CSE Graduate Course Structure - PhD List

PhD students must pass a total of nine letter-graded courses from a list of courses that is maintained by CSE Gradcom. Four of these course must be taken from four different areas. Students’ advisors must approve their students’ course selection. Students must also pass the 1-credit seminar CSE 292.

**Artificial Intelligence**
- CSE 250A Principles of AI: Probabilistic Reasoning and Learning
- CSE 250B Principles of AI: Learning Algorithms
- CSE 250C Machine Learning Theory
- CSE 253 Neural Networks
- CSE 254 Statistical Learning
- CSE 255 Intelligent Systems
- CSE 258 Data Mining and Predictive Analytics

**Bioinformatics**
- CSE 280A Algorithms and Computational Biology
- CSE 282 Bioinf II: Seq & Struct Analys
- CSE 283 Bioinf III: Functional Genomics
- CSE 284 Personal Genomics for Bioinformatics
- MATH 283 Statistical Methods in Bioinformatics

**Computer Engineering**
- CSE 240A Prin/Computer Architecture
- CSE 240B Advanced Computer Architecture
- CSE 240C Advanced Microarchitecture
- CSE 240D Application-Specific Architectures
- CSE 237A Introduction to Embedded Computing
- CSE 237B Software for Embedded Systems
- CSE 237C Validation and Testing of Embedded Systems
- CSE 237D Design Automation and Prototyping for Embedded Systems
- CSE 241A/ECE260B VLSI Integrated Circuits and Systems Design
- CSE 243A Introduction to Synthesis Methodologies in VLSI CAD
- CSE 244A VLSI Test
- CSE 245 Computer Aided Circuit Simulation and Verification
- CSE 248 Algorithmic&Optmztn Fdns VLSI CAD
- ECE 260A VLSI Digital System Algorithms and Architectures
- ECE 260C VLSI Advanced Topics
- ECE 284 Special Topics in Computer Engineering

**Computer Systems and Security**
- CSE 221 Operating Systems
- CSE 222A Computer Communication Networks
- CSE 222B Internet Algorithmics
- CSE 223B Distributed Computing & Systems
- CSE 224 Graduate Networked Systems
- CSE 227 Computer Security
- CSE 260 Parallel Computation
- CSE 262 System Support for Applications of Parallel Computation

**Database Systems**
- CSE 232 Principles/Database Systems
- CSE 232B Database System Implementation
- CSE 233 Database Theory

**Graphics & Vision**
- CSE 252A Computer Vision I
- CSE 252B Computer Vision II
- CSE 252C Modern Computer Vision
- CSE 272 Advanced Image Synthesis
- CSE 274 Selected Topics in Graphics

**Human-computer Interaction**
- CSE 216 Human-Computer Interaction
- COGS 220 Information Visualization
- COGS 231 Design Seminar on Human-Centered Programming

**Programming Languages, Compilers, and Software Engineering**
- CSE 210 Principle/Software Engineering
- CSE 218 Adv Topic/Software Engineering
- CSE 230 Principles/Program Languages
- CSE 231 Advanced Compiler Design

**Robotics**
- CSE 276A Introduction to Robotics
- CSE 276B Human Robot Interaction
- CSE 276C Mathematics for Robotics
- CSE 276D Healthcare Robotics

**Theoretical Computer Science**
- CSE 200 Computability and Complexity
- CSE 201A Advanced Complexity
- CSE 202 Algorithm Design and Analysis
- CSE 203A Advanced Algorithms
- CSE 203B Convex Optimization
- CSE 205A Logic in Computer Science
- CSE 206A Lattice Algorithms & Applications
- CSE 207 Modern Cryptography
- CSE 208 Advanced Cryptography

*Topics*
- CSE 291* Topics in Computer Science and Engineering

*Regarding CSE 291s: Requests to apply CSE 291s towards the coursework requirements are subject to advisor approval. CSE 291s MUST be taken for four units of letter grade in order to count towards coursework requirements.*