Graduate Programs in Computer Science

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Programs Offered

- PhD
- MS (thesis, research-oriented)
- MCS (coursework only, mostly off-campus)
- Also: MS Bioinformatics, PhD/MD, MS/JD

	PHD							
Year	Pre-Qual	Qual	Prelim	Tot	MS	MCS	GRAND TOTAL	All ENG.
2007	117	134	69	320	29	78	427	
2006	124	142	47	313	42	54	409	2381
2005	133	149	53	335	63	61	459	2426
2004	166	139	54	359	96	82	537	2594
2003	145	148	47	340	92	29	461	2443

Philosophy

Guide students through the difficult process of becoming an independent, leading researcher and educator

Emphasis is placed on becoming:

- A **SCHOLAR** by absorbing large bodies of research literature and critically analyzing the state-of-the-art along with its shortcomings
- An effective **COMMUNICATOR** by learning how to express ideas clearly in writings, individual meetings, and public seminars
- An **INNOVATOR** by creating new theories, technologies, or paradigms that inspire people in research communities and industry.

Faculty are old students; students are young colleagues.

Typical Progression

Year	Semester	Milestones
1	1	Design and submit program of study
	2	Select Ph.D. advisor
2	3	
	4	Take Qualifying Exam
3	5	
	6	
4	7	
	8	Thesis Proposal (Preliminary Exam)
5	9	
	10	
6	11	
	12	Thesis Defense (Final Exam)

Coursework Requirements up to 2007

- Graduate College requires 96 hours, of which 32 must be thesis hours (CS 599)
- Additional CS requirements:
  - 1 theory course
  - 1 systems & architecture course
  - 2 courses in one area

Problems with Requirements

- As CS evolves, notion of *breadth* evolves
- Traditional curricula focus on *minimum*
- Research course lists tend to fall behind
- Numerous petitions to waive theory & systems requirements
- Not much connection between coursework and later Ph.D. stages

New Requirements: Design Your Own Curriculum

- Coursework Committee of 3 faculty assigned to each student
- Advice to students and faculty located on Wiki
- Students work with Committee to design & approve curriculum
- Stimulates faculty interaction and student independence
- Advantage: breadth, depth, diversity of UIUC course offerings
  - Math offers 60+ grad courses
  - Also, ECE, Biology, Chem, Psychology, Linguistics

Minimal Requirements

- Graduate College requires 96 hours, of which 32 must be thesis hours (CS 599)

- Additional CS requirements:
  - A minimum of 48 coursework hours
  - At least 24 hours must be 500 level
  - At least 20 hours must be CS courses
  - At least 12 hours must be 500-level CS courses

First-Year Activities

- Orientation seminar (fall semester)
- Meet professors, shop for advisor
- Stimulate social interaction
- Students learn to juggle coursework, assistantships, research

Qualifying Exam

- Administered by research area
- Content & format vary
- Most common: Oral format with 3 faculty
- Some areas have standard corpus, others not

Thesis Proposal & Defense

- Ph.D. Committee: at least 1 non-UIUC member
- Proposal format resembles NSF proposal
- Presentation expected in 4th year
- Defense is final exam before depositing

Annual Student Evaluations

- Similar to "Black Friday" event at CMU, but handled at area level
- Faculty meet in spring semester
- Progress of every Ph.D. evaluated
- Feedback sent directly to students, including praise, warnings, and conditions
- Introduced a few years ago, gradually expanded and centralized

Summary of Recent Initiatives

- Student-centered education
  - Graduate Director is 3 year, rotating position
  - Thesis Committees must have non-UIUC member
  - Shortened thesis-proposal document to NSF-style proposal; advice
  - All students are given Siebel office space based on their preference
  - "Design your own curriculum''
  - Academic Careers Club
  - Increased social activities (Friday lunches, 1st-year lunches, welcome picnic, WCS lunches)
  - Annual evaluations of all PhD students
  - An advice-oriented PhD guide
- Still in the air: teaching and speaking requirements

Placement of Ph.D. Graduates

- Placement in Academia: Total: 67 28.27%
  - Top 10 (other than UIUC) 11 4.64%
  - 11-25 ranked 12 5.06%
  - Other US/Canada 21 8.86%
  - Foreign 23 9.7%
  - Postdoc, Research 27 11.39%
  - Instructor 1 0.42%
- Placement in Industry: Total: 89 37.55%
  - Amazon, Banking/Insurance, Cisco, Google (15), IBM (15), Intel (9), Microsoft (4), Morgan Stanley, Motorola, Networking/Communication, NVIDIA, Oracle, Sun, Siebel, UIUC, and other
- Major Research Labs: Total: 20 8.44%

Current Issue: Student Placement

Goal: Routinely place students in faculty positions at top schools

- Affects recruiting abilities and student morale
- In last two years: UC Berkeley, U. Washington, Toronto, UNC, Ohio State, Virginia Tech
- Our recent initiatives and planned initiatives are geared toward helping this issue
- Generally takes time to solve...

Admissions Process

- Decisions rest with admissions committee (FAA)
  - 10 faculty and 3 students
- FAA screens applicants to reject roughly 1/2
- Remaining files reviewed by 3 FAA members each
- Applicant database open to all faculty for reviews or comments
- Research areas indicate advising capacities and list desired students
- Final FAA meetings use reviews, lists, capacities, and departmental limits to decide admissions offers
- Five-year guaranteed support offered to all admitted applicants
- Recruiting efforts, including visit weekends

Admissions Stats

		Fall 01		Fall 02		Fall 03		Fall 04		Fall 05		Fall 06		Fall 07	
			%All		%All		%All		%All		%All		%All		%All
All	offers	169		168		138		152		101		91		117	
	Accepted	85		79		53		79		50		48		65	
	Acc. Ratio	50.30		47.00		38.40		52.00		49.50		52.70		55.60	
US	offers	62	36.7	86	51.2	66	47.8	71	46.7	39	38.6	20	22	22	18.8
	Accepted	24	28.2	31	39.2	19	35.8	32	40.5	14	28	10	20.8	8	12.3
	Acc. Ratio	38.70		36.00		28.80		45.10		35.90		50.00		36.40	
CHN	offers			29	17.3	20	14.5	17	11.2	16	15.8	16	17.6	41	35
	Accepted			16	20.3	10	18.9	8	10.1	10	20	9	18.8	28	43.1
	Acc. Ratio			55.20		50.00		47.10		62.50		56.30		68.30	
IN	offers			26	15.5	19	13.8	18	11.8	14	13.9	17	18.7	17	14.5
	Accepted			13	16.5	6	11.3	9	11.4	9	18	9	18.8	5	7.7
	Acc. Ratio			50.00		31.60		50.00		64.30		52.90		29.40	

Admissions Rate by Country

- India: 21.5%
- China: 18.9%
- Korea: 17.5%
- USA: 16.7%
- Iran: 15.2%

Breakdown of Nationality

Roughly 60% are foreign, mostly Chinese and Indian

Angola:	1	Nepal:	1
Argentina:	4	Netherlands:	1
Bangladesh:	7	Nigeria:	1
Belarus:	1	Pakistan:	4
Brazil:	7	Panama:	1
China:	86	Romania:	6
Colombia:	1	Russia:	3
Cyprus:	2	Saudi Arabia:	4
Egypt:	2	Serbia & Montenegro:	1
Germany:	3	Singapore:	1
Greece:	4	Spain:	1
India:	62	Sri Lanka:	1
Iran:	14	Taiwan:	15
Italy:	2	Thailand:	4
Japan:	3	Turkey:	5
Korea, South:	26	Ukraine:	1
Malaysia:	1	United Kingdom:	3
Mexico:	4	Vietnam:	10
Mongolia:	1		

Current Issue: Domestic PhD Recruiting

Possible Causes

- As UIUC rank and student quality increased, Midwestern students from places we once drew from are no longer admitted
- Students from coastal schools tend to stay on coasts
- Applicants in our international pool are outstanding and experienced
- Admissions decisions use load balancing by area
- Lacked active efforts to aggressively advertise to expand our market

Special case of opening new markets in various countries?

MS Program

- Ph.D. and M.S. admission standards are roughly comparable
- M.S. offered 2 years support (vs. 5 for Ph.D.)
- Every semester: petitions from M.S. to Ph.D.
  - Mainly requires strong advisor support
- Recently made prestige level for M.S. and Ph.D. similar so that applicants tend to be honest