Ph.D. Computer Science
Degree Requirements
December 2010

1. FOUNDATION COURSEWORK (prescribed at time of admission)

Math 2211 (Calc I), 2212 (Calc II)
CSc 2510 (TFCS), 3410 (DS), 4210 (Arch), 4320 (OS), 4330 (PLC), 4350 (SE),
4510 (Auto), 4520 (Alg)

2. CSc 9900 Seminar (1 hour)

3. CORE+BREADTH (24 hours)

CORE (12 hours – take one from each group):

ALGORITHMS (8520, 8530, 8550, 8980-A)
ARCHITECTURE (8210, 8270, 8980-S)
SYSTEMS (8220, 8320, 8370)

BREADTH (12 hours – Take one each from 3 of following groups)

Bioinformatics (8050, 8540, 8630)
Database and Artificial Intelligence (8710, 8711, 8712, 8810)
Distributed Computing (8223, 8980-P)
Graphics and Visual Computing (8260, 8720, 8820)
Networks (8221, 8222, 8250)
Numerical and Scientific Computing (8610, 8620)
Software Engineering and Simulation/Modeling (8350, 8840)

4. ELECTIVES (23 hours)

0-8 hours of 8950+8910 independent research/seminar hours
3-9 hours of outside the department courses
6-20 hours of DEPTH CS classroom-taught courses (2 to 5 courses)

5. DISSERTATION CSc 9999 (24 hours)

Some Remarks

1. 6000-level courses are eliminated from **CORE+BREADTH.**
2. All 8000-level courses currently being offered are covered in **CORE+BREADTH.**
3. All 8000-level courses will be offered in a 2-year cycle.
4. Topics Courses: 8980-A (Discrete Approx. Algorithms), 8980-S (Sensor Network Architectures), 8980-P (Advanced Distributed Systems). These will get regular course numbers soon as they are proposed as regular courses.

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Qualifying Exam Process
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The Ph.D. qualifying process consists of two parts:

(1) **Curriculum Requirement**: The student is required to complete one course in each of the three CORE areas (Algorithms, Architecture, and Systems) and receive at least 2 A's and 1 B in these courses to meet the curriculum requirement of the qualifying process.

(2) **Research Examination**: The objective of the research examination is to assess the student's potential to begin doctoral-level research. The examination will assess the student's abilities to:
   a. Read and understand research papers in their field
   b. Formulate a problem clearly and provide the motivation and requirements for a solution
   c. Determine if a solution is correct
   d. Assess to what extent a presumably correct solution solves the problem
   e. Clearly identify potential next research problems and provide solutions
   f. Communicate effectively, both in writing and orally
   g. Answer questions related to the problem and its solutions.

   The student will request the research examination in an area/sub-area of computer science. A committee of 3 faculty members will choose two advanced research papers and assign to the student. After a period of time, the student will present a written report and schedule an oral defense in which there will be general questioning by the committee.

Timeline: A typical student (one who is admitted to the Ph.D. program with very few foundation courses to take) is expected to qualify by the end of the third semester (excluding summers) after admission.

Note: The above is a very brief sketch of the qualifying process and the implementation details are being worked out and a detailed document will be available in January 2011.