or program before making a final decision. The Dean’s decision will be made within 30 days of the submission and will be communicated in writing to both the student and the program. When resolution cannot be achieved within 30 days, students and programs will be informed in writing of the delay and the final disposition will be achieved as quickly as possible.

The Dean’s decision is final in both program and Graduate School exclusions proceedings with the exception of academic dishonesty/misconduct findings where the student has 10 days to appeal the Graduate School Dean’s decision to the Provost.

5.3 Grievances

The Graduate School realizes that conflicts emerge occasionally, and they have devised the following guidelines for students for the chain of communication when dealing with different types of conflicts.

5.3.1 Conflicts not involving discrimination, harassment, or sexual harassment

When a conflict arises, whether with a student’s Academic Advisor, Dissertation Chair, a fellow student, or someone else in the University, TGS recommends that students first talk to their DGS (Director of Graduate Studies). One function of the DGS is to address student concerns and grievances and to be available when students are experiencing academic difficulty.
If the DGS has a conflict of interest, the Chair of the student’s department is the next resource. In the case that a student cannot or does not want to speak with anyone in the program or department, the next resource is The Graduate School. In TGS, the Associate Dean for Student Affairs, William J. Karpus, handles student conflict issues and works directly with the academic school Associate Deans and faculty, as needed.

DGSs, department chairs, TGS staff, and TGS Deans can treat students’ concerns confidentially unless the concerns involve sexual harassment, discrimination, or a safety issue, in which case they are obligated to report the issue to the appropriate University office.

5.3.2 Discrimination and Harassment
Harassment, whether verbal, physical, or visual, that is based on race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship, or veteran status is a form of discrimination. Discrimination and harassment complaints should be referred to the Office of Equal Opportunity and Access. For additional information, please see the University’s Nondiscrimination policy.

5.3.3 Sexual Harassment
It is the policy of Northwestern University that no member of the Northwestern community - students, faculty, administrators, staff, vendors, contractors, or third parties - may sexually harass any other member of the community. For information or assistance regarding a sexual harassment complaint, please see the University’s Sexual Harassment Policy.

5.3.4 Additional Resources
Counseling and Psychological Services (CAPS)
CAPS staff are available on both the Evanston and Chicago campuses. CAPS promises confidentiality unless there is a safety concern (see http://www.northwestern.edu/counseling/about-us/faqs.html)

Office of Student Conduct and Conflict Resolution for conflicts between students.

Ethicspoint can be used to report ethics violations, or violations of Northwestern policy.

5.3.5 Graduate Expectations Document
The Graduate Education Expectations Document has been ratified by The Graduate School, the Administrative Board, the Graduate Faculty, and the Graduate Leadership Council (GLC) as a guide for student-advisor relations. This best practices document is intended to be posted on all TGS academic program websites to inform students who experience conflicts of the procedures to follow to get these encounters resolved.

Since 2008, the GLC Annual Survey has found an increasing number of students experiencing student-advisor conflicts, which may be due in part to lack of communicated expectations. TGS and the GLC are confident that this document will help students and advisors create positive relationships that guide departments toward achieving academic success.

5.4 Professional Development and Journal Club
Conference, training and publication opportunities outside and within Northwestern will be collected through continuous monitoring by the administrative team and summarized on the program’s listserv.
Additionally, some of the collaborating departments and institutes have seminar series, such as the IPHAM Thursday Seminar Series (every Thursday from 12-1pm).

The HSIP administrative team also organizes:

- Monthly professional development meetings on a wide range of topics
- Monthly student journal club, which will allow students to take a leadership role by choosing an article and chairing the discussion. The journal club will also expose the students to areas of expertise beyond their own track and help them develop skills for multidisciplinary work in the future.

All HSIP students are expected to attend both of these monthly meetings. Absences should be reported to the HSIP Coordinator.

5.5 Academic Integrity
Academic integrity at Northwestern is based on a respect for individual achievement that lies at the heart of academic culture. Every faculty member and student, both graduate and undergraduate, belongs to a community of scholars where academic integrity is a fundamental commitment. Adherence to scholastic honesty and ethical conduct applies throughout all academic undertakings. Maintaining an environment of integrity and instilling in students a lifelong commitment to good scholarship is one of the most important goals of The Graduate School at Northwestern.

5.6 Academic Calendars
Students may access Academic Calendars online: http://www.registrar.northwestern.edu/calendars/index.html

5.7 WildCARD
WildCARD is the Northwestern University identification card. This card serves as your University ID card and your library card (and offers a variety of other features). You should get a WildCARD as soon as possible after you register for your first class.

To review other benefits offered by WildCARD, visit: http://www.univsvcs.northwestern.edu/WildCard. The WildCARD office on the Chicago campus is located in Abbott Hall, Room 100, 710 N. Lake Shore Drive. Office hours are 8:30 a.m. to 5:00 p.m. Monday through Friday.

5.8 Health and Dental Insurance
Check information with The Graduate School http://www.tgs.northwestern.edu/graduate-life/health-services/health-plan/index.html
- For students starting summer term, you must contact the health insurance office at phone (312) 503-1242 and ask for a form to be sent to you. You must submit a signed form to the office.
- For students starting fall term, new entering Full-Time graduate students must complete the online "Coverage Selection Form" (CSF) through CAESAR. The form is located at www.northwestern.edu/caesar and must be completed by the deadline (see website). Students who miss the deadline will automatically be enrolled in the University's health insurance plan. Billing for the university's health insurance plan will take place upon completion of registration. Once billed the program will pay 100% of the fee.
5.9 Student and Family Leave

A student who needs to take a leave from the university (general leave, medical leave, family leave, or childbirth accommodation) must request an official leave of absence. Students use the “Petition for Absence” form via “TGS Forms” in CAESAR to apply for a leave of absence, citing why leave is necessary. The form is reviewed by both the program and The Graduate School.

- No leave is granted for less than one quarter or more than one calendar year.
- If a student requests renewal of a leave of absence beyond one year, the student’s record will be reviewed to determine whether an extension of the leave will be approved.
- Any student who is granted a leave of absence must register for TGS 512 Continuous Registration for each Fall, Winter and Spring quarter the student is absent. All international students must consult with the International Office before applying for leave of absence.

A graduate student will, on request, be given a one-quarter leave of absence to give birth, to care for the newborn or mother, or to or adopt a child. Prior to the end of the one quarter the student may request a one-quarter extension. Deadlines for candidacy and degree completion will be extended by the length of the leave.

- Any student who is granted a family leave must register for TGS 512 Continuous Registration for each quarter the student is absent.
- Those students wishing to request accommodations provided by the Childbirth Accommodation Policy must specifically indicate when filing out the Petition for Absence that they wish to make use of the Childbirth Accommodation Policy.

International students must adhere to additional U.S. government requirements. Under SEVIS regulations, the mother may take medical leave authorized by a physician. Leaves for international students also must be authorized through the International Office.

5.10 NetID and Email

Your NetID is your electronic identity at Northwestern. Many systems and records are defined as services associated with your NetID, including:

- E-mail
- Online University directory
- NU Library online resources
- Blackboard and Canvas Course Management Systems
- Access to grades and transcripts
- Access to the Electronic Time Entry System (ETES)
- Access to the campus wireless network
- Off-campus access to the NU network

Most NetIDs have access to all these services, but some are restricted by school affiliation or the purpose of the NetID. To get your NetID, you must be in the University database (which means a NetID has been assigned to you). New students are entered into the database by the University Registrar. You must activate your NetID before you can use it. You will be notified when your NetID has been created and you can begin this process. Students will receive their NetID Activation Code from their school or the Admissions Office.

Email

The HSIP uses e-mail as their primary means of communication with students. Students must use their NetID to access a course’s Blackboard system, Canvas site, and/or evaluation system. If you prefer to
use a personal email account, you still need to activate your NetID and NU e-mail account, but you can choose to have your NU e-mail messages forwarded to your personal account. It is very important that your NetID and e-mail account are kept active so that you can receive pertinent information about the Program throughout your academic career at NU.

5.11 Parking and Transportation

Parking: Please refer to the website for more information:
http://www.northwestern.edu/uservices/transportation/parking/permits/index.html

Intercampus Shuttles
Northwestern University also has an intercampus shuttle system which links the Evanston and Chicago campuses. Though most of your classes will be on the Chicago campus, it is definitely worth it to take a trip to the beautiful and lush Evanston campus. There are also TGS events and workshops that will be available to you in Evanston.

The intercampus shuttle leaves from in front of the Ward Memorial Building (303 E. Chicago Avenue Chicago). You will need to show your WildCARD to board the shuttle. For schedules and the routes of other campus shuttles, go to
http://www.northwestern.edu/uservices/transportation/shuttles/index.html

Train Station Shuttles
Please refer to the website for more information:
http://www.northwestern.edu/uservices/transportation/shuttles/chicago/trainstation.html
Appendix A: Qualifying Exam Descriptions

A.1. Health Services and Outcomes Research

A.1.1 Track Specific Exam
The student will develop a systematic review or meta-analysis on an HSOR topic related to (but not identical to) his or her dissertation topic. The paper should be planned, developed, and formatted for an HSR-specific journal, such as Medical Care Research and Review. The expectation is that the final product will be publication-ready.

The student will submit 3 possible topics for the systematic review/meta-analysis to the committee, and the committee will chose the final topic.

A.1.2 Integrated Exam
The student will prepare a grant proposal that draws on knowledge across the tracks. The committee will prepare a Request for Proposal (RFP), and the student will be expected to respond within a specific timeframe, typically about 6 weeks.

An example RFP
The Centers for Medicare and Medicaid Services (CMS) recently launched the Bundled Payments for Care Improvement (BPCI) initiative, under which CMS will make a single, prospectively determined bundled payment to hospitals that would encompass all services furnished during the inpatient stay by the hospital, physicians, and other practitioners. Participants can select up to 48 different clinical condition episodes (http://innovation.cms.gov/initiatives/bundled-payments/). CMS is accepting proposals for an evaluation of the BPCI initiative.

The specific research questions have been deliberately left open to allow respondents flexibility in formulating their proposals, but results of the evaluation should be practical for policy-making and contribute to the literature. Some of the general aspects that might be addressed include, but are not limited to, the following:

- Impact on special populations
- Financial impact for providers and CMS
- Implementation assessment
- Role of local context in the success or failure of individual participants, and general facilitators and barriers to success
- Patient and provider satisfaction
- Replicability of results nationally

All proposals should include the following:
- Clarification of and rationale for research questions
- Conceptual framework (i.e., theories, bodies of knowledge and concepts) that informs the evaluation design
- Description of the research design and analysis, including all data sources, and measurement of key variables. Examples of draft data collection instruments are expected.
• Description of the potential impact of findings, including value of the information for various stakeholders
• A timeline of activities

Proposals should be prepared using the AHRQ RO-1 “Research Strategy” instructions (Instructions are below).

Proposals will be evaluated based on:
• Significance of the research questions
• Technical merit of the evaluation approach
• Potential for findings to produce actionable findings for policy makers
• Quality and clarity of the written work

Applicants should assume that CMS will commit as many resources as needed to support the evaluation. Applicants should also assume that the evaluation and launch of the BPCI will occur simultaneously. The BPCI initiative will run for 5 years and the evaluation for 7 years. Applicants should assume a one-year lag in access to administrative data (i.e., Medicare claims) and data collected directly from participating hospitals and physician groups.

AHRQ R01 Research Strategy

Organize the Research Strategy in the specified order and using the instructions provided below. Start each section with the appropriate section heading – Significance, Innovation, Approach. Use citations (where appropriate) in the Research Strategy section and provide the full reference in the Bibliography and References Cited section (Part I Section 4.4.9).

THE RESEARCH STRATEGY SHOULD BE 12 PAGES IN LENGTH (not counting references)

(a) Significance

• Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
• Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
• Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

(b) Innovation

• Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
• Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions.
• Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions.

(c) Approach

• Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Unless addressed separately the Resource Sharing Plan, attachment include how the data
will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.

- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.
- Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised. A full discussion on the use of select agents should appear in the Select Agent Research attachment, below.

If an applicant has multiple Specific Aims, then the applicant may address Significance, Innovation and Approach for each Specific Aim individually, or may address Significance, Innovation and Approach for all of the Specific Aims collectively.
A.2. Health & Biomedical Informatics

A.2.1 Track Specific Exam

Due to the breadth of informatics, the faculty concluded that it would be problematic for any single question to provide appropriate coverage of the domain.

The exam is divided into two periods: Prep period and Exam period.

**Prep Period:** Student, with input from the exam committee and other HBMI faculty, will identify an “Informatics Hot 100” list of papers and books. Student will have 1 month to finalize the list and 4 months to read the background material.

**Exam Period:** The student will be given four components that span the various domains of informatics. These will contain problems to solve (e.g. statistical analyses) and essay questions to answer. Students will have five days to complete the four components. The assumption is that each section will be no more than four pages.

A.2.2 Integrated Exam

The student will prepare a grant proposal that draws on knowledge across all HSIP tracks. The committee will prepare a Request for Proposal (RFP), and the student will be expected to respond within a specific timeframe, typically about 4 weeks. The proposal will follow standard NIH grant format with a 15-page length limit and standard PHS424 formatting. Student will submit a written document one week prior to a formal one-hour presentation of the proposal (mock site visit).

**An example RFP**

Develop a proposal for an informatics intervention that addresses the potential impact of genomic profile on how patients perceive the impact of clinical interventions on their quality of life. Therefore, the proposal must address phenotype/genotype correlations applied to Patient Reported Outcomes (PRO) Data.

The proposal should address the collection of genotypic and phenotypic data including PRO, integration of PRO and EHR data. Elements would include:

- Technical infrastructure
- Innovative data management and integration
- Genomic analysis

Proposals will be evaluated based on standard NIH review criteria.

- Significance of the research questions
- Innovation
- Approach
- Environment (discussion on critical environment factors)
- Quality and clarity of the written work
- Quality and clarity of the oral presentation
- Response to questions during the oral presentation.
A.3. Healthcare Quality and Patient Safety

A.3.1 Track Specific Exam: Quality/Safety Case Study

It is anticipated that this component of the Qualifying Exam will take approximately 3 months to complete.

Purpose
Describe/understand the full dynamics of a major institutional quality or safety program of improvement through the development of a case study. In developing the case study, the candidate will need to provide a description and critique of each of the steps involved in how the organization identified, assessed, and sought to address the quality or safety gap.

Choosing a Topic
The candidate will be asked to review a quality or safety program of improvement that was viewed as an important event for the associated health care organization. However, for the quality program or safety initiative to be accepted for a case study, the candidate will need to make a convincing justification of why study of this initiative would be important to other similar health care organizations and possibly have regional or national significance. The quality or safety issue being used as the basis for the case study cannot be a quality or safety project in which the student candidate was personally involved. (The final written product should be approximately 20 pages)

Description of Case Study: Key elements
- Background/Overview: A comprehensive review of the organizations perspective on the quality or safety gap at the start of the case timeline.
- The steps the institution went through to identify the nature and scope of the problem (use of a timeline format is suggested).
- Specific event(s) that initiated the organization to observe the quality or safety gap.
  - For each of the following, the case study should include
  - Description of what was done
  - A critique of key decisions
  - Description of lessons learned
- The Scope (Department, Unit, institution, Multiple institutions, Policy)
- The Team, which should include:
  - Strategic decisions for engagement
  - Who was involved on the team and their roles and rationale
- What will address these challenges- The process for the determination of the potential solution
- The intervention(s) to be implemented
- Measures- Proximal (to ensure intervention is implemented as planned) and outcomes (to assess change)
- Methods for implementation- Action plans, timing
- Sustainability and spread
- Key barriers
- Change in target measures
- Key features of success
• Summary of critique of key decisions, lessons learned and features of success

**Research Methods**
Identifying and implementing an intervention to solve a quality or safety gap at a single healthcare organization could represent a generalizable solution to a problem. However, due to many unique environmental issues within a single institution, it is possible that an intervention designed for a single institution could have limits (threats) to generalizability. For this portion of the qualifying exam, the candidate is asked to describe the experimental design and methods by which the intervention identified and method for implementation (action plan) could be assessed for generalizability to provide value to a larger number of healthcare organizations. (The final written product should be a maximum of 5 pages)

- Research Design
- Study Population
- Data Collection
- Analyses
- Criteria
- Tied to literature
- Tied to national policy

**A.3.2 Integrated Exam**
The student will develop a thorough literature review on a topic related to (but not identical to) his or her dissertation topic. Student should use the planning form to guide the process of developing the proposal for the integrated exam [http://www.feinberg.northwestern.edu/sites/cehs/phd-program/current-students.html](http://www.feinberg.northwestern.edu/sites/cehs/phd-program/current-students.html)
Appendix B: Annual Assessment of PhD Student Progress

Health Sciences Integrated Program
Northwestern University

Please provide dates (month & year) on which the following milestones were completed.

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter Matriculated</td>
<td></td>
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<tr>
<td>Program plan approved</td>
<td></td>
</tr>
<tr>
<td>Quarter in which completed required courses</td>
<td></td>
</tr>
<tr>
<td>Date of first Examination Committee meeting</td>
<td></td>
</tr>
<tr>
<td>Quarter in which fulfilled teaching requirement</td>
<td></td>
</tr>
<tr>
<td>Date(s) of written Qualifying Examination</td>
<td></td>
</tr>
<tr>
<td>Date of oral Qualifying Examination</td>
<td></td>
</tr>
<tr>
<td>Date passed Qualifying Examination</td>
<td></td>
</tr>
<tr>
<td>Date Dissertation Proposal approved</td>
<td></td>
</tr>
<tr>
<td>Date of Dissertation Proposal Defense</td>
<td></td>
</tr>
<tr>
<td>Date of Dissertation Defense</td>
<td></td>
</tr>
<tr>
<td>Date of Most Recent IRB training</td>
<td></td>
</tr>
<tr>
<td>Quarter(s) Leave of Absence taken</td>
<td></td>
</tr>
<tr>
<td>Provide comments on leave:</td>
<td></td>
</tr>
</tbody>
</table>
Please answer the following questions. Please limit your responses to this page only.

What is your career goal?

What are your areas of research interest?

What is your dissertation topic? Please describe it briefly as best you can.
Both faculty and student are required to make notes under Commentary and Plans.
Note: If you answer ‘No’ to any of the following but completed the previous milestone, then commentary on progress is mandatory.

<table>
<thead>
<tr>
<th>Academic Milestones</th>
<th>Time Frame (full-time students)</th>
<th>Evidence of Progress</th>
<th>Progress</th>
<th>Commentary on Progress</th>
<th>Plans for the coming year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of program plan</td>
<td>Second Quarter of coursework</td>
<td>a) Initial submission submitted</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prior to prelim exam</td>
<td>b) Revisions on record as changes approved</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion of proposed/required course work</td>
<td>Within 2 years</td>
<td>Take number of credits consistent with being FT</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Completed within time frame proposed</td>
<td>No</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Incompletes resolved within one Quarter</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Taking advanced level courses</td>
<td>No</td>
<td></td>
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</tr>
<tr>
<td>Completion of Qualifying Examination</td>
<td>A student must be admitted to candidacy by the end of the third year of study</td>
<td>Director of Graduate Studies files PhD Qualifying Exam form online</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion of Proposal Defense</td>
<td>Students must complete their Prospectus(proposal of dissertation topic) before the end of fourth year.</td>
<td>a) Appoint dissertation committee</td>
<td>Yes</td>
<td></td>
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<td></td>
<td></td>
<td>b) Hold (first) meeting within 2 quarters of passing Prelim Exam</td>
<td>No</td>
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<td></td>
<td></td>
<td>c) Provides advisor with written progress</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Teaching experience</td>
<td>By end of quarter in which defending proposal</td>
<td>Teach in accordance with requirements for doctoral students. (Student must complete this section of Program Plan form and resubmit).</td>
<td>Yes</td>
<td>No</td>
<td></td>
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</tr>
<tr>
<td>Conduct Dissertation Research</td>
<td>Ongoing between Proposal Defense and Dissertation Defense</td>
<td></td>
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</tr>
</tbody>
</table>
  a) Meet at least once per quarter with Dissertation Chair  
  b) Produce written progress on Dissertation each quarter  
  c) Communicate with committee members at least once per academic year  
  d) Receive IRB approval within 2 quarters of passing Proposal Defense | Yes | No |
| Completion of Dissertation Defense | Degree deadline - students have 9 years from matriculation to complete the PhD degree. Only rarely under extenuating circumstances will students be granted permission to continue beyond 9 years. |  
  a) Students who are completing their degree will complete the following forms:  
  (1) Application for Degree via TGS Forms in CAESAR;  
  (2) Final Exam Form via TGS Forms in CAESAR which will be approved by the department  
  (3) NRC Survey of Earned Doctorates;  
  (4) Online submission of dissertation via UMI ProQuest  
  b) Maintain IRB approval  
  b) Successfully defend dissertation | Yes | No |
<table>
<thead>
<tr>
<th>Research Milestones</th>
<th>Time Frame</th>
<th>Evidence of Progress</th>
<th>Progress</th>
<th>Commentary on Progress</th>
<th>Plans for the next year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participates in research</td>
<td>Throughout program</td>
<td>a) Work as RA on academic research project</td>
<td>Yes/No</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>b) Additional research experience.</td>
<td>Yes/No</td>
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<tr>
<td></td>
<td></td>
<td>c) Participates in writing grant applications</td>
<td>Yes/No</td>
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<tr>
<td></td>
<td></td>
<td>d) Participates in writing grant progress reports</td>
<td>Yes/No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Takes research initiative</td>
<td>Throughout program</td>
<td>a) Seeks and applies for dissertation funding</td>
<td>Yes/No</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>b) Has initiated any research not specific to dissertation</td>
<td>Yes/No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROFESSIONAL MILESTONES</td>
<td>Time Frame</td>
<td>Evidence of Progress</td>
<td>Progress</td>
<td>Commentary on Progress</td>
<td>Plans for the coming year</td>
</tr>
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</tbody>
</table>
| Author manuscript in peer review journal (student please attach an abstract) | By prelim defense for (a) Before defend dissertation, to have a minimum of 3 publications | a) Able to identify one paper as possible manuscript  
b) Participate in manuscript preparation as non-primary author for scholarly journal  
c) Prepare first authored manuscript for scholarly journal  
d) Submit at least one first authored manuscript to scholarly journal  
e) Submit at least two additional co-authored manuscripts to scholarly journals  
f) Have accepted manuscript to newsletter or regional journal | Yes/No | | |
| Primary presenter at conference of own material (student please attach an abstract) | Throughout program | a) Regional presentation  
b) National poster presentation  
c) National speaker presentation  
d) International presentation | Yes/No | | |
| Co-Presenter at conference | Yearly between prelim and dissertation defense | a) Regional presentation  
b) National poster presentation  
c) National speaker presentation | Yes/No | | |
<table>
<thead>
<tr>
<th>Service Type</th>
<th>Activity Duration</th>
<th>Activities</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community service</td>
<td>Throughout program</td>
<td>a) Serve on community agency board</td>
<td>Yes/No</td>
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<tr>
<td></td>
<td></td>
<td>b) Volunteer at community agency</td>
<td>Yes/No</td>
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<td></td>
<td></td>
<td>c) Provide consultation to community agency</td>
<td>Yes/No</td>
</tr>
<tr>
<td>University service</td>
<td>Throughout program</td>
<td>a) Serve on University committee</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Serve on Feinberg or HSIP committee</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Professional service</td>
<td>Throughout program</td>
<td>a) Serve as reviewer for conference presentations</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Other, ___________________________</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>
Appendix C: PhD Program Plan Form

<table>
<thead>
<tr>
<th>Program plan (Check one)</th>
</tr>
</thead>
</table>
| Initial submission date | ✔ Initial  
| Revision date |  
| Student number |  
| Student Name |  
| Advisor Name |  
| Year and term matriculated |  
| Track (pick one from drop down) | HBMI  
| Prior Master’s earned |  
| Type/Discipline | ✔ Yes  
| Institution |  
| Year of completion |  

<table>
<thead>
<tr>
<th>COURSE PLAN</th>
<th>Course #</th>
<th>Course title</th>
<th>Term/year</th>
<th>Credit*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HSIP CORE COURSES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdisciplinary Health Sciences Doctoral Colloquium</td>
<td>HSIP 400</td>
<td>Interdisciplinary Health Sciences Doctoral Colloquium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistical Methodology</td>
<td></td>
<td>Introduction to Biostatistics</td>
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<tr>
<td>Research Design</td>
<td></td>
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<tr>
<td>Measurement and Outcomes</td>
<td>HSIP 401</td>
<td>Introduction to Health Measurement Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>PH 445</td>
<td></td>
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<tr>
<td>Ethics</td>
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</tbody>
</table>

*No credit is awarded for waived courses; these courses should be listed in the appropriate section with the word “waived” in credit column.
<table>
<thead>
<tr>
<th>II. TRACK REQUIREMENTS</th>
<th>Course #</th>
<th>Course title</th>
<th>Term/ year</th>
<th>Credit *</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

SUB-TOTAL CREDITS 0

*No credit is awarded for waived courses; these courses should be listed in the appropriate section with the word “waived” in credit column.

<table>
<thead>
<tr>
<th>III. ELECTIVES</th>
<th>Course #</th>
<th>Course title</th>
<th>Term/ year</th>
<th>Credit *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose three or more</td>
<td></td>
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</tbody>
</table>

SUB-TOTAL CREDITS 0

| | HSIP CORE SUB-TOTAL 0 |
| | TRACK REQUIREMENTS SUB-TOTAL 0 |
| | ELECTIVES SUB-TOTAL 0 |
| | TOTAL CREDITS* 0 |

*Minimum of 9 graded courses, if prior graduate work allows for waiving of some requirements
<table>
<thead>
<tr>
<th>IV. PHD RESEARCH- HSIP 590</th>
<th>Term/year</th>
<th>Credit(s)</th>
</tr>
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<tbody>
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</table>

**Some notes regarding coursework and registration**

Only courses listed in CAESAR with a career of The Graduate School (TGS) are authorized for graduate credit and must be used to fulfill graduate degree requirements.

To take courses for credit through CIC Traveling Scholars program or The Chicago Metropolitan Exchange Program please refer to http://www.tgs.northwestern.edu/academics/academic-services/phd/traveling/. Approval with HSIP Associate Director is required prior to confirming non-NU courses.

A student who enters a doctoral program must successfully complete at least nine graded courses, preferably in the first year of study. A “B” average must be maintained in these courses.

Two types of advanced courses, 499 Independent Study (or 499 Projects) and 590 Research, are applicable to residency credit but bear restrictions concerning either when they may be taken during a student's academic career or total allowable credits:

- **Program courses identified as 590 Research**, may be taken for one, two, three, or four course units per quarter. Generally, this registration is not available to students until a core of basic courses has been completed. All 590 Research registration must be taken on a P/N basis. A grade of K, not a Y, is given when the work for 590 is still in progress. The one-year deadline to make up an incomplete does not apply to the K grade. All K grades must be changed by the time the dissertation is submitted to TGS.

- **499 Independent Study** - A first-year graduate student may take no more than one-half of the total credits in any one quarter in 499 Independent Study or 499 Projects.
Funded PhD students who have reached advanced status (quarters nine and above) are allowed to take additional course units as approved by their program of study. No additional tuition will be charged (see the tuition and fees page for details, http://www.tgs.northwestern.edu/financial-aid/information/tuition-fees/index.html)

- Students in quarters nine through twelve may have additional course requirements to complete in their program and may register for up to four units. Students who register for less than three units must also register for TGS 500. All course requirements for a doctoral program must be completed by the end of the twelfth quarter.

- Students in quarters thirteen and above may register for non-required coursework in addition to TGS 500 if the courses are related to the student’s area of study.

V. TRAINING IN HUMAN RESEARCH SUBJECTS PROTECTION

<table>
<thead>
<tr>
<th>Type of Training</th>
<th>Title of Training</th>
<th>Date Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Training in Human Subject Protections</td>
<td>(either the class session or online training may be taken to satisfy the requirements)</td>
<td></td>
</tr>
</tbody>
</table>

VI. TEACHING EXPERIENCE

| Date of anticipated teaching experience | |
|------------------------------------------| |

Description of proposed experience (Note: Program plan must be refiled with HSIP Associate Director when this section is completed.)

VII. QUALIFYING EXAMS

| Term/year | |
|-----------| |
| Initial planning | |
| Planning form to be submitted | |
| Completion/grade report to be submitted | |
VIII. DISSERTATION PROPOSAL DEFENSE

<table>
<thead>
<tr>
<th>Term/year</th>
<th>Initial planning</th>
<th>Planning form to be submitted</th>
<th>Completion/grade report to be submitted</th>
</tr>
</thead>
</table>

IX. DISSERTATION DEFENSE

<table>
<thead>
<tr>
<th>Term/year</th>
<th>Initial planning</th>
<th>Planning form to be submitted</th>
<th>Completion/grade report to be submitted</th>
</tr>
</thead>
</table>

X. SIGNATURES

In signing this proposal, the student, the Track Director, and the HSIP Director acknowledge that the course of study outlined will comprise the graduation requirements for this student. A revised program plan must be submitted to the Office of Student Affairs whenever major changes in the program of study are made (for example, a change in specialization, concentration or division).

Students using human subjects in any research must have approval from the Institutional Review Board or one of its approved committees before they begin data collection. See Student Handbook for details.

Student______________________________
Date______________________________
Advisor______________________________
Date______________________________
Track Director__________________________ Date______________________________
HSIP Director__________________________ Date______________________________