Computer Science Department

Graduate Information Session

2009-2010

Opportunities for Graduate Study

- Individual Courses for Professional Development:

  May take up to 2 courses prior to enrolling in a degree program, for credit or audit

- Graduate and Advanced Certificates
- Master's Degree
- Ph.D.

CS Certificate Programs

- Graduate Certificates: (Pre – M.S., 4 related courses)
  - Artificial Intelligence
  - Computer and Communications Networks
  - Computer Systems
  - Database Design
  - Graphics/Image Processing/Visualization
  - Programming Languages
  - Software Engineering and Interface Design

- Advanced Graduate Certificates (Post – M.S., 5 related courses)
  - Advanced Computer Systems
  - Advanced Computer Science
  - Artificial Intelligence

CS Master's Degree Program

Options:

- Course work option:

  33 credits including bin courses

- Thesis option:

  9 credits Thesis

  24 credits courses including bin courses

CS Master's Degree Program

- Course work required in 4 bins

  At least one course in "essential" bins:
  - Theory
  - Algorithms
  - Systems or Networks

  Other bins:
  - Graphics/Imaging
  - AI
  - Databases
  - Compilers/Languages
  - Design

- Electives

Computer and Communications Networks (CCN) Specialization

- Specialization within CS or ECE Master's Program
- Same # credits as regular program
- In addition to program distribution requirements, selected coursework in CCN
- Required CCN industrial internship or thesis
  - May be waived with relevant industrial experience

SAMPLE CCN COURSES

- Introduction to Local and Wide Area Networks
- Telecommunications Transmission Technologies
- High Performance Networks
- Adv. Computer and Communications Networks
- Modeling and Performance Evaluation …..
- Digital Communications: Modulation and Coding
- Wireless Information Networks
- Cryptography and Data Security
- Advanced Cryptography
- Mobile Data Networking

COURSES SCHEDULED FALL 2009

All Offerings in Worcester:

CS 5003	FOUNDATIONS OF CS: AN INTRO	--W-- 6:00-9:50	Dougherty, Daniel
CS 502	OPERATING SYSTEMS	---R- 6:00-8:50	Breecher, Jerry
CS 503	FOUNDATIONS OF COMP SCI	-T-R- 4:00-5:20	Selkow, Stanley
CS 5084	INTRO TO ALGRTHMS: DES & ANALY	--W-- 6:00-8:50	Hofri, Micha
CS 509	DESIGN OF SOFTWARE SYSTEMS	-T-R- 4:00-5:20	Heineman, George
CS 513	INTRO TO LOCAL&WIDE AREA NETWK	M---- 6:00-8:50	Pahlavan, Kaveh
CS 525	SP TOP: DATA MINING	-T-R- 2:00-3:20	Ruiz, Carolina
CS 535	ADV TOPICS IN OPERATING SYSTMS	M---- 6:00-8:50	Wills, Craig
CS 536	PROGRAMMING LANGUAGE DESIGN	M--R- 10:00-11:50	Fisler, Kathryn
CS 542	DATABASE MANAGEMENT SYST.	-T--- 6:00-8:50	Mani, Murali
CS 543	COMPUTER GRAPHICS	-T--- 6:00-8:50	Ward, Matthew
CS 545	DIGITAL IMAGE PROCESSING	-T--F 4:00-5:20	Gennert, Michael
CS 561	ADV TOPICS IN DATABASE SYSTEMS	M---- 6:00-8:50	Rundensteiner, Elke
CS 577	ADV. COMPUTER & COMM NETWORKS	-T--- 6:00-8:50	
CS 578	CRYPTOGRAPHY & DATA SECURITY	--W-- 6:00-8:50	
CS 584	ALGORITHMS: DESIGN & ANALYSIS	M-W-- 4:00-5:20	Selkow, Stanley

COURSES SCHEDULED SPRING 2010

All Offerings in Worcester:

CS 504	ANALYSIS OF COMPUTA & SYSTEMS	-T--F 9:30-10:50	Hofri, Micha
CS 509	DESIGN OF SOFTWARE SYSTEMS	---R- 6:00-8:50	Heineman, George
CS 513	INTRO TO LOCAL&WIDE AREA NETWK	M---- 6:00-8:50	Agu, Emmanuel
CS 521	LOGIC IN COMPUTER SCIENCE	-T-R- 4:00-5:20	
CS 525	SP TOP: ANIMATION	M---- 6:00-8:50	Ward, Matthew
CS 525	SP TOP:INTELLGNT TUTORNG SYSTM	-T-R- 4:00-5:20	Heffernan, Neil
CS 530	HIGH PERFORMANCE NETWORKS	--W-- 6:00-8:50	Cortes Ramos, E.
CS 533	MDLNG&PERF EVAL-NETW&COMP SYST	---R- 6:00-8:50	Breecher, Jerry
CS 534	ARTIFICIAL INTELLIGENCE	-T--- 6:00-8:50	Beck, Joseph
CS 538	EXPERT SYSTEMS	--W-- 6:00-8:50	Brown, David
CS 544	COMPILER CONSTRUCTION	M--R- 4:00-5:20	Pollice, Gary
CS 546	HUMAN COMPUTER INTERACTION	-T--- 6:00-8:50	Ward, Matthew
CS 563	ADV TOPICS IN COMPUTER GRAPHIC	--W-- 6:00-8:50	Agu, Emmanuel

CS Department Research Groups

- **Artificial Intelligence in Design Group (AIDG)**
  - *Professor Brown*
- **Artificial Intelligence Research Group (AIRG)**
  - *Professors Brown, Gennert, Heffernan, Rich, Ruiz*
- **Applied Logic and Security Group (ALAS)**
  - *Professors Dougherty and Fisler*
- **Congestion Control (CC)**
  - *Professors Claypool, Kinicki*
- **Database Systems Research Group (DSRG)**
  - *Professor Rudensteiner, Mani*
- **Formal Verification Research Group (VERG)**
  - *Professors Fisler, Dougherty, Heineman*
- **Image Science Research Group (ISRG)**
  - *Professors Agu, Gennert, Ward*

(over)

CS Department Research Groups (cont.)

- **Knowledge Discovery and Data Mining Research Group (KDDRG)**
  - *Professors Ruiz, Ward*
- **Mobile Graphics Research Group (MGRG)**
  - *Professor Agu*
- **Performance Evaluation of Distributed Systems (PEDS)**
  - *Professors Claypool, Finkel, Kinicki, Wills, Agu*
- **Software Engineering Research Group (SERG)**
  - *Professors Fisler, Heineman, Rudensteiner*
- **Theory Research Group (THUG)**
  - *Professors Dougherty, Hofri, Sarkozy, Selkow & Math Faculty*
- **Tutor Research Group (TRG)**
  - *Professor Heffernan*
- **Human Interaction Virtual Environments Group (HIVE)**
  - *Professor Lindeman*

WPI CS COMPUTING FACILITIES

More than 200 Networked Windows workstations for use by Faculty, Staff and Students.

Extensive software library are available free to campus users.

Multiple UNIX flavors (Darwin, FreeBSD, Linux, Solaris) are available for general and compute-intensive tasks on more than 20 departmental and research lab servers.

All connected to WPI's campus wide network and the global Internet.

Access Grid node and supercomputing access are also available.

CS RESEARCH LABS

- Applied Logic and Security
- Artificial Intelligence
- Center for Research in Exploratory Data and Information Analysis (CREDIA)
- Data / Knowledge Base Research
- Distributed Processing
- Image Science
- Interactive Media
- Networks / Distributed Processing
- Software Engineering
- Human Interaction in Virtual Environments

CS Admission Requirements

- Bachelor's degree in computer science or related fields; significant or relevant experience
- Proficiency in at least one recursive high-level language
- General knowledge of data structures and digital processes
- Solid foundation in mathematics

Application Requirements

- Graduate Certificate Program:
  - Graduate Certificate Application
  - $70 application fee (waived for WPI alumni)
  - Official transcripts

- Graduate Degree Program:
  - Application for Admission to Graduate Study
  - $70 application fee (waived for WPI alumni)
  - Statement of purpose
  - 3 Letters of Recommendation
  - Official transcripts
  - Official GRE scores (waived for current CS students and alumni)
  - GRE CS Area Exam (recommended)
  - TOEFL scores (for foreign applicants)

GAANN FELLOWSHIPS

GRADUATE ASSISTANTSHIPS IN AREAS OF NATIONAL NEED

Level of Support:

- 1- 3 years
- $30,000 stipend per year
- Tuition (up to 18 credits per year)
- Support for one conference trip per year

Eligibility:

- U.S. citizen or permanent resident
- Pursing a Ph.D. in Computer Science
- Career goal of employment in teaching or research
- Preference given to students working in the areas of the learning sciences, visualization, and security

For additional information contact :

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