Qualifying Examinations Policy
Department of BioHealth Informatics

Last revised 10/1/17

### Approvals

<table>
<thead>
<tr>
<th>Approver</th>
<th>Approved-on date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health informatics program</td>
<td>9/18</td>
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<td>Health informatics program director</td>
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<td>Bioinformatics program</td>
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<td>Bioinformatics program director</td>
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<tr>
<td>BioHealth informatics department chair</td>
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The Qualifying Examination

1. Overview
The qualifying examination assesses students’ readiness to begin the next step of their education and career, which include the successful conduct of independent research in the discipline and other scholarly contributions to their discipline. Students will be assessed on their competencies in knowledge and skills, written and oral communication, critical thinking and creative problem solving, and professional conduct. Assessments are performed on the performance of written and oral examination components.

2. Requirements for examinations
In the School of Informatics and Computing, the qualifying examination is usually taken after the student completes their second year in the PhD program.

Students must have completed course work as defined by the PhD Plan of Study. It is very important that students work with their advisor and/or program director to work out a course schedule to make sure they complete all necessary courses in preparation for the written qualifying exam.

However, an extension of one year may be granted under the right circumstances.

2.1. Requests for an extension: An extension of no more than 1 year may be requested if sufficient evidence of need is provided. Requests for extension must be made in the second year before the Qualifying Examination proposal deadline, and must follow the process described in Section 2.2.

Reasons for an extension may include failure to complete core courses due to medical disruption, an unavoidable failure to complete necessary core courses in the program, completion of a semester or year abroad in the first two years, or advisor assessment of insufficient readiness; however, program faculty, program director, or department chair may deny the request for extension.

Note that delaying the qualifying examination may delay progress in the program, causing the student to incur additional semesters in the doctoral program without financial support. Additionally, the student may lose financial support during the delay. Students should consider these risks compared to the risk of failing the examination, the loss of financial support as a result of failing, and dismissal from the program should the student fail the examination re-take.

2.2. Process for extensions: Students must submit a written request, following this process:
- The written request explains the reason for requesting an extension.
- The student delivers the written request to the program director in a timely manner. If the program director is unavailable, the request is sent to the department chair.
- It is recommended that extension requests are submitted 3 months in advance of the qualifying examination proposal due date.
- The student’s primary advisor signs the request indicating acknowledgment and support. Alternatively, the advisor submits a signed letter acknowledging the student’s request and explaining their support or opposition to the request.
Requests approved by the program director are delivered to the department chair.

Requests approved by the department chair are delivered to the School of Informatics and Computing graduate services office, to be filed.

A denial of request may be rendered. Students will be informed of the denial in a timely manner.

3. Procedure for examinations

3.1. Timing. Qualifying examinations are typically administered in August of each year before the start of the fall semester. Retake examination scheduling is described in section 3.8.

3.2. Qualifying examination committee. At their discretion or by request of their advisors, students may form a qualifying exam committee composed of at least three faculty members with graduate faculty status. The committee must include the student’s primary advisor and should have at least two faculty members from the department.

This committee will be responsible for developing and assessing the research area-specific written examination and administering the oral portion of the qualifying exam. Committee members are expected to develop assessments and grade examinations in a timely manner. The program director is responsible for communicating in advance with the committee and ensuring they are fulfilling their duties.

3.2.a. Alternative formation of the qualifying examination committee. Should, for any reason, a qualifying exam committee not be formed as above, the examination proposal and examination will be assessed by a committee of graduate faculty to be formed by the program faculty.

3.3. Qualifying Examination Proposal. Students will prepare a Qualifying Examination Proposal, due by the end of finals week of the preceding semester. (Thus, if the examination is administered in August, the proposal is due on the last day of finals for the preceding spring semester, as scheduled on the Academic Calendar.) The proposal will have three components, for each written component of the qualifying examination. See Section 6 for a recommended outline of the Qualifying Examination Proposal.

3.4. Review of the Qualifying Examination Proposal. The submitted Qualifying Examination Proposal will be reviewed by program faculty, program director, and/or department chair. A proposal that is incomplete or not sufficiently detailed may be returned to the student or rejected, potentially resulting in delays to the student’s preparation. Other reasons for returning or a proposal for revision include failure to follow requirements or procedures, a proposed core deliverable that is inadequately rigorous or scholarly, or a list of readings that is misaligned with the student’s or program’s focus area(s).

3.4.1. Rejected proposals. If a proposal is rejected for any reason, program faculty will decide whether the student can submit a revision and how long the student will have to do so (usually two weeks or less). If the revised proposal is rejected, the student will not be able to take the examination that year and may incur penalties including the loss of funding support.

3.5. Post-approval. Once it is approved, the proposal represents an agreement between the student and the program on the contents of the examination. Once approved, the
student is expected to begin work on the learner’s synthesis, core deliverable, and readings. See Table A for an overview and Sections 4.1 – 4.3 for further detail.

3.6. **Oral examination.** An oral examination will be administered after completion of the written examination. The oral examination is described in Section 4.4.

Table A. Written Examination Overview and Proposal Requirements
(see Sections 4.1 – 4.3 for further detail)

<table>
<thead>
<tr>
<th>Part A. Learner’s synthesis.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner’s synthesis is a synthesis of academic courses in or related to the discipline, from the learner’s perspective. In the Qualifying Examination Proposal, students must indicate at least 5 courses they will include in the synthesis. Courses must be graduate-level courses completed with a passing grade. At least 80% of the courses must be core courses in the doctoral program, unless otherwise approved (see Section 4.1.a).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part B. Core deliverable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The core deliverable is a product prepared by the student within one or more core courses satisfactorily completed by the student during their graduate studies. The deliverable may build upon but must not include any completed product from prior in-class or out-of-class work. The proposal must include a one-page précis (executive summary) of the proposed deliverable, indicating: a) the core course area(s) covered; b) the deliverable’s format, objective, and structural components (or outline); and c) plan of work for preparing the deliverable.</td>
</tr>
</tbody>
</table>

**Program-specific options.**
- The graduate degree program will select the acceptable core deliverable formats and will make these known to students on a year-by-year basis. A list of potential formats is provided below.
- An alternative deliverable format may be proposed by the student, with permission from their advisor, with proper justification for the request.
- The program may impose a timed, written test-based version of the deliverable. In this case, the program essentially allows only one format for the core deliverable: a timed, written, test-based examination.
- Each program will communicate to prospective examinees the permitted formats in advance of the qualifying examination proposal due date.

<table>
<thead>
<tr>
<th>Part C. Research area exam.</th>
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</thead>
<tbody>
<tr>
<td>The research area exam is a test of the student’s depth of knowledge and research skills in the student’s area of specialization. The area of specialization is chosen by the student, in consultation with their advisor, but must be related to their field of study or research discipline. It does not need to be, but may be, related to the student’s coursework. In the Qualifying Examination Proposal, students must provide: a) a proposed title for their area of specialization, although this may have multiple related parts; and b) a reading list of at least 30 books, journal articles, book chapters, conference papers, or other scholarly works on the proposed area of specialization. The student should try to select a mix of readings, including ones fundamental to the area, ones representing the latest research or methods, and ones that will enable a deep understanding of the area. This list of readings should be formatted in a common citation style and may be placed in categories; annotation of the references is not expected but may be provided at the student’s discretion.</td>
</tr>
</tbody>
</table>
3.7. **Due dates.** Due dates for each of the three parts of the examination and the oral examination are provided in Table B below.

3.8. **Failure of the exam and retake exams.** A student who fails any part of the written qualifying examination is allowed one retake examination within the next 3 months. A student who fails the written retake examination or the oral examination will be required to either withdraw from the PhD program or downgrade to the Master’s program. The retake examination will have the same format as the initial qualifying examination. Students who fail any part of the qualifying examination may have their financial support suspended until passing the retake examination.

Table B. Due dates*

<table>
<thead>
<tr>
<th></th>
<th>Proposal due</th>
<th>When due</th>
<th>Retake due</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A (written):</td>
<td>Last day of finals week in the semester</td>
<td>August before start of fall semester</td>
<td>Due no later than last week of classes of fall semester</td>
<td>Specified by program</td>
</tr>
<tr>
<td>Learner’s synthesis.</td>
<td>immediately preceding the examination (per official academic calendar)</td>
<td>(exact date specified each year)</td>
<td></td>
<td>Per approved deliverable format</td>
</tr>
<tr>
<td>Part B (written):</td>
<td></td>
<td></td>
<td></td>
<td>Written document.</td>
</tr>
<tr>
<td>Core deliverable.</td>
<td></td>
<td></td>
<td></td>
<td>Timing is specified by program</td>
</tr>
<tr>
<td>Part C (written):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research area exam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Following completion and grading of written Parts A, B, and C</td>
<td>No retake option</td>
<td>Oral in-person examination with student presentation and question-and-answer</td>
</tr>
</tbody>
</table>

*Please see Appendix B for program-specific requirements and dates.

4. Examination Components

4.1. **Part A written exam. Learner’s synthesis.** The learner’s synthesis is a synthesis of academic courses in or related to the discipline, from the learner’s perspective. The learner’s synthesis can be thought of as an educated personal statement on one’s learning across major courses in their discipline. It should combine evidence of both personal immersion in and deep understanding of the topics. In this document, the student must:

1) **Interpret.** The student will briefly describe their interpretation of each topic area. Make sure to indicate which topic areas are being discussed.

2) **Reflect.** The student will describe and evaluate their personal contribution in each topic area through their coursework (e.g., papers, assignments) or outside of class (e.g., publications, presentations, research) as a learner and emerging scholar.

3) **Synthesize.** The student will combine and connect the chosen topic areas to one another, demonstrating an understanding of the connections between the areas and the ability to apply concepts from one area to another or concepts from multiple areas to one or more domains. In this section, merely listing or serially presenting concepts is not sufficient. The synthesis should contain critical analysis and a...
discussion of important questions (or knowledge gaps) in the chosen topic areas. The synthesis should demonstrate depth of understanding, which can be demonstrated in several ways, including by discussing a specific issue or application in depth. Merely stating accepted concepts or conclusions from the field (e.g., decision support systems should be better designed) is not sufficient to demonstrate depth of understanding.

The learner’s synthesis must specifically address at least 5 courses representing topic areas. At least 80% of these courses should be core courses in the program. The student is encouraged to incorporate readings and insights learned from outside of the specific courses in order to demonstrate their knowledge.

4.1.a. **Alternative learner’s synthesis policy.** Any deviations from above requirements must be formally requested in the Qualifying Examination Proposal with advisor approval and explanation, as necessary. The program qualifying examination committee may deny such a deviation on multiple grounds, including inadequate explanation. Any deviation from the requirements not approved by the qualifying examination committee may result in failure of Part A of the written exam.

4.2. **Part B written exam. Core deliverable.** The core deliverable is a product prepared by the student within one or more core courses. The deliverable may build upon but must not include any completed product from prior in-class or out-of-class work. The core deliverable is judged based on the competencies applicable to the student. Therefore, evaluation may be calibrated to the student’s professional aspirations, for example, research vs. teaching vs. industry. The core deliverable format is proposed by the student from the options offered by the program that year. For each format, a separate document specifies the minimal requirements and competency-based expectations, which serve as evaluation criteria. Example formats are listed below.

- **Scholarly literature review.** This may be a systematic review, narrative review, or meta-analysis using standard scholarly conventions, on a specific topic.
- **Method development.** This would include full specifications and demonstration of a new method.
- **Teaching workshop.** This would include a formatted workshop proposal, curriculum, audiovisual materials, testing materials, etc. The student may be required to complete a teaching demonstration using workshop materials.
- **Curriculum development.** This would include the creation of either a course or series of courses, along with a full set of syllabi, assessments, teaching materials and exercises, and teaching philosophy. The student may be required to complete a teaching demonstration using curricular materials.
- **Service learning project.** This would include performance of a new service learning project in cooperation with a community or research partner, with a professional project report. The student may be required to present the project to a diverse professional or community audience.
- **Peer review.** The student would peer-review either three journal paper manuscripts for top academic journals, two grant submissions, or one journal paper and one grant submission. The student will provide full, written critiques of each.
- **Written, timed test.** Questions are prepared and provided to the student during a timed session. The deliverable is a set of written answers in response to prompts.
4.2.a. Alternative core deliverable policy. The program provides the student with a list of acceptable formats, including but not restricted to those listed above. An alternative deliverable format may be proposed by the student, with permission from their advisor, with proper justification for the request. The program qualifying examination committee may deny such a deviation on multiple grounds, including inadequate explanation or inadequate rigor. Any deviation from the requirements not approved by the qualifying examination committee may result in failure of Part B of the written exam.

4.3. Part C written exam. Research area exam. The research area exam is a test of the student’s depth of knowledge and research skills in the student’s area of specialization. Students will complete a written document based on a prompt related to their approved reading list. For example, the student may be prompted to prepare a research grant proposal to address a knowledge gap in their chosen area(s) of specialization. The written exam will be prepared over a period of time specified by the program and in the format indicated in the prompt. For example, for a prompt requiring a research proposal, the prompt may specify that the student follow an NIH 6-page format (6 pages plus specific aims), an NSF Small research grant format, or a format for a granting agency in the student’s discipline.

4.3.a. Alternative research area exam policy. It is expected that students will not deviate from the research area exam policy. However, any deviation from the requirements must be proposed by the student, with permission from their advisor, with proper justification for the request. The program qualifying examination committee may deny such a deviation on multiple grounds, including inadequate explanation or inadequate rigor. Any deviation from the requirements not approved by the qualifying examination committee may result in failure of Part C of the written exam.

4.4. Oral examination. The purpose of the oral examination is to assess the student’s overall ability to articulate reflective, critical and in-depth responses on the core topics of the discipline and in their area of specialization. The oral exam also provides an opportunity for the student to provide more in-depth explanation and defense of Parts A, B, and C of the written examination. Only those students who will successfully pass the written exam will be scheduled for an oral exam. The exam will be set in a private scheduled meeting that will last approximately one hour for each student.

The student’s qualifying examination committee or program faculty, whichever is applicable, will set and attend the oral examination. They will ask questions and evaluate the student’s responses. They may request that the student provide a presentation. Another faculty member may replace a member of the examination committee. Up to two additional faculty members or outside experts may be invited to attend the examination, at the discretion of program faculty.

A student who fails the oral examination cannot do a retake exam.
5. Evaluation criteria

5.1. Evaluation criteria for Part A of the written exam
- Did the student follow the directions for completing the learner’s synthesis? (e.g., student selected from an appropriate list of academic courses, student selected an appropriate number of courses for the synthesis)
- Did the student correctly interpret each covered topic area? Did the student demonstrate an understanding of the topic areas?
- Did the student connect each topic area and related coursework to their own personal in-class and out-of-classroom contributions? Did the student evaluate their contributions in the area? Does the student demonstrate evidence of scholarly engagement with the topic area? Did the student provide sufficient evidence to judge engagement?
- Did the student combine and connect the chosen topic areas to one another? Did the student demonstrate an understanding of the connections between topic areas? Did the student demonstrate the ability to apply the topic area to specific domains? Did the student demonstrate critical analysis? Did the student identify important questions and knowledge gaps in the topic areas?

5.2. Evaluation criteria for Part B of the written exam
Evaluation for this part is format-specific. Faculty will prepare criteria for each allowable format.
5.3. Evaluation criteria for Part C of the written exam

<table>
<thead>
<tr>
<th>Knowledge and skills</th>
<th>Expectation</th>
<th>Does not meet expectations (unacceptable)</th>
<th>Meets expectations (acceptable)</th>
<th>Exceeds expectations (outstanding)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature review</td>
<td>Demonstrates comprehensive knowledge of current research in field</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothesis/objectives</td>
<td>Generates viable research question and a testable hypothesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research methods</td>
<td>Applies appropriate research methods to address hypothesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>Proposal is clearly written and communicates high level material well with the reader</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of data</td>
<td>Analyses relate to conceptual framework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpretation of results</td>
<td>Interpretation justified, not over or under-drawn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusions</td>
<td>Justified, based on appropriate statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td></td>
<td></td>
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<tr>
<td>Appropriate certifications</td>
<td>Biosafety, IRB, IACUC, etc protocols documented and understood</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ethical and responsible conduct of research</td>
<td>Appropriate consideration of research ethics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of original work</td>
<td>Literature search supports that research is original</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate citations</td>
<td>No evidence of plagiarism</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
## 5.4. Evaluation criteria for Oral examination

<table>
<thead>
<tr>
<th>Knowledge and skills</th>
<th>Expectation</th>
<th>Does not meet expectations (unacceptable)</th>
<th>Meets expectations (acceptable)</th>
<th>Exceeds expectations (outstanding)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General principles</td>
<td>Demonstrates comprehensive knowledge of <em>program- and discipline-specific</em> concepts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literature review</td>
<td>Demonstrates comprehensive knowledge of current research in field</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothesis/objectives</td>
<td>Able to clearly defend the hypothesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research methods</td>
<td>Applies appropriate research methods to address hypothesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research methods</td>
<td>Demonstrates a clear understanding of the methodology and the ability to troubleshoot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Oral explanations are clear and to the point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking</td>
<td>Reasoning skills</td>
<td>Demonstrates the ability to reason through hypothetical problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of data</td>
<td>Analyses relate to conceptual framework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpretation of results</td>
<td>Interpretation justified, not over or under-drawn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration of findings into the current 'state' of the field</td>
<td>Students are capable of identifying how their results integrate into the field and how they move the field forward</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusions</td>
<td>Justified, based on appropriate statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Recommended Qualifying Examination Proposal Outline

- **Student information**
  - Name
  - Date
  - Program
  - Minor
  - Month and year of examination
  - Primary advisor(s)

- **Proposal**
  NOTE: for additional requirements, see Table A in Section 3;
  NOTE: deviations or alternative examination proposals must follow the policies described in Section 4 and must be requested in this document or else will not be considered

  1. **List of at least 5 courses to be included in the Learner’s Synthesis**
     (note at least 80% of these courses should be core courses)
  2. **Title and proposal for the Core Deliverable**
     (the proposal should be no more than one single-spaced page but should have sufficient detail to judge the proposed core deliverable)
  3. **Title of specialization area & formatted reading list of at least 30 items for the Research Area Exam**
     (this list may be divided in sections but students are encouraged to select topic areas or domains that can be integrated, e.g., in a single grant proposal)

- **Optional statement from advisor or chair (with advisor/chair signature)**

- **Please include the following statement:**
  “By submitting and signing this proposal, I have followed the requirements provided in the qualifying examination document. I understand failure to follow these requirements may result in this proposal being rejected and having to submit a new or revised proposal. Furthermore, I agree to deliver by the agreed-upon due dates the proposed learner’s synthesis, core deliverable, and research area exam. I understand my proposal may not be accepted as submitted; if so, I will revise and resubmit the proposal as many times as necessary, until it is accepted, at which time the accepted proposal will serve as a contract with the program to deliver the proposed learner’s synthesis, core deliverable, and research area exam. I agree to attend a scheduled oral examination after completion of the written portion of the exam. I understand failure to accord with this agreement may result in failure of the qualifying examination and dismissal from the program.”

- **Student signature, attesting to the above**
Appendix A. Principles of Graduate and Professional Learning

*Demonstrate the knowledge and skills necessary to identify and conduct original research in their discipline

Method of acquisition: Didactic course work, journal clubs, attendance at research seminars, direct mentoring by faculty, studying grant proposals

Assessment of learning: Grades in course work, ability to pass cumulative preliminary examinations in the field, ability to pass the oral and written qualifying examination, direct laboratory assessment by the research mentor, direct assessment of progress by the research committee for the dissertation

*Communicate effectively high level information in their discipline

Method of acquisition: Attendance required at seminars by faculty and peers, presentation at informal laboratory meetings and at formal seminars, mentored writing of grant proposals and manuscripts

Assessment of learning: Successful completion of the oral and written portions of the qualifying examinations, grades on formal seminar presentations based on outcomes rubrics, publication of manuscripts, awarding of grants

*Think critically and creatively to solve problems in their discipline

Method of acquisition: Attendance required at seminars by faculty and peers, presentation at informal laboratory meetings and at formal seminars, writing pre-proposal for dissertation, writing dissertation proposal

Assessment of learning: Grades on formal seminar presentations based on outcomes rubrics, direct assessment by faculty on pre-proposal and dissertation proposal, publication of research manuscripts, success in getting grant proposals funded.

*Conduct research in an ethical and responsible manner

Method of acquisition: Required classes in research ethics, modeling of appropriate behavior in seminars by faculty and peers, direct mentoring by research director, mentoring by the dissertation research committee

Assessment of learning: Grades in ethics classes based on outcomes rubrics, direct observation of data handling by research mentor, direct oversight by dissertation research committee on issues of research compliance and ethics
Appendix B. Program-specific due dates and format requirements

Health Informatics program

Written Part A and Part B.

**Format:** Take-home, to be prepared by the student and submitted to the faculty.

**Start of exam:** Once the proposal is approved.

**Exam due on:** Usually about 2 weeks before the start of classes for next semester.

(For example, if the proposal is submitted in May 2018 and approved June 2018, Parts A and B will be due August 2018.

If the proposal is submitted in February 2018 and approved May 2018, Parts A and B will be due August 2018.)

Written Part C.

**Format:** Take-home timed examination, to be prepared by the student and submitted to the faculty. Students will have approximately 1 week to complete this part of the examination.

**Start of exam:** After the proposal is approved and starting the day the Part C examination question is delivered to the student, usually the first week of August.

**Exam due on:** Usually within 1 full week (7 days). A specific due date will be formally assigned by the program faculty.

Oral examination.

**Format:** In-person scheduled meeting with question and answer. Students may be requested to prepare a presentation or demonstration.

**Timing of exam:** Usually 1-2 weeks before the start of class.

Retake examination.

**Format:** Same as above. Students may be asked to make minor or major revisions. Students may be asked to answer a different question for Part C.

**Timing of exam:** No later than the last week of classes in the fall semester (usually December) following the first examination. A shorter period may be assigned by program faculty or the program director, on a case by case basis.

(For example, if an examination proposed in May 2018 is submitted and failed on August 2018, the latest due date for the retake exam will be December 2018.)
Appendix C. Proposal development process

This proposal was developed by Doctoral Qualifying Examinations Committee, hereafter, committee, co-chaired by Drs. Richard Holden and Xiaowen Liu. This proposal is based on review of current policies and practices in the Department’s PhD-granting programs (hereafter, programs); benchmarking from programs outside the Department; committee discussion; and faculty, administrator, and student stakeholder engagement.

Review of current practices

In addition to reviewing notes from prior discussions of qualifying examinations in the Department’s programs, the committee documented current practices, policies, and issues raised by faculty and students regarding these.

Reviewed policy and other guiding documents included:

- HCI qualifying examination in the HCI doctoral program document, v2.0 (August 2014) – revised Jan 2015, retrieved 4/29/17
- Online website documents for IUPUI SoIC doctoral programs in Health Informatics, Bioinformatics, Human-computer interaction, and Data science, retrieved 5/1/17
- Written Qualification Exam Evaluation Competencies, IUPUI graduate school, retrieved 5/1/17

The committee consulted with program directors Drs. Jones & Wu regarding current practices.

On 4/18/17, the committee developed a matrix of qualifying examination parameters to consider and options for each. Parameters included type (e.g., written, oral), number of questions, duration, whether open-book, whether take-home, basis for test content, and anonymity. The matrix was used to document current program practices and those from outside the program.

Benchmarking from outside programs

The committee interviewed faculty and administrators outside the program and gathered data from non-IUPUI colleagues to identify additional options for qualifying examinations (QE). Benchmarked programs included:

- IUPUI SoIC HCI doctoral program
- Committee members’ doctoral institutions
- NCSU engineering

In particular, the committee reviewed documents from the HCI doctoral program, which were developed by Drs. Steve and Amy Voida and subsequently by Dr. Bolchini. Dr. Bolchini, chair of the Department of Human-Centered Computing, was interviewed by the committee on 5/5/17 about the history, rationale, design, and performance of the new HCI qualifying examination practices. Dr. Holden, who co-chaired the Committee, has served on the HCI QE committee.

Committee discussion

The committee met in person for discussion regarding the design of the qualifying examination and the current proposal.
Stakeholder engagement
The committee engaged three types of stakeholders:

Faculty
All graduate faculty in the two programs were invited to review documents by e-mail. The following faculty attended a meeting on 5/10/17:

- Sarath Janga
- Richard Holden
- Josette Jones
- Xiaowen Liu
- Saptarshi Purkayastha
- Jingwen Yan

Invited but did not attend:

- Mathew Palakal
- Huanmei Wu

A revision was prepared on July 2, 2017 and shared with the committee, addressing faculty comments from the 5/10/17 meeting. The proposal was discussed at the 9/11/17 BHI faculty meeting. The HI faculty discussed on 9/18/17 and voted to approve unanimously. BHI faculty discussed on 9/22/17 to make additional revisions, which were applied on 10/1/17.

Administrators
The following administrators were consulted during the process, by e-mail or in person:

- Karl MacDorman, Associate Dean for Academic Affairs
- Josette Jones, Program Director, Health Informatics
- Huanmei Wu, Program Director, Bioinformatics and Chair, BioHealth Informatics

The program directors and Chair received a copy of version 2 on July 2. Dr. Jones provided comments and corrections on July 7.

Students
The following doctoral student was asked to review and provide feedback on a 6/2/17 draft of this proposal:

- Carly Daley, Health Informatics (feedback returned on 6/2/17)
- Jay Patel, Health Informatics (no feedback)

Evaluation plan
- We recommend a program-level evaluation of the new process after 1 and 2 years.
- We recommend a departmental evaluation of the new process after 2 years.

Other notes
- Changes to the IUPUI SoIC graduate bulletin were delivered to Associated Dean Karl MacDorman on 6/15/17 to reflect the committee’s ongoing proposal development.
Appendix D. Approval signatures

- Health Informatics faculty and program director, on September 18, 2017
- Bioinformatics faculty and program director, on ____________
- Department of BioHealth Informatics Chair, on ____________
Appendix D. Approval signatures

Health Informatics

Approved on September 18, 2017 by the Health Informatics (HI) program faculty and adopted as the new HI program policy for doctoral qualifying examinations. This policy is effective immediately and overrides all prior HI qualifying examination policies.

Josette Jones    Richard Holden  Saptarshi Purkayastha
HI program director