PhD Qualifying Examination (QE): Bioinformatics and Systems Biology program, KMUTT

Requirements and Format:

1. Students enrolling in PhD Tracks 1.1 and 2.1 (those who hold a Master's degree) must PASS the QE within 3 semesters of study. Students enrolling in PhD Track 2.2 (those who hold a Bachelor's degree) must PASS the QE within 4 semesters of study.

2. The examination is proposal-based, comprising a short report (5-8 pages, excluding references) and an oral presentation. The topic of the proposal must NOT be directly related to the student's dissertation topic.

3. The examination committee is composed of a committee chair, thesis advisor, and at least 2 additional faculty members. (The committee chair and the 2 additional faculty members must NOT be the student's co-advisors. Thesis co-advisors, if any, are not required to be included in the committee.)

4. The committee will evaluate student's depth of knowledge in 5 major areas, including 1) Molecular Biology & Molecular Biochemistry, 2) Experimental Techniques in Molecular Biology, 3) Sequence Analysis and Annotation, 4) Programming Fundamentals, and 5) Data Mining for Bioinformatics.

5. In order to pass the QE, the student must get a consensus score of '3' or higher in all categories indicated in the QE evaluation form (see attachment). If a student fails the qualifying examination, he or she is allowed to retake the examination for a second time. The student can change his/her proposal topic with the approval of the program committee. After two qualifying examination failures, the student is expected to leave the program.

Qualifying Examination Preparation:

1. The student consults with his or her thesis advisor to form the QE committee, which is composed of a committee chair, thesis advisor, and at least 2 additional faculty members.

2. The student consults his or her thesis advisor and the QE chair to select a research topic for the examination. The topic must NOT be directly related to the student's dissertation.

3. The QE chair proposes the committee member assembly and the proposal topic to and gets approval from the program committee.

4. The student schedules the examination date with the committee members. The examination must be taken before or within the last day of classes (announced by the university) of the SECOND semester of study (for students enrolling in PhD Tracks 1.1 and 2.1) or the THIRD semester of study (for students enrolling in PhD Track 2.2).

5. The student submits 1) a short proposal (5-8 pages, excluding references) and 2) a plagiarism report of the proposal (e.g., created from a plagiarism checker service such as Turnitin) to the committee members at least 2 weeks before the examination date.

6. On the examination date, the committee members evaluate the student using the QE evaluation form. In order to pass the QE, the student must get a consensus score of '3' or higher in all categories indicated in the evaluation form.

7. If the student passes the examination, the QE chair submits the QE evaluation form with all committee members' signatures to the program chair for approval and subsequently to the dean of School of Bioresources and Technology, and the dean of School of Information Technology for approval. If the student fails the examination, he or she must retake the examination within next semester. Note that students enrolling in PhD Tracks 1.1 and 2.1 (those who hold a Master's degree) must PASS the QE within 3 semesters of study. Students enrolling in PhD Track 2.2 (those who hold a Bachelor's degree) must PASS the QE within 4 semesters of study.

Bioinformatics & Systems Biology PhD program
PhD Qualifying Examination Evaluation Form

Student Name:
Thesis Advisor:
Thesis Co-advisors (if any):
Date of examination:

	Indicator	Below average (1)	Average (2)	QE expectation (3)*	> Expectation (4)	1–4 **
Knowledge & Thinking skills	Interpret scientific data	Unable to Interpret data	Interprets data, but with some mistakes	Interprets data with rare mistakes; Draws proper conclusion	Explains the significance of data interpretation; Able to apply information for further study	
	Identify / formulate key research problem or hypothesis	Most or all of key issues are not identified or defined inaccurately	Identifies some key issues. May have some Inaccuracies that interfere with meaning	Identifies most or all key issues. Some minor inaccuracies may be present, but do not interfere with meaning	Clearly, accurately, and appropriately identifies key issues	
	Uses sophisticated computational methods to analyze data and interpret results	Unfamiliar with sophisticated computational methods	Knows and utilizes some sophisticated computational methods but doesn't know how to interpret results	Utilizes sophisticated computational methods and knows how to interpret results	Utilizes sophisticated computational methods and draws significant conclusions from the analysis	
	Design right methods to solve specific problems	Unable to design methods to solve problems	Designs methods to solve problems but do not lead to results	Designs effective methods that solve problems	Designs effective, innovative methods that solve problems	
	Integrates elements from different disciplines to solve specific problems	Fails to relate elements from different disciplines	Sees some relationships between different disciplines, but doesn't see an application to solve specific problems	Establishes significant relationships between different disciplines; Sees an application to solve specific problems	Works with a multidisciplinary approach to solve specific problems	

* In order to pass the QE, the student must get a consensus score of '3' (QE expectation) or higher in all categories.
** Give a '0' if student does not meet standards for a '1'. Give a '5' if student is beyond standards for a '4'.

	Indicator	Below average (1)	Average (2)	QE expectation (3)*	> Expectation (4)	1–4 **
Knowledge & Thinking skills (continued)	Responds accurately to questions	Responds inaccurately or without sufficient information that determines his/her understanding	Responds with accurate information, but the information is too general or simplistic	Responds with accurate information that determines his/her understanding in subject area	Responds with accurate information that determines his/her superior knowledge in subject area	
Presentation skills	Delivers structured presentations / communications	Hard to follow; Jumpy sequence of information	Some of information presented in sequence	Most of information presented in logical sequence; Easy to follow	Most of information presented in logical sequence as interesting story; Easy to follow	
Writing skills	Clearly expresses knowledge and ideas	Always uses confused expressions; Very difficult to follow	Occasionally, uses confused, expressions; Difficult to follow	Expression can be understood; Easy to follow	Writing skills meet publication standards	
	Ethical writing	% plagiarism (see plagiarism report submitted by student)***				%

* In order to pass the QE, the student must get a consensus score of '3' (BIF MSc expectation) or higher in all categories.

** Give a '0' if student does not meet standards for a '1'. Give a '5' if student is beyond standards for a '4'

*** If % plagiarism is unaccepted by the committee, the student must re-submit his/her proposal report within two weeks.

Final Assessment
O PASS   O FAIL

Suggestions & Comments

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(   )
                    Committee