

Course Schedule - Fall 2005

Computer Science

100 **Freshman Orientation in CS** Credit: 1 hours.

(C S 100) Introduction to Computer Science as a field and career for computer science majors. Overview of the field is presented along with specific examples of problem areas and methods of solution. Recommended for all freshman Computer Science majors.

CRN	Type	Section	Time	Days	Location	Instructor
30094	lecture	U	04:00 PM - 04:50 PM	T	room 1320 Digital Computer Laboratory	Kamin, S
30094: Meets 11-Oct-05 - 09-Dec-05.						
	lecture	U	04:00 PM - 04:50 PM	T	room 1310 Digital Computer Laboratory	Kamin, S
: Meets 11-Oct-05 - 09-Dec-05.						
: This course first meets on Tuesday, October 11, 2005.						

101 **Intro to Computing, Eng & Sci** Credit: 3 hours.

(C S 101) Fundamental principles, concepts, and methods of computing, with emphasis on applications in the physical sciences and engineering. Basic problem solving and programming techniques; fundamental algorithms and data structures; use of computers in solving engineering and scientific problems. Credit is not given for both CS 101 and either CS 105 or CS 110 section C. Prerequisite: MATH 220.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

Students must register for one lab-discussion and one lecture section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
35879	lecture	AL1	01:00 PM - 01:50 PM	MW	room 66 Library - Main	Gambill, T
35879: Quant Reasoning II course.						
35883	lecture	AL2	02:00 PM - 02:50 PM	MW	room 100 Noyes Laboratory	Gambill, T
35883: Quant Reasoning II course.						
35886	laboratory-discussion	AYA	03:00 PM - 04:50 PM	M	room L520 Digital Computer Laboratory	Gambill, T; Kotov, A
35886: Quant Reasoning II course.						
35889	laboratory-discussion	AYB	09:00 AM - 10:50 AM	T	room L520 Digital Computer Laboratory	Gambill, T; Reichert, A

35889: Quant Reasoning II course.						
35890	laboratory-discussion	AYC	11:00 AM - 12:50 PM	T	room L520 Digital Computer Laboratory	Gambill, T; Wu, T
35890: Quant Reasoning II course.						
35893	laboratory-discussion	AYD	01:00 PM - 02:50 PM	T	room L520 Digital Computer Laboratory	Gambill, T; Wu, T
35893: Quant Reasoning II course.						
35896	laboratory-discussion	AYE	03:00 PM - 04:50 PM	T	room L520 Digital Computer Laboratory	Gambill, T; Kotov, A
35896: Quant Reasoning II course.						
35899	laboratory-discussion	AYF	03:00 PM - 04:50 PM	W	room L520 Digital Computer Laboratory	Gambill, T; Bengtson, E
35899: Quant Reasoning II course.						
35902	laboratory-discussion	AYG	09:00 AM - 10:50 AM	R	room L520 Digital Computer Laboratory	Gambill, T; Reichert, A
35902: Quant Reasoning II course.						
35907	laboratory-discussion	AYH	11:00 AM - 12:50 PM	R	room L520 Digital Computer Laboratory	Gambill, T; Wu, T
35907: Quant Reasoning II course.						
35910	laboratory-discussion	AYI	01:00 PM - 02:50 PM	R	room L520 Digital Computer Laboratory	Gambill, T; Belcher, M
35910: Quant Reasoning II course.						
35913	laboratory-discussion	AYJ	03:00 PM - 04:50 PM	R	room L520 Digital Computer Laboratory	Gambill, T; Belcher, M
35913: Quant Reasoning II course.						
35915	laboratory-discussion	AYK	10:00 AM - 11:50 AM	F	room L520 Digital Computer Laboratory	Gambill, T; Reichert, A
35915: Quant Reasoning II course.						
35918	laboratory-discussion	AYL	12:00 PM - 01:50 PM	F	room L520 Digital Computer Laboratory	Gambill, T; Bengtson, E
35918: Quant Reasoning II course.						

105 Intro to Computing, Non-Tech Credit: 3 hours.

(C S 105) Introduction to computing as an essential tool of academic and professional activities in disciplines other than science and engineering. Functions and interrelationships of computer system components: hardware, systems and applications software, networks. Widely used application packages such as spreadsheets and databases. Concepts and practice of programming for the solution of simple problems in different application areas. Students interested in scientific and engineering applications of computing should take CS 101 instead of this course. Prerequisite: MATH 012 or equivalent. Credit is not given for both CS 105 and CS 101.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one lab-discussion and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
35823	lecture	AL1	09:00 AM - 09:50 AM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
35823: Quant Reasoning I course.						
35824	lecture	AL2	10:00 AM - 10:50 AM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
35824: Quant Reasoning I course.						
35825	lecture	AL3	11:00 AM - 11:50 AM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
35825: Quant Reasoning I course.						
35826	lecture	AL4	12:00 PM - 12:50 PM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
35826: Quant Reasoning I course.						
35827	laboratory-discussion	AYA	04:00 PM - 04:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Morlok, R
35827: Quant Reasoning I course.						
35828	laboratory-discussion	AYB	05:00 PM - 05:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Wang, L
35828: Quant Reasoning I course.						
35829	laboratory-discussion	AYC	06:00 PM - 06:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Morlok, R
35829: Quant Reasoning I course.						
35830	laboratory-discussion	AYD	07:00 PM - 07:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Morlok, R
35830: Quant Reasoning I course.						
35831	laboratory-discussion	AYE	09:00 AM - 09:50 AM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; McGovern, A
35831: Quant Reasoning I course.						

35832	laboratory-discussion	AYF	10:00 AM - 10:50 AM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; McGovern, A
35832: Quant Reasoning I course.						
35833	laboratory-discussion	AYG	11:00 AM - 11:50 AM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Hilldore, B
35833: Quant Reasoning I course.						
35835	laboratory-discussion	AYH	12:00 PM - 12:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Cranston, D
35835: Quant Reasoning I course.						
35836	laboratory-discussion	AYI	01:00 PM - 01:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Cranston, D
35836: Quant Reasoning I course.						
35837	laboratory-discussion	AYJ	02:00 PM - 02:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Acharya, E
35837: Quant Reasoning I course.						
35838	laboratory-discussion	AYK	03:00 PM - 03:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Yin, M
35838: Quant Reasoning I course.						
35840	laboratory-discussion	AYL	04:00 PM - 04:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Yin, M
35840: Quant Reasoning I course.						
35843	laboratory-discussion	AYM	05:00 PM - 05:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Yin, M
35843: Quant Reasoning I course.						
35847	laboratory-discussion	AYN	06:00 PM - 06:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Yang, Q
35847: Quant Reasoning I course.						
35849	laboratory-discussion	AYO	07:00 PM - 07:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Yang, Q
35849: Quant Reasoning I course.						
35851	laboratory-discussion	AYP	10:00 AM - 10:50 AM	F	room 70A Wohlers Hall	Iqbal, S; Gambill, T; Woodbury, M
35851: Quant Reasoning I course.						
35854	laboratory-	AYQ	11:00 AM - 11:50	F	room 70A	Gambill, T;

	discussion		AM		Wohlers Hall	Woodbury, M; Wang, L
35854: Quant Reasoning I course.						
35856	laboratory-discussion	AYR	12:00 PM - 12:50 PM	F	room 70A Wohlers Hall	Iqbal, S; Gambill, T; Woodbury, M
35856: Quant Reasoning I course.						
35858	laboratory-discussion	AYS	01:00 PM - 01:50 PM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Parr, D
35858: Quant Reasoning I course.						
35873	laboratory-discussion	AYT	02:00 PM - 02:50 PM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Parr, D
35873: Quant Reasoning I course.						

125 Intro to Computer Science Credit: 4 hours.

(C S 125) First course for computer science majors and other students with a deep interest in computing. The course introduces students to basic concepts in computing and fundamental techniques for solving computational problems Prerequisite: Three years of high school mathematics or MATH 012.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

Students must register for one lab-discussion and one lecture section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
35876	lecture	AL1	01:00 PM - 01:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
35876: Quant Reasoning I course.						
35878	lecture	AL2	02:00 PM - 02:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
35878: Quant Reasoning I course.						
35881	laboratory-discussion	AYA	09:00 AM - 10:50 AM	T	room 1245 Digital Computer Laboratory	Zych, J
35881: Quant Reasoning I course.						
35885	laboratory-discussion	AYB	11:00 AM - 12:50 PM	T	room 1245 Digital Computer Laboratory	Zych, J
35885: Quant Reasoning I course.						
35888	laboratory-discussion	AYC	01:00 PM - 02:50 PM	T	room 1245 Digital Computer Laboratory	Zych, J
35888: Quant Reasoning I course.						

35891	laboratory-discussion	AYD	03:00 PM - 04:50 PM	T	room 1245 Digital Computer Laboratory	Zych, J
35891: Quant Reasoning I course.						
35898	laboratory-discussion	AYE	03:00 PM - 04:50 PM	W	room 1245 Digital Computer Laboratory	Zych, J
35898: Quant Reasoning I course.						
35906	laboratory-discussion	AYH	01:00 PM - 02:50 PM	R	room 1245 Digital Computer Laboratory	Zych, J
35906: Quant Reasoning I course.						
35908	laboratory-discussion	AYI	03:00 PM - 04:50 PM	R	room 1245 Digital Computer Laboratory	Zych, J
35908: Quant Reasoning I course.						
35911	laboratory-discussion	AYJ	09:00 AM - 10:50 AM	F	room 1245 Digital Computer Laboratory	Zych, J
35911: Quant Reasoning I course.						
35914	laboratory-discussion	AYK	11:00 AM - 12:50 PM	F	room 1245 Digital Computer Laboratory	Zych, J
35914: Quant Reasoning I course.						

173 Discrete Structures Credit: 3 hours.

(C S 173) Studies discrete mathematical structures frequently encountered in the study of Computer Science. Topics will include sets, propositions, boolean algebra, induction, recursion, relations, functions, and graphs. Credit is not given for both CS 173 and MATH 213.

CRN	Type	Section	Time	Days	Location	Instructor
30102	lecture-discussion	M	09:30 AM - 10:45 AM	TR	room 1404 Siebel Center for Comp Sci	Heeren, C
40083	lecture-discussion	N	11:00 AM - 12:15 PM	TR	room 1214 Siebel Center for Comp Sci	Heeren, C

196 Freshman Honors Course in CS Credit: 1 hours.

(C S 196) Course is offered for honors credit in conjunction with other 100-level computer science courses, in which concurrent registration is required. Enrollment is strictly limited to beginning students with superior talents in computer science. A special examination may be required for admission to this course. May be repeated. Prerequisite: Concurrent registration in another 100-level computer science course (see Schedule); or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
31507	lecture-discussion	1	ARRANGED			Gambill, T
31507: SECTION 1 is for students registered in CS 101						
31508	lecture-discussion	25	ARRANGED			Zych, J
31508: SECTION 25 is for students registered in CS 125						
31509	lecture-discussion	5	ARRANGED			Woodbury, M
31509: SECTION 5 is for students registered in CS 105						
31510	lecture-discussion	73	ARRANGED			Heeren, C
31510: SECTION 73 is for students registered in CS 173						

199 Undergraduate Open Seminar Credit: 1 to 5 hours.
(C S 199) May be repeated.

CRN	Type	Section	Time	Days	Location	Instructor
42790	lecture-discussion	A	04:00 PM - 04:50 PM	R		Kamin, S
42790: 1 hours Topic: Intro to Programming Meets 13-Oct-05 - 09-Dec-05.						
31511	lecture-discussion	GG	04:00 PM - 05:15 PM	WF	room 1131 Siebel Center for Comp Sci	Garnett, G
31511: TOPIC: Computing Arts: Art in a Virtual World. An introduction to scripting concepts and tools for creating aesthetic objects and behaviors in a multiuser, online, virtual world. This section meets with CS 498, Section GG, but will have separate discussion groups and project groups in WIMSE. Credit 1-3 hours.						

210 Ethical & Prof'l Issues in CS Credit: 2 hours.

(C S 210) Ethics for the computing profession. Ethical decision-making; licensing; intellectual property, freedom of information and privacy. Students will be required to make oral presentations Credit is not given for both CS 210 and ECE 316. Prerequisite: CS 225 and junior standing.

CRN	Type	Section	Time	Days	Location	Instructor
31516	lecture-discussion	1	12:00 PM - 01:50 PM	M	room 1103 Siebel Center for Comp Sci	Woodbury, M; Comertoglu, M
31517	lecture-discussion	2	03:00 PM - 04:50 PM	M	room 1103 Siebel Center for Comp Sci	Woodbury, M; Comertoglu, M

43359	lecture-discussion	3	12:00 PM - 01:50 PM	W	room 1103 Siebel Center for Comp Sci	Kumar, G; Woodbury, M
43360	lecture-discussion	4	03:00 PM - 04:50 PM	W	room 1103 Siebel Center for Comp Sci	Kumar, G; Woodbury, M

225 Data Structure & Softw Prin Credit: 4 hours.

Data abstractions: elementary data structures: lists, stacks, queues, trees; searching and sorting techniques. Introduction to the principles of software engineering including term programming project. Prerequisite: CS 125, ECE 190 or both CS 110 and junior standing; CS 173 or MATH 213; or consent of instructor.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

Students must register for one lecture-discussion and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
35917	lecture	AL1	12:00 PM - 12:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
35917: Quant Reasoning II course.						
35919	lecture	AL2	03:00 PM - 03:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
35919: Quant Reasoning II course.						
35923	laboratory-discussion	AYA	01:00 PM - 02:50 PM	W	room 1235 Digital Computer Laboratory	Zych, J
35923: Quant Reasoning II course.						
35926	laboratory-discussion	AYB	03:00 PM - 04:50 PM	W	room 1235 Digital Computer Laboratory	Zych, J
35926: Quant Reasoning II course.						
35944	laboratory-discussion	AYC	09:00 AM - 10:50 AM	R	room 1235 Digital Computer Laboratory	Zych, J
35944: Quant Reasoning II course.						
35947	laboratory-discussion	AYD	11:00 AM - 12:50 PM	R	room 1235 Digital Computer Laboratory	Zych, J
35947: Quant Reasoning II course.						
35950	laboratory-discussion	AYE	01:00 PM - 02:50 PM	R	room 1235 Digital Computer Laboratory	Zych, J
35950: Quant Reasoning II course.						

35952	laboratory-discussion	AYF	03:00 PM - 04:50 PM	R	room 1235 Digital Computer Laboratory	Zych, J
35952: Quant Reasoning II course.						
35954	laboratory-discussion	AYG	09:00 AM - 10:50 AM	F	room 1235 Digital Computer Laboratory	Zych, J
35954: Quant Reasoning II course.						
35956	laboratory-discussion	AYH	11:00 AM - 12:50 PM	F	room 1235 Digital Computer Laboratory	Zych, J
35956: Quant Reasoning II course.						
35959	laboratory-discussion	AYI	01:00 PM - 02:50 PM	F	room 1235 Digital Computer Laboratory	Zych, J
35959: Quant Reasoning II course.						
35960	laboratory-discussion	AYJ	03:00 PM - 04:50 PM	F	room 1235 Digital Computer Laboratory	Zych, J
35960: Quant Reasoning II course.						

231 **Computer Architecture I** Credit: 3 hours.

(C S 231) Introduction to computer architecture, working up from the logic gate level: combinational and sequential networks; computer arithmetic; arithmetic/logic units; memory organization; control unit design. Credit is not given for both CS 231 and ECE 290. Prerequisite: CS 125.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
30105	lecture	X	11:00 AM - 11:50 AM	MW	room 1404 Siebel Center for Comp Sci	Kale, L
30105: Quant Reasoning II course.						
30105: A review session will be held each week at 11:00 on Friday, 1404 Siebel Center. Students should adjust their schedule accordingly.						

232 **Computer Architecture II** Credit: 3 hours.

(C S 232) Second-level course in computer architecture: machine-level programming, instruction sets, data representations; subroutines; input/output hardware and software; linking and loading; relation to high-level languages. Credit is not given for both CS 232 and ECE 390. (Counts for advanced hours in LAS). Prerequisite: CS 231.

Students must register for one lab and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
35966	laboratory	AB1	10:00 AM - 10:50 AM	M	room 1111 Siebel Center for Comp Sci	Torrellas, J
35968	laboratory	AB2	11:00 AM - 11:50 AM	M	room 1111 Siebel Center for Comp Sci	Torrellas, J
35971	laboratory	AB3	01:00 PM - 01:50 PM	M	room 1111 Siebel Center for Comp Sci	Torrellas, J
35978	laboratory	AB5	11:00 AM - 11:50 AM	T	room 1304 Siebel Center for Comp Sci	Torrellas, J
35963	lecture	AL1	10:00 AM - 10:50 AM	WF	room 1320 Digital Computer Laboratory	Torrellas, J

241 System Programming Credit: 3 hours.

Introduction to systems programming: This course will cover the basics of system programming, including POSIX processes, process control, inter-process communication, synchronization, signals, simple memory management, file I/O and directories, shell programming, socket network programming, RPC programming in distributed systems, basic security mechanisms, and standard tools for systems programming such as debugging tools. Prerequisite: CS 225; CS 231; credit or concurrent registration in CS 232.

CRN	Type	Section	Time	Days	Location	Instructor
45300	lecture-discussion	SP	11:00 AM - 11:50 AM	MWF	room 1103 Siebel Center for Comp Sci	Campbell, R; Bennett, A

242 Programming Studio Credit: 3 hours.

Intensive programming lab intended to strengthen skills in programming. Prerequisite: CS 241.

CRN	Type	Section	Time	Days	Location	Instructor
45328	laboratory	AB1	ARRANGED		Siebel Center for Comp Sci	Woodley, M
45325	lecture	AL1	11:00 AM - 11:50 AM	M	room 1302 Siebel Center for Comp Sci	Woodley, M

257 Numerical Methods Credit: 3 hours.

(C S 257) Introduction to numerical methods for students in science and engineering; topics include floating-point computation, systems of linear equations, approximation of functions and integrals, the single nonlinear equation, and the numerical solution of ordinary differential equations; discusses various applications in science and engineering; includes some programming as well as the use of high quality mathematical library routines Same as

MATH 257. Students with earned credit in CS 450 or MATH 450 may not receive additional credit for CS or MATH 257. (Counts for advanced hours in LAS). Prerequisite: A 100-level computer science course; MATH 225 or MATH 415; MATH 242 or MATH 243.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
36131	lecture-discussion	M	12:30 PM - 01:45 PM	WF	room 1320 Digital Computer Laboratory	Vanderzee, H
36131: Quant Reasoning II course.						

273 Intro to Theory of Computation Credit: 3 hours.

Finite automata and regular languages; pushdown automata and context-free languages; Turing machines and recursively enumerable sets; computability and the halting problem; undecidable problems; computational complexity and NP-completeness. Prerequisite: CS 125 and either CS 173 or MATH 213.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
30107	lecture-discussion	P	12:30 PM - 01:45 PM	TR	room 100 Materials Science and Eng Bld	Lavalle, S
30107: Quant Reasoning II course.						

296 Honors Course in CS Credit: 1 hours.

(C S 296) Group projects for honors work in computer science. Sections of this course are offered in conjunction with other 200-level computer science courses, in which concurrent registration is required. A special examination may be required for admission to this course. May be repeated. Prerequisite: Concurrent registration in another 200-level computer science course (see Schedule); or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
31518	lecture-discussion	25	ARRANGED			Zych, J
31518: Section 25 is for students registered in CS 225						
31519	lecture-discussion	31	ARRANGED			Kale, L
31519: Section 31 is for students registered is CS 231						
31520	lecture-discussion	32	ARRANGED			Torrellas, J
31520: Section 32 is for students registered in CS 232						
31521	lecture-	57	ARRANGED			Vanderzee, H

	discussion					
31521: Section 57 is for students registered in CS 257						
31522	lecture-discussion	73	ARRANGED			Lavalle, S
31522: Section 73 is for students registered in CS 273						

397 Individual Study Credit: 1 to 3 hours.

(C S 290) May be repeated. Prerequisite: 100-level computer science course; consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10464	independent study		ARRANGED			
10464: Instructor Approval Required						
10464: Students must see the CS Department to receive the appropriate CRN for the instructor.						

400 Data Structures, Non-CS Majors Credit: 4 hours.

(C S 300) Course integrates software engineering principles with data structures implemented in C++. While prior experience with either C, C++ or Java is assumed, C++ will be taught in the first three weeks of the course. Software engineering will be covered in three stages: personal software process (checkpoints, project plans, defects and code reviews), prior to coding (process models, requirements and design) and after coding (testing and quality assurance techniques). The concepts, principles, and use of data structures will include pointers, lists, arrays, sets, stacks, trees, hashing, graphs, priority queues and sorting. Special emphasis will be placed on the implementations of these structures in real-world applications Same as CSE 400. Credit is not given for both CS 400 and CS 225. Computer Science and Computer Engineering majors may not receive credit for CS 400. Prerequisite: CS 110 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
36125	laboratory-discussion	1	ARRANGED			Peiper, C
	lecture	1	02:00 PM - 02:50 PM	MWF	room 1131 Siebel Center for Comp Sci	Peiper, C

411 Database Systems Credit: 3 or 4 hours.

(C S 311) Examines the logical organization of databases: the entity-relationship model; the hierarchical, network, and relational data models and their languages. Functional dependencies and normal forms. Design, implementation, and optimization of query languages; security and integrity; concurrency control, and distributed database systems. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 225 or CS 400 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
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30109	lecture-discussion	Q3	03:30 PM - 04:45 PM	WF	room 1320 Digital Computer Laboratory	Chang, K
30109: 3 hours						
40086	lecture-discussion	Q4	03:30 PM - 04:45 PM	WF	room 1320 Digital Computer Laboratory	Chang, K
40086: 4 hours						

412 Intro Data Mining Credit: 3 or 4 hours.

Introduction to the concepts, techniques, and systems of data warehousing and data mining, including (1) design and implementation of data warehouse and on-line analytical processing (OLAP) systems; and (2) data mining concepts, methods, systems, implementations and applications. 3 undergraduate or graduate hours. 4 graduate hours. Prerequisite: CS 225 or CS 500; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
43357	lecture-discussion	P3	12:30 PM - 01:45 PM	WF	room 1304 Siebel Center for Comp Sci	Han, J
43357: 3 hours						
43358	lecture-discussion	P4	12:30 PM - 01:45 PM	WF	room 1304 Siebel Center for Comp Sci	Han, J
43358: 4 hours						

413 Intro to Combinatorics Credit: 3 or 4 hours.

(C S 313) Same as MATH 413. See MATH 413.

This course satisfies the General Education Criteria for a Quant Reasoning II course.

CRN	Type	Section	Time	Days	Location	Instructor
33540	lecture-discussion	F13	02:00 PM - 02:50 PM	MWF	room 141 Altgeld Hall	Hartke, S
33540: Quant Reasoning II course.						
33540: 3 hours						
39196	lecture-discussion	F14	02:00 PM - 02:50 PM	MWF	room 141 Altgeld Hall	Hartke, S
39196: Quant Reasoning II course.						
39196: 4 hours Departmental Approval Required						

418 Computer Graphics Credit: 3 or 4 hours.

(C S 318) Introduction to basic mathematical tools and computational techniques for modeling, rendering, and animating 3-D scenes. Same as CSE 427. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 225 or CS 400; MATH 225 or MATH 415; MATH 242 or MATH 243.

CRN	Type	Section	Time	Days	Location	Instructor
36119	lecture-discussion	P3	03:30 PM - 04:45 PM	TR	room 1404 Siebel Center for Comp Sci	Garland, M
36119: 3 hours						
36121	lecture-discussion	P4	03:30 PM - 04:45 PM	TR	room 1404 Siebel Center for Comp Sci	Garland, M
36121: 4 hours						

421 Programming Lang and Compilers Credit: 3 or 4 hours.

(C S 321) Introduction to the structure of programming languages and their implementation. Basic language design principles; abstract data types; functional languages; type systems; object-oriented languages. Basics of lexing, parsing, syntax-directed translation, semantic analysis and code generation. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 241.

CRN	Type	Section	Time	Days	Location	Instructor
30128	lecture-discussion	D3	02:00 PM - 03:15 PM	TR	room 1404 Siebel Center for Comp Sci	Gunter, E
30128: 3 hours						
40087	lecture-discussion	D4	02:00 PM - 03:15 PM	TR	room 1404 Siebel Center for Comp Sci	Gunter, E
40087: 4 hours						

422 Programming Language Design Credit: 3 or 4 hours.

(C S 322) Advanced course in principles of language design. Using imperative and functional programming as unifying themes, major language design paradigms will be explored. Tools in this study will include both practical language processor construction and theoretical models. Emphasis will be on reasoning about programs and languages. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 421.

CRN	Type	Section	Time	Days	Location	Instructor
30132	lecture-discussion	T3	03:30 PM - 04:45 PM	TR	room 1302 Siebel Center for Comp Sci	Rosu, G
30132: 3 hours						

40088	lecture-discussion	T4	03:30 PM - 04:45 PM	TR	room 1302 Siebel Center for Comp Sci	Rosu, G
40088: 4 hours						

423 *Operating Systems Design* Credit: 3 or 4 hours.

(C S 323) The organization and structure of modern operating systems and concurrent programming concepts. Deadlock, virtual memory, processor scheduling, and disk systems. Performance, security, and protection. Same as CSE 423. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 241.

CRN	Type	Section	Time	Days	Location	Instructor
36113	lecture-discussion	G3	10:00 AM - 10:50 AM	MWF	room 1310 Digital Computer Laboratory	Nahrstedt, K
36113: 3 hours This section is for GRADUATE students.						
36115	lecture-discussion	G4	10:00 AM - 10:50 AM	MWF	room 1310 Digital Computer Laboratory	Nahrstedt, K
36115: 4 hours This section is for GRADUATE students.						
43361	lecture-discussion	UG3	10:00 AM - 10:50 AM	MWF	room 1404 Siebel Center for Comp Sci	Gupta, I
43361: 3 hours This section is for UNDERGRADUATE students.						

425 *Distributed Systems* Credit: 3 hours.

(C S 328) Covers topics needed for a basic understanding of distributed computer systems: Protocols, specification techniques, global states and their determination, reliable broadcast, transactions and commitment, security, and real-time systems. Same as CSE 424 and ECE 428. Prerequisite: CS 241.

CRN	Type	Section	Time	Days	Location	Instructor
36091	lecture-discussion	P	11:00 AM - 12:15 PM	TR	room 1105 Siebel Center for Comp Sci	Vaidya, N

426 *Compiler Construction* Credit: 3 or 4 hours.

(C S 326) Compiler structure, syntax analysis, syntax-directed translation, automatically constructed recognizers, semantic analysis, code generation, intermediate language, optimization techniques. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 421.

CRN	Type	Section	Time	Days	Location	Instructor
43355	lecture-	N3	12:30 PM - 01:45	TR	room 1109 Siebel	Adve, V

	discussion		PM		Center for Comp Sci	
43355: 3 hours						
43356	lecture-discussion	N4	12:30 PM - 01:45 PM	TR	room 1109 Siebel Center for Comp Sci	Adve, V
43356: 4 hours						

427 Software Engineering, I Credit: 3 or 4 hours.

(C S 327) Software process, analysis and design. Topics include: software development paradigms, system engineering, function-based analysis and design, and object-oriented analysis and design. Course will use team-projects for hands-on exercises Same as CSE 426. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 225 and CS 273; or consent of instructor.

This course satisfies the General Education Criteria for a Advanced Composition course.

CRN	Type	Section	Time	Days	Location	Instructor
36104	lecture-discussion	S3	12:30 PM - 01:45 PM	TR	room 1320 Digital Computer Laboratory	Johnson, R; Ellison III, C
36104: Advanced Composition course.						
36104: 3 hours						
36107	lecture-discussion	S4	12:30 PM - 01:45 PM	TR	room 1320 Digital Computer Laboratory	Johnson, R; Ellison III, C
36107: Advanced Composition course.						
36107: 4 hours						

431 Embedded Sys Arch and Software Credit: 0 to 4 hours.

Survey of sampled data systems and embedded architecture; overview of the key concepts in common embedded system applications; signal processing and control; embedded microprocessor and device interface; time-critical I/O handling; data communications; real-time operating systems and techniques for the development and analysis of embedded real-time software; hands-on laboratory projects. 3 undergraduate hours only. 3 or 4 graduate hours only. Prerequisite: CS 241 or CS 423.

Students must register for one lab and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
40100	laboratory	AB1	10:00 AM - 11:50 AM	T	room ARR Siebel Center for Comp Sci	Caccamo, M
40101	laboratory	AB2	02:00 PM - 03:50 PM	T	room ARR Siebel Center for Comp Sci	Caccamo, M

31526	laboratory	AB3	03:00 PM - 04:50 PM	W	room ARR Siebel Center for Comp Sci	Caccamo, M
40102	laboratory	AB4	05:00 PM - 06:50 PM	W	room ARR Siebel Center for Comp Sci	Caccamo, M
40667	lecture-discussion	AE3	11:00 AM - 12:15 PM	WF	room 1310 Digital Computer Laboratory	Caccamo, M
40667: 3 hours						
40668	lecture-discussion	AE4	11:00 AM - 12:15 PM	WF	room 1310 Digital Computer Laboratory	Caccamo, M
40668: 4 hours Restricted to graduate students.						

433 Computer System Organization Credit: 3 or 4 hours.

(C S 333) Computer system analysis and design. Organizational dependence on computations to be performed. Speed and cost of parts and overall machines. Instruction set design. Pipeline and vector machines. Memory hierarchy design. Same as CSE 422. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 232 or ECE 390.

CRN	Type	Section	Time	Days	Location	Instructor
36076	lecture-discussion	G3	12:30 PM - 01:45 PM	WF	room 1109 Siebel Center for Comp Sci	Adve, S
36076: 3 hours This section is for GRADUATE students.						
43363	lecture-discussion	G4	12:30 PM - 01:45 PM	WF	room 1109 Siebel Center for Comp Sci	Adve, S
43363: 4 hours This section is for GRADUATE students.						
36069	lecture-discussion	UG3	09:30 AM - 10:45 AM	TR	room 1310 Digital Computer Laboratory	Harrison, W
36069: 3 hours This section is for UNDERGRADUATE students.						

435 Intro VLSI System Design Credit: 3 hours.

(C S 335) Same as CSE 433 and ECE 425. See ECE 425.

CRN	Type	Section	Time	Days	Location	Instructor
36903	lecture	R	01:00 PM - 02:20 PM	TR	room 260 Everitt Elec and Comp Engr Lab	Wong, M

438 Communication Networks Credit: 3 hours.

(C S 338) Layered architectures and the OSI Reference Model; design issues and protocols in the transport, network, and data link layers; architectures and control algorithms of local-area, point-to-point, and satellite networks; standards in networks access protocols; models of network interconnection; overview of networking and communication software. Same as CSE 425 and ECE 438. Prerequisite: CS 241; one of MATH 461, MATH 463, ECE 413.

CRN	Type	Section	Time	Days	Location	Instructor
36061	lecture-discussion	X	02:00 PM - 03:20 PM	MW	room 1320 Digital Computer Laboratory	Kravets, R
36061: 3 hours						

440 Intro Artificial Intelligence Credit: 3 or 4 hours.

(C S 348) Introductory description of the major subjects and directions of research in artificial intelligence; topics include AI languages (LISP and PROLOG), basic problem solving techniques, knowledge representation and computer inference, machine learning, natural language understanding, computer vision, robotics, and societal impacts. Same as ECE 448. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 225 or ECE 390; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
36047	lecture-discussion	Q3	12:30 PM - 01:45 PM	TR	room 1404 Siebel Center for Comp Sci	Dejong, G
36047: 3 hours						
36053	lecture-discussion	Q4	12:30 PM - 01:45 PM	TR	room 1404 Siebel Center for Comp Sci	Dejong, G
36053: 4 hours						

443 Introduction to Robotics Credit: 4 hours.

(C S 343) Same as ECE 470, GE 421, and ME 445. See ECE 470.

CRN	Type	Section	Time	Days	Location	Instructor
36936	laboratory	AB1	01:00 PM - 02:50 PM	T	room 316 Transportation Bldg	
36948	laboratory	AB2	01:00 PM - 02:50 PM	R	room 316 Transportation Bldg	
41574	laboratory	AB3	03:00 PM - 04:50	T	room 316	

			PM		Transportation Bldg	
36967	lecture	AL1	11:30 AM - 12:50 PM	TR	room 260 Everitt Elec and Comp Engr Lab	Hutchinson, S

450 *Intro to Numerical Analysis* Credit: 3 or 4 hours.

(C S 350) Introduction to numerical analysis, including linear system solvers, optimization techniques, interpolation and approximation of functions, solving systems of nonlinear equations, eigenvalue problems, least squares, and quadrature; numerical handling of ordinary and partial differential equations. Same as CSE 401, ECE 491, and MATH 450. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 101 or CS 125; CS 257 or MATH 415; one of MATH 385, MATH 386, MATH 441; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
36016	lecture-discussion	B3	09:00 AM - 09:50 AM	MWF	room 1310 Digital Computer Laboratory	Bond, S
36016: 3 hours						
36020	lecture-discussion	B4	09:00 AM - 09:50 AM	MWF	room 1310 Digital Computer Laboratory	Bond, S
36020: 4 hours						

458 *Numerical Linear Algebra* Credit: 3 or 4 hours.

(C S 358) Direct and iterative methods for systems of linear equations; over determined systems of equations; eigenvalue problems; nonlinear systems of equations. Same as CSE 412 and MATH 458. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 257 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
41131	lecture-discussion	A3	11:00 AM - 12:15 PM	TR	room 1302 Siebel Center for Comp Sci	De Sturler, E
41131: 3 hours						
41132	lecture-discussion	A4	11:00 AM - 12:15 PM	TR	room 1302 Siebel Center for Comp Sci	De Sturler, E
41132: 4 hours						

465 *Princ of User Interface Design* Credit: 3 or 4 hours.

This is a project-focused course that covers fundamental principles of user interface design, implementation, and evaluation. Students work in small teams on a semester-long project that includes: analysis of the problem domain, user skills, and tasks; iterative prototyping of interfaces to address user needs; conducting several forms of evaluation such as cognitive walkthroughs and usability tests; and implementation of the final prototype. Students

from non-technical disciplines may enroll in the course as non-programmers who participate in all aspects of the projects with the possible exception of implementation. Same as LIS 465. 3 undergraduate hours, 3 or 4 graduate hours. Prerequisite: CS 225 or CS 400; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
43388	lecture-discussion	M3	12:30 PM - 01:45 PM	WF	room 1131 Siebel Center for Comp Sci	Bailey, B
43388: 3 hours						
43389	lecture-discussion	M4	12:30 PM - 01:45 PM	WF	room 1131 Siebel Center for Comp Sci	Bailey, B
43389: 4 hours						

473 Algorithms Credit: 3 or 4 hours.

(C S 373) Advanced data structures, graph algorithms, arithmetic algorithms, geometric algorithms, string problems, parallel algorithms, NP-completeness. Same as CSE 414 and MATH 473. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 225 and CS 273; or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
35846	lecture-discussion	G3	12:30 PM - 01:45 PM	TR	room 1310 Digital Computer Laboratory	Erickson, J
35846: 3 hours This section is for GRADUATE students.						
35859	lecture-discussion	G4	12:30 PM - 01:45 PM	TR	room 1310 Digital Computer Laboratory	Erickson, J
35859: 4 hours This section is for GRADUATE students.						
43365	lecture-discussion	UG3	11:00 AM - 12:15 PM	TR	room 1404 Siebel Center for Comp Sci	Pitt, L
43365: 3 hours This section is for UNDERGRADUATE students.						

475 Formal Models of Computation Credit: 3 or 4 hours.

(C S 375) Finite automata and regular languages; pushdown automata and context-free languages; Turing machines and recursively enumerable sets; linear-bounded automata and context-sensitive languages; computability and the halting problem; undecidable problems; recursive functions; Chomsky hierarchy; computational complexity. Same as MATH 475. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 273 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
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35887	lecture-discussion	C3	09:30 AM - 10:45 AM	TR	room 1320 Digital Computer Laboratory	Viswanathan, M
35887: 3 hours						
35895	lecture-discussion	C4	09:30 AM - 10:45 AM	TR	room 1320 Digital Computer Laboratory	Viswanathan, M
35895: 4 hours						

476 Program Verification Credit: 3 or 4 hours.

(C S 376) Examines formal methods for demonstrating correctness and other properties of programs; includes an overview of predicate calculus. Topics include: invariant assertions, Hoare axiomatics, well-founded orderings for proving termination, structural induction, computational induction, data structures, and parallel programs. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 225; CS 273 or MATH 414.

CRN	Type	Section	Time	Days	Location	Instructor
35855	lecture-discussion	D3	09:30 AM - 10:45 AM	TR	room 1103 Siebel Center for Comp Sci	Meseguer, J
35855: 3 hours						
35852	lecture-discussion	D4	09:30 AM - 10:45 AM	TR	room 1103 Siebel Center for Comp Sci	Meseguer, J
35852: 4 hours						

491 Seminar in Computer Science Credit: 0 to 4 hours.

(C S 391) Seminar course for advanced undergraduate and graduate students. Topics will vary. Approved for S/U grading only. May be repeated to a maximum of 4 hours. May be repeated if topics vary. Prerequisite: Varies with course topic; consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
43827	lecture-discussion	LBP	ARRANGED		room ARR Siebel Center for Comp Sci	Thakkar, U; Pitt, L; Heeren, C
43827: 1 hours Topic: CS2GO. Prerequisite: Energy and the desire to popularize and explain computer science to the public and to K-12 students and teachers.						

492 Senior Project in CS, I Credit: 3 hours.

(C S 292) First part of a project course in computer science. Students work in teams to solve typical commercial or industrial problems. Work involves planning, design, and implementation. Extensive oral and written work is required both on-campus and possibly off-campus at sponsors' locations. Students must enroll for a two term sequence, CS 492 and either CS 493 or CS 494. 3 undergraduate hours. Credit is not given for both CS 492 and a project course in another engineering department for the same project. Prerequisite: Senior standing in CS or

consent of instructor.

This course satisfies the General Education Criteria for a Advanced Composition course.

CRN	Type	Section	Time	Days	Location	Instructor
30139	lecture-discussion	CS	03:00 PM - 04:50 PM	W	room 1109 Siebel Center for Comp Sci	Johnson, R
30139: Advanced Composition course.						

498 Special Topics in CS Credit: 0 to 4 hours.

(C S 397) Lectures in topics of current interest. See Schedule for current topics. May be repeated. Prerequisite: As specified for each topic offering, see Schedule or departmental course description.

CRN	Type	Section	Time	Days	Location	Instructor
43753	lecture	CAG	11:00 AM - 12:15 PM	TR	room 1310 Digital Computer Laboratory	Gunter, C
43753: Topic: Computer Security. Prerequisite: CS 498, Information Assurance. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours.						
31531	lecture	CXZ	12:30 PM - 01:45 PM	TR	room 1302 Siebel Center for Comp Sci	Zhai, C
31531: Topic: Algorithms in Bioinformatics. Prerequisite: Programming skills equivalent to CS 225 or CS 400; and knowledge of probability and statistics equivalent to Math 461 or Math 463. No biology background is necessary. Students in curricula other than Computer Science are encouraged to take the course upon consent of the instructor. Credit: 3 Undergraduate Hours; 3 or 4 Graduate Hours.						
43501	lecture	DHP	11:00 AM - 12:15 PM	WF	room 1111 Siebel Center for Comp Sci	Garzaran, M; Padua, D
43501: Topic: Program Optimization: Transformations to improve the speed, power consumption, and design of existing code. Prerequisites: CS 232 and CS 225. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours. For more information about this section, please refer to the website at: http://polaris.cs.uiuc.edu/~garzaran/CS498.htm						
40109	lecture-discussion	EA	11:00 AM - 12:15 PM	TR	room 1131 Siebel Center for Comp Sci	Amir, E
40109: Topic: Reasoning and Knowledge Representation in Artificial Intelligence. Prerequisite: CS 440 or equivalent, CS 473 or equivalent. Familiarity with the basic concepts of logic and probability theory is recommended. 3 Undergraduate Hours; 3 or 4 Graduate Hours. For more information please see: http://www.cs.uiuc.edu/~eyal/classes/f05/cs498ea						
42449	lecture-discussion	GG	04:00 PM - 05:15 PM	WF	room 1131 Siebel Center for Comp Sci	Garnett, G; Campbell, R
42449: 3 hours3 Hours. Topic: Computing Arts: Art in a Virtual World. Meets with Music 404, GG. Programming						

and scripting aesthetic objects and behavior in a multiuser, online, virtual world. We will use game engines such as Torque, SecondLife, HalfLife2, as a starting point for creative programming and game design.

43500	lecture	HOU	12:30 PM - 01:45 PM	TR	room 1103 Siebel Center for Comp Sci	Hou, J
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43500: Topic: Network Systems Laboratory. Prerequisite: CS 438 and CS 423. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours.

43368	lecture-discussion	SH	12:30 PM - 01:45 PM	WF	room 1310 Digital Computer Laboratory	Hinrichs, S
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43368: Topic: Information Assurance. Prerequisite: CS 225. Credit: 3 Undergraduate Hours; 3 or 4 Graduate Hours.

499 **Senior Thesis in CS** Credit: 3 hours.

(C S 299) Research and thesis development experience in computer science. A student works with a faculty member on a mutually agreed upon thesis topic and completes a written thesis. Work involves literature search, oral presentation, analysis and/or implementation, paper preparation, and a written thesis. 3 undergraduate hours. May be repeated to a maximum of 6 hours. Prerequisite: Senior standing in CS and consent of instructor.

This course satisfies the General Education Criteria for a Advanced Composition course.

CRN	Type	Section	Time	Days	Location	Instructor
10465	independent study		ARRANGED			

10465: Advanced Composition course. Instructor Approval Required

10465: Students must see the CS Department to receive the appropriate CRN for the instructor.

511 **Adv Database Mgt Systems** Credit: 4 hours.

Advanced concepts in database management system design and implementation, and an introduction to the major recent developments in the field. Topics include the relational roots, distributed and parallel databases, object databases and extensibility, semistructured data and XML, web research, benchmarks, and current directions in the field. Prerequisite: CS 411.

CRN	Type	Section	Time	Days	Location	Instructor
43351	lecture-discussion	P	02:00 PM - 03:15 PM	WF	room 1310 Digital Computer Laboratory	Doan, A

43351: 4 hours

519 **Scientific Visualization** Credit: 4 hours.

(C S 419) Detailed study of visualization techniques useful in analysis of engineering and scientific data. Topics include study of physical models; methods of computational science; two- and three-dimensional data types; visual representation schemes for scalar, vector, and tensor data; isosurface and volume visualization methods; visual monitoring; and interactive steering. Same as CSE 527. Prerequisite: CS 418.

CRN	Type	Section	Time	Days	Location	Instructor
35905	lecture	P	11:00 AM - 12:15 PM	TR	room 1111 Siebel Center for Comp Sci	Hart, J

524 Concurrent Prog Lang and Sys Credit: 4 hours.

(C S 424) Introduction to the theory of concurrency and concurrent programming languages. Topics include formal models of concurrent computation such as process algebras, nets and actors; high level concurrent programming languages and their operational semantics; and methods for reasoning about correctness and complexity of concurrent programs. Prerequisite: CS 422; CS 475 or CS 476.

CRN	Type	Section	Time	Days	Location	Instructor
40477	lecture-discussion	A	11:00 AM - 12:15 PM	TR	room 1103 Siebel Center for Comp Sci	Agha, G

527 Adv Topics in Software Eng Credit: 4 hours.

(C S 427) Advanced topics in software engineering, including fault-tolerant software, software architecture, software patterns, multi-media software, and knowledge-based approaches to software engineering. Course also includes a number of case studies Same as CSE 529. Prerequisite: CS 428 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
35912	lecture-discussion	S	02:00 PM - 03:15 PM	TR	room 1310 Digital Computer Laboratory	Johnson, R; Adamczyk, P

541 Computer Systems Analysis Credit: 4 hours.

(C S 441) Development of analytical models of computer systems and application of such models to performance evaluation; topics include scheduling policies, paging algorithms, multiprogrammed resource management, and queuing theory. Same as CSE 524 and ECE 541. Prerequisite: MATH 461 or MATH 463; ECE 413 or equivalent.

CRN	Type	Section	Time	Days	Location	Instructor
35921	lecture-discussion	B	08:30 AM - 09:50 AM	MW	room 1302 Siebel Center for Comp Sci	Sanders, W

543 Computer Vision Credit: 4 hours.

(C S 443) Same as ECE 549. See ECE 549.

CRN	Type	Section	Time	Days	Location	Instructor
40090	lecture-	A	12:30 PM - 01:45	TR	room 1304 Siebel	Shinagawa, Y.

	discussion		PM		Center for Comp Sci	Forsyth, D
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545 Systems Modeling & Simulation Credit: 4 hours.
(C S 445) Same as BADM 575. See BADM 575.

CRN	Type	Section	Time	Days	Location	Instructor
37926	lecture-discussion	A	10:30 AM - 12:20 PM	TR	room 138 Wohlers Hall	Engelbrecht-Wiggans, R

571 Combinatorial Mathematics Credit: 4 hours.
(C S 471) Same as MATH 580. See MATH 580.

CRN	Type	Section	Time	Days	Location	Instructor
33563	lecture-discussion	F1	02:00 PM - 02:50 PM	MWF	room 441 Altgeld Hall	West, D

575 Methods of Combinatorics Credit: 4 hours.
(C S 475) Same as MATH 584. See MATH 584.

CRN	Type	Section	Time	Days	Location	Instructor
33556	lecture-discussion	X1	12:00 PM - 12:50 PM	MWF	room 341 Altgeld Hall	Furedi, Z

577 Coding Theory Credit: 4 hours.
(C S 477) Same as ECE 556 and MATH 579. See ECE 556.

CRN	Type	Section	Time	Days	Location	Instructor
37138	discussion-recitation	L	08:30 AM - 09:50 AM	TR	room 169 Everitt Elec and Comp Engr Lab	Sarwate, D
37138: 4 hours						

578 Information Theory Credit: 4 hours.
(C S 478) Same as ECE 563 and STAT 563. See ECE 563.

CRN	Type	Section	Time	Days	Location	Instructor
37142	discussion-recitation	A	01:30 PM - 02:50 PM	MW	room 229 Natural History Bldg	Veeravalli, V
37142: 4 hours						

591 *Advanced Seminar in CS* Credit: 0 to 4 hours.

(C S 491) Seminar on topics of current interest. Subjects will be announced in the Schedule. Approved for both letter and S/U grading. May be repeated in the same or subsequent terms as topics vary. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
35941	lecture-discussion	ACT	ARRANGED			Padua, D; Adve, V; Marinov, D; Harrison, W
35941: 1 hoursTopic: Advanced Compiler Technology. Prerequisite: CS 426.						
43832	lecture-discussion	BIO	ARRANGED		room ARR Siebel Center for Comp Sci	Liu, L; Han, J; Schatz, B; Zhai, C
43832: 1 hoursTopic: Seminar on Bioinformatics.						
35974	lecture-discussion	BPB	ARRANGED			Bailey, B
35974: 1 hoursTopic: Seminar in Human-Computer Interaction. Prerequisite: None.						
35937	lecture-discussion	DCS	04:00 PM - 04:50 PM	M	room 1404 Siebel Center for Comp Sci	Zilles, C
35937: 1 hoursTopic: Department of CS Research Seminar.						
35967	lecture-discussion	DNR	ARRANGED			Roth, D
35967: 1 hoursTopic: Learning and Knowledge. Prerequisite: Consent of instructor.						
46417	lecture-discussion	FM	ARRANGED		room ARR Siebel Center for Comp Sci	Rosu, G
46417: 1 hoursTopic: Formal Methods.						
35953	lecture-discussion	HAN	ARRANGED			Han, J
35953: 1 hoursTopic: Data Mining for Advanced Applications. Prerequisite: Machine learning or statistics course or consent of instructor.						
35951	lecture-discussion	HE	ARRANGED			Hart, J; Erickson, J
35951: 1 hoursTopic: Computational Topology.						

43828	lecture-discussion	IG	ARRANGED		room ARR Siebel Center for Comp Sci	Gupta, I
43828: 1 hoursTopic: Advanced Seminar in Distributed Systems. Prerequisite: CS 598IG or CS 425 or any basic course on distributed systems.						
35949	lecture-discussion	JE	ARRANGED			Erickson, J
35949: 1 hoursTopic: Advanced Topics in Analysis of Algorithms. Prerequisite: CS 473 or CS 475 or consent of instructor.						
35964	lecture-discussion	JM	ARRANGED			Meseguer, J
35964: 1 hoursTopic: Maude: Theory and Applications. Prerequisite: Credit or concurrent registration in CS 476, or consent of instructor.						
35946	lecture-discussion	KCC	ARRANGED			Chang, K
35946: 1 hoursTopic: Who's Who and What's What in Database Research. Prerequisite: consent of instructor.						
43831	lecture-discussion	KGK	ARRANGED		room ARR Siebel Center for Comp Sci	Karahalios, K
43831: 1 hoursTopic: Social Computing.						
43833	lecture-discussion	KN	ARRANGED		room ARR Siebel Center for Comp Sci	Nahrstedt, K
43833: 1 hoursTopic: "Tele-Immersive Systems". Prerequisite: Multimedia-systems related courses (CS 598KN or CS 414) or consent of instructor.						
35961	lecture-discussion	LVK	ARRANGED			Kale, L
35961: 1 hoursTopic: Parallel Objects for Resource Management and Fault Tolerance. Prerequisite: consent of instructor.						
35957	lecture-discussion	MH	ARRANGED			Heath, M
35957: 1 hoursTopic: Parallel Algorithms and Software. Prerequisite: Consent of instructor.						
41193	lecture-discussion	MSW	ARRANGED			Winslett, M
41193: 1 hoursTopic: Database and Information Systems Seminar. Prerequisite: Consent of Instructor.						
41977	lecture	PHD	05:00 PM - 05:50 PM	W	room 1404 Siebel Center for Comp Sci	Harandi, M
41977: 1 hoursTopic: Orientation for new PhD students.						
35958	lecture-discussion	REJ	ARRANGED			Johnson, R
35958: 1 hoursTopic: Software Architecture Seminar. Prerequisite: Consent of instructor.						

41614	lecture-discussion	RHC	ARRANGED		room ARR Siebel Center for Comp Sci	Campbell, R
41614: 1 hoursTopic: Security Reading Seminar. Prerequisite: A prior course in security or CS423 or consent of instructor.						
46060	lecture-discussion	SN	01:30 PM - 02:30 PM	F	room 1105 Siebel Center for Comp Sci	Vaidya, N; Kravets, R; Gupta, I; Luo, H
46060: 1 hoursTopic: New Systems and Networking Seminar. Credit: 1 Hour.						
35965	lecture-discussion	SRR	04:00 PM - 04:50 PM	R	room 4269 Beckman Institute	Ray, S
35965: Topic: Artificial Neural Networks and Computational Brain Theory. Prerequisite: Background in CS, AI and interest in neuroscience topics. Credit: 1 or 2 hours. (Two hour credit entails leading the discussion one time.)						

597 Individual Study Credit: 2 to 16 hours.

(C S 490) Individual study or reading in a subject not covered in normal course offerings. May be repeated. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10467	independent study		ARRANGED			
10467: Instructor Approval Required						
10467: Students must see the CS Department to receive the appropriate CRN for the instructor.						

598 Special Topics in CS Credit: 2 to 4 hours.

(C S 497) Lecture course in topics of current interest. See Schedule for current topics. May be repeated. Prerequisite: As specified for each topic offering, see Schedule or departmental course description.

CRN	Type	Section	Time	Days	Location	Instructor
43665	lecture-discussion	ANH	09:30 AM - 10:45 AM	TR	room 1111 Siebel Center for Comp Sci	Hirani, A
43665: 4 hoursTopic: Calculus on Meshes. Prerequisite: No formal prerequisite except some form of vector calculus. Some familiarity with a scientific computing application area may be useful but is not required.						
43669	lecture-discussion	CZ	09:30 AM - 10:45 AM	MWF	room 1214 Siebel Center for Comp Sci	Zilles, C
43669: 4 hoursTopic: Dynamic Translation and Optimization. Prerequisite: CS 433 or equivalent; CS 426 is recommended.						

43666	lecture-discussion	DM	02:00 PM - 03:15 PM	TR	room 1111 Siebel Center for Comp Sci	Marinov, D
43666: 4 hoursTopic: Software Testing and Analysis						
40107	lecture-discussion	DNR	12:30 PM - 01:45 PM	TR	room 1105 Siebel Center for Comp Sci	Roth, D
40107: 4 hoursTopic: Machine Learning in Natural Language Processing.						
43668	lecture-discussion	EAR	02:45 PM - 04:00 PM	WF	room 1111 Siebel Center for Comp Sci	Ramos, E
43668: 4 hoursTopic: Algorithms in Geometry and Topology. Prerequisite: CS 473 or equivalent.						
42393	lecture-discussion	HL	09:30 AM - 10:45 AM	WF	room 1103 Siebel Center for Comp Sci	Luo, H
42393: 4 hoursTopic: Wireless Networking and Computing. Prerequisite: CS 438 or equivalent.						
42378	lecture-discussion	KGK	11:00 AM - 12:15 PM	WF	room 1131 Siebel Center for Comp Sci	Karahalios, K
42378: 4 hoursTopic: Social Spaces.						
45708	lecture-discussion	LO	02:00 PM - 03:15 PM	TR	room 1103 Siebel Center for Comp Sci	Olson, L
45708: 4 hoursTopic: High-order Multidomain Methods. Prerequisite: CS 450 plus CS 455 or another course in finite element analysis. A course in PDEs, such as Math 442 or 553, could also be helpful.						
46032	lecture-discussion	MAN	11:00 AM - 12:15 PM	WF	room 1302 Siebel Center for Comp Sci	Prabhakaran, M
46032: 4 hoursTopic: An Excursion into the World of Expanders.						
43667	lecture-discussion	MP	03:30 PM - 04:45 PM	TR	room 1103 Siebel Center for Comp Sci	Parthasarathy, M
43667: 4 hoursTopics: Automata and Logic in Verification.						
40519	lecture-discussion	RPE	09:00 AM - 11:50 AM	M	room ARR Siebel Center for Comp Sci	Twidale, M
40519: 4 hoursTopic: Rapid Prototyping and Evaluation Doctoral seminar; other graduate students may enroll with consent of instructor (twidale@uiuc.edu)						
40105	lecture-discussion	SHP	05:00 PM - 06:15 PM	TR	room 1103 Siebel Center for Comp Sci	Har-Peled, S
40105: 4 hoursTopic: Randomized Algorithms						
40108	lecture-	SOS	09:00 AM - 11:50	F	room 1109 Siebel	Gasser, L

	discussion		AM		Center for Comp Sci	
40108: 4 hours Topics in Self-Organizing Information Systems. Doctoral seminar; other graduate students may enroll with permission of instructor (gasser@uiuc.edu). Meets with LIS590 (SOS).						
46042	lecture-discussion	SS	12:30 PM - 01:45 PM	WF	room 1111 Siebel Center for Comp Sci	Sinha, S
46042: 4 hours Topic: Probabilistic Methods for Biological Sequence Analysis. Prerequisite: No background in biology is required. Biological concepts used will be introduced early in the course. The course will involve a research project.						
46041	lecture-discussion	TAR	12:30 PM - 01:45 PM	TR	room 1111 Siebel Center for Comp Sci	Abdelzaher, T
46041: 4 hours Topic: Paradigms for Deeply Embedded Computing in Sensor Networks. Prerequisite: Background in networks and operating systems.						
36011	lecture-discussion	YYZ	03:30 PM - 04:45 PM	TR	room 1214 Siebel Center for Comp Sci	Zhou, Y
36011: 4 hours Topic: Reliable and Robust Software Systems. Prerequisite: CS 423 or equivalent; CS 433, 425, 421 are desired, but not required.						

599 Thesis Research Credit: 0 to 16 hours.

(C S 499) May be repeated. Approved for S/U grading only. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10469	independent study		ARRANGED			
10469: Instructor Approval Required						
10469: Students must see the CS Department to receive the appropriate CRN for the instructor.						