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
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
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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