

Doctor of Philosophy in Computer Science

I. CS Specialization Courses (18 units)

Students should take 18 units of subjects in one of the following areas of specialization.

1. Theoretical Computer Science Units

CS 320	Special Topics in Computer Science Theory	3
CS 320.1	Special Topics in Computer Science Theory: Data Mining	3
CS 320.2	Special Topics in Computer Science Theory: Computer Simulation	3
CS 320.4	Special Topics in Theory: Advanced Algorithms	3
Ma 250	Algebraic Structures I	3
Ma 295J.2	Seminar on Graph Theory	3

Other 3xx subjects as recommended by the student's dissertation adviser

2. Computational Science Units

CS 320.1	Special Topics in Computer Science Theory: Data Mining	3
CS 320.2	Special Topics in Computer Science Theory: Computer Simulation	3
CS 320.5	Special Topics in Computer Science: Pattern Recognition	3
CS 340	Special Topics in High Performance Computing and Computational Science	3
Ma 295S.4	Seminar: Statistical Methods	3

Other 3xx subjects as recommended by the student's dissertation adviser

3. Intelligent Systems Units

CS 320.1	Special Topics in Computer Science Theory: Data Mining	3
CS 320.2	Special Topics in Computer Science Theory: Computer Simulation	3
CS 320.5	Special Topics in Computer Science: Pattern Recognition	3
CS 320.10	Special Topics in Computer Science: Business Intelligence	3
CS 320.11	Special Topics in Computer Science Theory: Educational Data Mining	3
CS 320.20	Special Topics in Computer Science Theory: Intelligent Tutoring Systems	3
CS 320.21	Special Topics in Computer Science Theory: Artificial Intelligence in Education	3
CS 320.22	Special Topics in Computer Science Theory: Affective Computing	3
CS 330	User Modeling	3
CS 350	Special Topics in Advanced Multimedia	3
CS 350.1	Special Topics in Advanced Multimedia: Human-Computer Interaction	3
CS 360.1	Special Topics in Computers and Society: Information and Communication Technologies for Development	3
CS 360.2	Special Topics in Computers and Society: Information and Communication Technologies for Education	3
Ma 295S.4	Seminar: Statistical Methods	3

Other 3xx subjects as recommended by the student's dissertation adviser

4. Social Computing Units

PSY 208	Advanced Social Psychology	3
Ma 295S.4	Seminar: Statistical Methods	3
CS 320.1	Special Topics in Computer Science Theory: Data Mining	3
CS 320.5	Special Topics in Computer Science: Pattern Recognition	3
CS 380	Special Topics in Social Computing	3
CS 380.1	Special Topics in Social Computing: Introduction	3
CS 380.2	Special Topics in Social Computing: Advanced Social Computing	3

Other 3xx subjects as recommended by the student's dissertation adviser

5. Pedestrian and Traffic Computing Units

CS 320.1	Special Topics in Computer Science Theory: Data Mining	3
CS 320.2	Special Topics in Computer Science Theory: Computer Simulation	3
CS 320.5	Special Topics in Computer Science: Pattern Recognition	3
CS 320.10	Special Topics in Computer Science: Business Intelligence	3
CS 3xx	Artificial intelligence	3

Other 3xx subjects as recommended by the student's dissertation adviser

II. Dissertation (12 units)		Units
CS 390A	Dissertation Writing I	6
CS 390B	Dissertation Writing II	6

Students must propose, undertake, publish, and successfully defend a dissertation in their area of concentration. Dissertation requirements are as follows:

1. **Proposal** – submission and successful defense of a research proposal.
2. **Publication** – acceptance of at least one (1) paper at a reputable international refereed scientific journal and acceptance of at least one (1) full paper in a national/ international refereed conference.
3. **Final dissertation report** –successful defense and submission of the final dissertation report.

International research experience

The doctoral candidate is strongly encouraged to do a sandwich program for a period of three (3) to twelve (12) months at a reputable foreign university or IT research laboratory. If undertaken, it is recommended that the sandwich program take place after successfully defending the dissertation proposal. Prior to departure, the student must submit a detailed project plan to his/her adviser, for approval.

SUMMARY

CS Specialization Courses	18 units
Dissertation	<u>12 units</u>
Total	30 units