

# Graduate Programs in Computer Science

Charles Nicholas

[nicholas@umbc.edu](mailto:nicholas@umbc.edu)

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[www.cs.umbc.edu](http://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 655 Numerical Methods
- 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 committment

# Before Semester Starts

- Register for Courses ASAP
- Talk to your assigned graduate advisor
  - Most of you have already done this
  - If you don't know who your advisor is, please ask Keara
- TA assignments were made some weeks ago, and shared with faculty
- A few changes are still possible, as courses are expanded or added.
- Sign up for graduate mailing lists. See instructions
  - [https://www.csee.umbc.edu/systems/index.php/CSEE\\_Mailing\\_Lists](https://www.csee.umbc.edu/systems/index.php/CSEE_Mailing_Lists)
  - <http://lists.cs.umbc.edu/mailman/listinfo/csee-grad-cs>



# After Semester Starts

- Participate in research group meetings
- Attend Departmental research talks and seminars
  - Many of these will be given by applicants for open faculty positions
- Participate in Grad Student Research Conference (usually in the Spring semester)
- Select your research advisor by end of second semester (else risk TA renewal)
- If you're in the M.S. thesis option, start working on M.S. Thesis by start of second year
- If you're in the Ph.D. program, 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, Yaacov Yesha
- Specific Interests:
  - Complexity, quantum computing, cryptology, optimization
- Courses:
  - CMSC 641: Design and Analysis of Algorithms
  - CMSC 643: Quantum Computing
  - CMSC 651 Formal Languages and Automata
  - CMSC 652: Cryptography and Data Security

# Databases, Information, and Knowledge Management

- Faculty:
  - Professors T. Finin, F. Ferraro, A. Joshi, K. Kalpakis, C. Matuszek, C. Nicholas, T. Oates, R. Vinjamuri, R. Yus
- Specific Interests:
  - Machine learning, agents, databases, document processing
- Courses:
  - CMSC 661: Principles of Database Systems
  - CMSC 671: Principles of AI
  - CMSC 676: Information Retrieval
  - CMSC 673: Natural Language Processing

# Networks and Systems

- Faculty:
  - Profs. N. Banerjee, A. Joshi, K. Kalpakis, C. Liu, D. Perkins, D. Phatak, D. Sidhu,, M. Younis
- Specific Interests:
  - Mobile computing, wireless networking, network security, real-time systems
- Courses:
  - CMSC 611: Advanced Computer Architecture
  - CMSC 621: Advanced Operating Systems
  - CMSC 681: Advanced Network Architecture

# 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

- Where is my advisor?
- How can I become a TA?
  - Visit [UMBCworks](#)
- How can I become an RA?
- How do I choose between thesis and non-thesis?
- How do I find a summer job?

# 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



# Mental Health

- Grad school is stressful!
- Look out for yourself and each other!
- If your friends or your students or your instructors go silent, or exhibit other disturbing behavior, let us know. COEIT adjunct story

# Miscellaneous

- Students who lack support when they enter the program often become TAs or graders in their second year
- CMSC 696 for Interns
  - Summer or semesters, okay

# Other Questions?

- Send email to Dr. Nicholas,  
[nicholas@umbc.edu](mailto:nicholas@umbc.edu)
- Send email to Mrs. Keara Fliggins  
[fliggins@umbc.edu](mailto:fliggins@umbc.edu)