Graduate Programs in Computer Science

Charles Nicholas
nicholas@umbc.edu
Updated January 13, 2021

www.cs.umbc.edu
CS Degree Requirements
Overview
MS Degree Requirements

• Required courses
  – CMSC 641 Algorithms
  – One course from “systems” area
  – One course from “applications” area

• Thesis or non-thesis
  – Thesis (30 credits)
    • 6 credits of thesis research, CMSC 799
    • 24 credits
  – Non-Thesis (33 credits)
    • 33 Credits
“Systems” Courses

- CMSC 611 Computer Architecture
- CMSC 621 Operating Systems
- CMSC 661: Database Systems
- CMSC 681: Advanced Computer Networks
“Applications” Courses

- CMSC 626 Computer Security
- CMSC 634 Computer Graphics
- CMSC 671 Artificial Intelligence
- CMSC 678 Machine Learning
PhD Degree Requirements

- Required courses
  - CMSC 641, plus one from systems and one from applications, as in MS program
- Additional Credits
  - 24 additional graduate credits (see Handbook)
- Portfolio
- Preliminary Exam
  - Proposal; oral exam
  - Within 5 years of admission
- Dissertation
Research Labs

• All of our faculty are active in research, and you are welcome to approach them to learn more about it!
• Attending research group meetings can be fun and interesting - and no commitment
Timeline

• Register for Courses ASAP – Talk to your assigned graduate advisor
  – Most of you have already done this
• If TA, reach out to course instructor(s)
• Sign up for graduate mailing lists. See instructions
  – https://www.csee.umbc.edu/systems/index.php/CSEE_Mailing_Lists
• Participate in research group meetings
• Attend Departmental research talks and seminars
• Participate in Grad Student Research Conference
• Select your research advisor by end of second semester (else risk TA renewal)
• If M.S., start working on M.S. Thesis by start of second year
• If Ph.D, start preparing portfolio by start of third semester
Faculty and Research Areas
Algorithms, Theory, and Scientific Computation

• Faculty:
  – Profs. R. Chang, K. Kalpakis, S. Lomonoco, A. Sherman, David Chapman, Yaacov Yesha

• Specific Interests:
  – Complexity, quantum computing, cryptology, optimization

• Courses:
  – CMSC 641: Design and Analysis of Algorithms
  – CMSC 651 Formal Languages and Automata
  – CMSC 652: Cryptography and Data Security
Databases, Information, and Knowledge Management

• Faculty:
  – Professors T. Finin, A. Joshi, K. Kalpakis, C. Matuszek, C. Nicholas, T. Oates, Yelena Yesha

• Specific Interests:
  – Machine learning, agents, neural nets, databases, document processing

• Courses:
  – CMSC 661 Principles of Database Systems
  – CMSC 671 Principles of AI
  – CMSC 673 Natural Language Processing
  – CMSC 676 Information Retrieval
  – CMSC 678 Machine Learning
Networks and Systems

• Faculty:

• Specific Interests:
  – Mobile computing, wireless networking, wireless sensor networks, optical networking, network security, real-time systems

• Courses:
  – CMSC 611: Advanced Computer Architecture
  – CMSC 621: Advanced Operating Systems
  – CMSC 681: Advanced Computer Networks
Graphics, Animation, and Visualization

• Faculty:
  – Barteil, Olano, Engel

• Specific Interests:
  – Real-time shading, data visualization, interactivity

• Courses:
  – CMSC 634: Intro to Computer Graphics
  – CMSC 636: Information Visualization
Common Questions

• Who and where is my advisor?
• How can I become a TA? Or find a job?
  – Visit UMBCworks
• How can I become an RA?
• How do I choose between thesis and non-thesis
More Questions

• My friend wants to come in Spring. Should they do this? No
• Should I take 611, 621, and 641 at the same time? No
• How do I know if XYZ constitutes academic misconduct? We’ll explain
Other Questions?

• Send email to Dr. Nicholas, nicholas@umbc.edu
• Send email to Mrs. Keara Fliggins fliggins@umbc.edu