# Class Schedule - Fall 2012

## Computer Science

### CS 598  **Special Topics**  credit: 2 TO 4 hours.

Subject offerings of new and developing areas of knowledge in computer science intended to augment the existing curriculum. See Class Schedule or departmental course information for topics and prerequisites. May be repeated in the same or separate terms if topics vary.

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<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>46981</td>
<td>Lecture-Discussion</td>
<td>CW</td>
<td>09:00 AM - 11:50 AM</td>
<td>W</td>
<td>109 - Grad Sch of Lib &amp; Info Science</td>
<td>Twidale, M</td>
</tr>
</tbody>
</table>

Credit Hours: 4 hours

Computer Supported Coop Work
Restricted to Doctor of Philosophy.
Topic: Computer Supported Cooperative Work. PhD seminar; other graduate students may enroll with consent of instructor (twidale@illinois.edu). See section description at http://www.lis.illinois.edu/academics/courses/catalog. This section meets with LIS 590, Section CW, 47751.

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<tr>
<td>35989</td>
<td>Lecture-Discussion</td>
<td>CXZ</td>
<td>02:00 PM - 03:15 PM</td>
<td>TR</td>
<td>1302 - Siebel Center for Comp Sci</td>
<td>Zhai, C</td>
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Credit Hours: 4 hours

Advanced Information Retrieval
Topic: Advanced Topics in Information Retrieval. Advanced concepts, models, and algorithms in information retrieval and text mining, including both historical milestones and major recent developments in the field. Topics include information retrieval models, statistical language models, information retrieval evaluation, applications of machine learning in information retrieval and text mining, and other emerging new topics.

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<th>Instructor</th>
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<tr>
<td>49222</td>
<td>Lecture-Discussion</td>
<td>GA</td>
<td>02:00 PM - 03:15 PM</td>
<td>WF</td>
<td>1131 - Siebel Center for Comp Sci</td>
<td>Agha, G</td>
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Credit Hours: 4 hours

Emerging Programming Paradigms
Topic: Emerging Programming Paradigms. A new generation of applications is changing the nature of programming with the need for scalability, parallelism, distribution, and mobility. Moreover, web applications require context awareness; cloud computing requires balancing availability, consistency and reliability; sensor networks use broadcast messages and have limited computational resources; and cyberphysical systems must also specify real-time control. The course will cover actor languages and related programming paradigms to address these challenges.

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<th>Agha, G Kumar, R</th>
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<tr>
<td>60407</td>
<td>Online</td>
<td>GAO</td>
<td>ARRANGED -</td>
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Credit Hours: 4 hours

Emerging Programming Paradigms
Restricted to MS: Civil Engr - Online - UIUC, MCS:Computer Sci Online -UIUC, MS:Mechanical Engineering -UIUC, or NDEG:Grad Nondegree-CE/UIUC.
Restricted to online non-degree, online MCS, online MSME and online MS CE students. Online & Continuing Education (OCE) restrictions and assessments apply, see http://www.oce.illinois.edu. For more details on this course section, please see http://online.engineering.illinois.edu/descriptions/fall2012.htm
OCE Tuition $1000.00 per Bill Hour, and OCE Fees $50.00 per Bill Hour.
### Healthcare Infrastructure

**Credit Hours:** 4 hours  
**Topic:** Healthcare Infrastructure. Healthcare is the largest industry in the country, but the current infrastructure for providing healthcare is not viable. Recent advances in information technology promise radically different infrastructure that could provide a viable model for providing healthcare. This course will examine healthcare infrastructure through lectures and discussions, through text readings and web sites. There is a particular focus on measuring the health of populations, in the demographic era of chronic illness. Information sources are discussed in detail from medical literature and records to health brochures and monitors. There are no pre-requisites for this course, but students encouraged to use background experiences. Practical topics will be emphasized with the aim of revolutionizing an industry in transition. A semester project will be required, on information technology aspects of population health measurement. This section meets with LIS 590, Section HI.

### Social Spaces on the Internet

**Credit Hours:** 4 hours  
**Instructor Approval Required**  
**Topic:** Social Spaces on the Internet. The Internet is home to a panoply of varieties of human interaction. Social media, interactive games, telepresence, online environments, and simple text e-mails now mediate our normal experiences of education, medicine, politics, business, sociality, collective action, and more. As the Internet has become an infrastructure for social life and society itself, our ability to measure and represent that society is also transforming. In this cross-disciplinary university-wide seminar we will investigate the rise of "culture as data:" that is, the use of widespread networked computation to quantify, analyze, explain, and navigate our relationships to social institutions and each other. Students from all disciplines and colleges are welcome. There are no pre-requisites. This section meets with CAS 587, 30145.

### Advanced Multimedia Systems

**Credit Hours:** 4 hours  
**Topic:** Advanced Multimedia Systems. Multimedia data and underlying systems and networks that service multimedia data are becoming ubiquitous. In the "Advanced Multimedia Systems" class we will explore major advances that have been made in multimedia data, systems and networks over the last 10 years to enable next generation multimedia applications. We will take the end-to-end approach and explore an integrated view of multimedia systems ranging from 3D immersive video and audio, haptic and holographic video, advanced compression techniques H.264, MPEG4 and MPEG-7, new multimedia transport protocols, Quality of Service preservation for mobile multimedia, HDTV broadcasting systems, advanced CDN-P2P multimedia networks to multimedia data mining, 3D tele-immersive interactive systems, and subjective and objective Quality of Perception evaluation methods for next generation multimedia applications.

### Parallel Programming

**Credit Hours:** 4 hours  
**Topic:** Parallel programming with migratable objects. This course will teach and explore a method for parallel programming that can be used to program multicore desktop (with and without accelerators), small clusters, as well as petascale/exascale computers, with the same programming model. The model is based on the idea of over-decomposing the computation into a large number of interacting objects, mostly independent of the number of processors, and to empower an intelligent runtime system decide where and when the objects execute. Pre-requisite: No specific course requirements. Good sequential programming experience in C++ and/or Java.
Credit Hours: 4 hours
Mach Lrng for Signal Processng

Topic: Machine Learning for Signal Processing. Prerequisite: Linear algebra, Probability theory. Today we see an increasing need for machines that can understand complex real-world signals, such as speech, images, movies, music, biological and mechanical readings, etc. In this course we will cover the fundamentals of machine learning and signal processing as they pertain to this goal, as well as exciting recent developments. We will learn how to decompose, analyze, classify, detect and consolidate signals, and examine various commonplace operations such as finding faces from camera feeds, organizing personal music collections, designing speech dialog systems and understanding movie content. The course will consist of lectures and student projects and presentations. Students are expected to have a working knowledge of linear algebra, probability theory, and programming skills to carry an implementation of a final project (preferably in MATLAB, but all languages are welcome).