

# Course Schedule - Spring 2005

## Computer Science

**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
31018	lecture	AL1	01:00 PM - 01:50 PM	MW	room 1320 Digital Computer Laboratory	Gambill, T
31018: Quant Reasoning II course.						
31020	lecture	AL2	02:00 PM - 02:50 PM	MW	room 1320 Digital Computer Laboratory	Gambill, T
31020: Quant Reasoning II course.						
31115	laboratory-discussion	AYA	09:00 AM - 10:50 AM	M	room L520 Digital Computer Laboratory	Gambill, T; Kotov, A
31115: Quant Reasoning II course.						
31116	laboratory-discussion	AYB	11:00 AM - 12:50 PM	M	room L520 Digital Computer Laboratory	Gambill, T; Chen, Z
31116: Quant Reasoning II course.						
31117	laboratory-discussion	AYC	03:00 PM - 04:50 PM	M	room L520 Digital Computer Laboratory	Gambill, T; Kheradpour, P
31117: Quant Reasoning II course.						
31118	laboratory-discussion	AYD	09:00 AM - 10:50 AM	T	room L520 Digital Computer Laboratory	Gambill, T; Kheradpour, P
31118: Quant Reasoning II course.						
31119	laboratory-discussion	AYE	03:00 PM - 04:50 PM	T	room L520 Digital Computer Laboratory	Gambill, T; Lim, S
31119: Quant Reasoning II course.						
31120	laboratory-discussion	AYF	09:00 AM - 10:50 AM	W	room L520 Digital Computer	Gambill, T; Bengtson, E

					Laboratory	
31120: Quant Reasoning II course.						
31121	laboratory-discussion	AYG	11:00 AM - 12:50 PM	W	room L520 Digital Computer Laboratory	Gambill, T; Lim, S
31121: Quant Reasoning II course.						
31122	laboratory-discussion	AYH	11:00 AM - 12:50 PM	R	room L520 Digital Computer Laboratory	Gambill, T; Chen, Z
31122: Quant Reasoning II course.						
31123	laboratory-discussion	AYI	01:00 PM - 02:50 PM	R	room L520 Digital Computer Laboratory	Gambill, T; Walker, J
31123: Quant Reasoning II course.						
31124	laboratory-discussion	AYJ	03:00 PM - 04:50 PM	R	room L520 Digital Computer Laboratory	Gambill, T; Bengtson, E
31124: Quant Reasoning II course.						
31125	laboratory-discussion	AYK	09:00 AM - 10:50 AM	F	room L520 Digital Computer Laboratory	Gambill, T; Walker, J
31125: Quant Reasoning II course.						
31126	laboratory-discussion	AYL	11:00 AM - 12:50 PM	F	room L520 Digital Computer Laboratory	Gambill, T; Kotov, A
31126: 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
31127	lecture	AL1	09:00 AM - 09:50 AM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
31127: Quant Reasoning I course.						
31128	lecture	AL2	10:00 AM - 10:50 AM	MW	room 66 Library - Main	Gambill, T; Woodbury, M

31128: Quant Reasoning I course.						
31129	lecture	AL3	11:00 AM - 11:50 AM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
31129: Quant Reasoning I course.						
31130	lecture	AL4	12:00 PM - 12:50 PM	MW	room 66 Library - Main	Gambill, T; Woodbury, M
31130: Quant Reasoning I course.						
31131	laboratory-discussion	AYA	05:00 PM - 05:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Newell, J
31131: Quant Reasoning I course.						
31132	laboratory-discussion	AYB	06:00 PM - 06:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Wang, L
31132: Quant Reasoning I course.						
31133	laboratory-discussion	AYC	07:00 PM - 07:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Wang, L
31133: Quant Reasoning I course.						
31134	laboratory-discussion	AYD	04:00 PM - 04:50 PM	W	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Newell, J
31134: Quant Reasoning I course.						
31135	laboratory-discussion	AYE	09:00 AM - 09:50 AM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Parr, D
31135: Quant Reasoning I course.						
31136	laboratory-discussion	AYF	10:00 AM - 10:50 AM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Parr, D
31136: Quant Reasoning I course.						
31137	laboratory-discussion	AYG	11:00 AM - 11:50 AM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Hildore, B
31137: Quant Reasoning I course.						
31138	laboratory-discussion	AYH	12:00 PM - 12:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Hildore, B
31138: Quant Reasoning I course.						
31139	laboratory-discussion	AYI	01:00 PM - 01:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Colombi, A
31139: Quant Reasoning I course.						

31140	laboratory-discussion	AYJ	02:00 PM - 02:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Colombi, A
31140: Quant Reasoning I course.						
31141	laboratory-discussion	AYK	03:00 PM - 03:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Morlok, R
31141: Quant Reasoning I course.						
31142	laboratory-discussion	AYL	04:00 PM - 04:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Morlok, R
31142: Quant Reasoning I course.						
31143	laboratory-discussion	AYM	05:00 PM - 05:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Khan, M
31143: Quant Reasoning I course.						
31144	laboratory-discussion	AYN	03:00 PM - 03:50 PM	F	room 70B Wohlers Hall	Gambill, T; Woodbury, M; Yin, M
31144: Quant Reasoning I course.						
31145	laboratory-discussion	AYO	07:00 PM - 07:50 PM	R	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Rosulek, M
31145: Quant Reasoning I course.						
31146	laboratory-discussion	AYP	10:00 AM - 10:50 AM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Yin, M
31146: Quant Reasoning I course.						
31147	laboratory-discussion	AYQ	11:00 AM - 11:50 AM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Tam, E
31147: Quant Reasoning I course.						
31148	laboratory-discussion	AYR	12:00 PM - 12:50 PM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Tam, E
31148: Quant Reasoning I course.						
31149	laboratory-discussion	AYS	01:00 PM - 01:50 PM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Davis, B
31149: Quant Reasoning I course.						
31150	laboratory-discussion	AYT	02:00 PM - 02:50 PM	F	room 70A Wohlers Hall	Gambill, T; Woodbury, M; Davis, B
31150: 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
31152	lecture	AL1	01:00 PM - 01:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
31152: Quant Reasoning I course.						
31155	lecture	AL2	02:00 PM - 02:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
31155: Quant Reasoning I course.						
31157	laboratory-discussion	AYA	09:00 AM - 10:50 AM	T	room 1245 Digital Computer Laboratory	Zych, J; Naisbitt, J
31157: Quant Reasoning I course.						
31159	laboratory-discussion	AYB	11:00 AM - 12:50 PM	T	room 1245 Digital Computer Laboratory	Zych, J; Bashir, A
31159: Quant Reasoning I course.						
31160	laboratory-discussion	AYC	01:00 PM - 02:50 PM	T	room 1245 Digital Computer Laboratory	Zych, J; Samoylov, A
31160: Quant Reasoning I course.						
31163	laboratory-discussion	AYD	03:00 PM - 04:50 PM	T	room 1245 Digital Computer Laboratory	Zych, J; Koomen, P
31163: Quant Reasoning I course.						
31166	laboratory-discussion	AYE	03:00 PM - 04:50 PM	W	room 1245 Digital Computer Laboratory	Zych, J; McGovern, A
31166: Quant Reasoning I course.						
31168	laboratory-discussion	AYF	09:00 AM - 10:50 AM	R	room 1245 Digital Computer Laboratory	Zych, J; Naisbitt, J
31168: Quant Reasoning I course.						
31170	laboratory-	AYG	11:00 AM - 12:50	R	room 1245 Digital	Zych, J; Bashir, A

	discussion		PM		Computer Laboratory	
31170: Quant Reasoning I course.						
31172	laboratory-discussion	AYH	01:00 PM - 02:50 PM	R	room 1245 Digital Computer Laboratory	Zych, J; Samoylov, A
31172: Quant Reasoning I course.						
31174	laboratory-discussion	AYI	03:00 PM - 04:50 PM	R	room 1245 Digital Computer Laboratory	Zych, J; Koomen, P
31174: Quant Reasoning I course.						
31176	laboratory-discussion	AYJ	09:00 AM - 10:50 AM	F	room 1245 Digital Computer Laboratory	Zych, J; Gammer, I
31176: Quant Reasoning I course.						
31177	laboratory-discussion	AYK	11:00 AM - 12:50 PM	F	room 1245 Digital Computer Laboratory	Zych, J; Gammer, I
31177: Quant Reasoning I course.						
31180	laboratory-discussion	AYL	03:00 PM - 04:50 PM	F	room 1245 Digital Computer Laboratory	Zych, J; Samoylov, A
31180: Quant Reasoning I course.						

**173 Discrete Structures** Credit: 2 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
39311	lecture-discussion	M	10:00 AM - 10:50 AM	TR	room 1404 Siebel Center for Comp Sci	Heeren, C
31187	lecture-discussion	Q	11:00 AM - 11:50 AM	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
31189	lecture-discussion	1	ARRANGED			Gambill, T
31193	lecture-discussion	25	ARRANGED			Zych, J
31191	lecture-discussion	5	ARRANGED			Woodbury, M
31195	lecture-discussion	73	ARRANGED			Heeren, C

**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
31205	lecture-discussion	1	12:00 PM - 01:50 PM	M	room 1103 Siebel Center for Comp Sci	Woodbury, M
31205: 2 hours						
31206	lecture-discussion	2	03:00 PM - 04:50 PM	M	room 1103 Siebel Center for Comp Sci	Woodbury, M
31206: 2 hours						
39312	lecture-discussion	3	12:00 PM - 01:50 PM	W	room 1103 Siebel Center for Comp Sci	Woodbury, M
39312: 2 hours						
39313	lecture-discussion	4	03:00 PM - 04:50 PM	W	room 1103 Siebel Center for Comp Sci	Woodbury, M
39313: 2 hours						

**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
-----	------	---------	------	------	----------	------------

31208	lecture	AL1	12:00 PM - 12:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
31208: Quant Reasoning II course.						
31213	lecture	AL2	03:00 PM - 03:50 PM	MWF	room 1404 Siebel Center for Comp Sci	Zych, J
31213: Quant Reasoning II course.						
31216	laboratory-discussion	AYA	01:00 PM - 02:50 PM	M	room 1235 Digital Computer Laboratory	Zych, J; Ivan, A
31216: Quant Reasoning II course.						
31218	laboratory-discussion	AYB	03:00 PM - 04:50 PM	M	room 1235 Digital Computer Laboratory	Zych, J; Korula, N
31218: Quant Reasoning II course.						
31222	laboratory-discussion	AYC	09:00 AM - 10:50 AM	T	room 1235 Digital Computer Laboratory	Zych, J; Kinnersley, W
31222: Quant Reasoning II course.						
31225	laboratory-discussion	AYD	11:00 AM - 12:50 PM	T	room 1235 Digital Computer Laboratory	Wong, L; Zych, J
31225: Quant Reasoning II course.						
31227	laboratory-discussion	AYE	01:00 PM - 02:50 PM	T	room 1235 Digital Computer Laboratory	Zych, J; Korula, N
31227: Quant Reasoning II course.						
31229	laboratory-discussion	AYF	03:00 PM - 04:50 PM	T	room 1235 Digital Computer Laboratory	Zych, J; Ivan, A
31229: Quant Reasoning II course.						
31231	laboratory-discussion	AYG	09:00 AM - 10:50 AM	W	room 1235 Digital Computer Laboratory	Wong, L; Zych, J
31231: Quant Reasoning II course.						
31234	laboratory-discussion	AYH	11:00 AM - 12:50 PM	W	room 1235 Digital Computer Laboratory	Zych, J; Kinnersley, W
31234: Quant Reasoning II course.						
31236	laboratory-discussion	AYI	01:00 PM - 02:50 PM	W	room 1235 Digital Computer Laboratory	Wong, L; Zych, J

31236: Quant Reasoning II course.

31239	laboratory-discussion	AYJ	03:00 PM - 04:50 PM	W	room 1235 Digital Computer Laboratory	Zych, J; Korula, N
-------	-----------------------	-----	---------------------	---	---------------------------------------	--------------------

31239: 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
31241	lecture	D	11:00 AM - 11:50 AM	MW	room 1404 Siebel Center for Comp Sci	Kale, L

31241: Quant Reasoning II course.

**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
31245	discussion-recitation	ADA	10:00 AM - 10:50 AM	M	room 1103 Siebel Center for Comp Sci	Zilles, C
31248	discussion-recitation	ADB	11:00 AM - 11:50 AM	M	room 1103 Siebel Center for Comp Sci	Zilles, C; Comertoglu, M
31250	discussion-recitation	ADC	01:00 PM - 01:50 PM	M	room 1131 Siebel Center for Comp Sci	Zilles, C; Keller, S
31251	discussion-recitation	ADD	02:00 PM - 02:50 PM	M	room 1131 Siebel Center for Comp Sci	Zilles, C; Keller, S
31253	discussion-recitation	ADE	11:00 AM - 11:50 AM	T	room 1103 Siebel Center for Comp Sci	Zilles, C; Comertoglu, M
39375	discussion-recitation	ADF	03:00 PM - 03:50 PM	T	room 1103 Siebel Center for Comp Sci	Zilles, C; Keller, S

31244	lecture	AL1	10:00 AM - 10:50 AM	WF	room 1320 Digital Computer Laboratory	Zilles, C
-------	---------	-----	---------------------	----	---------------------------------------	-----------

**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
31255	lecture-discussion	M	09:30 AM - 10:45 AM	TR	room 1320 Digital Computer Laboratory	Kerkhoven, T; Delfert, P
31255: Quant Reasoning II course.						

**273 Intro to Theory of Computation** Credit: 3 hours.

(C S 273) Introduction to the various aspects of the theory of computation, including the necessary background in first order predicate logic, combinatorics, and recurrence relations; asymptotics; basics of algorithm analysis; NP-completeness; formal languages and automata. Prerequisite: CS 125 and CS 173; or consent of instructor.

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

CRN	Type	Section	Time	Days	Location	Instructor
31259	lecture-discussion	P	11:00 AM - 12:15 PM	TR	room 1320 Digital Computer Laboratory	Lavalle, S
31259: 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
31262	lecture-discussion	25	ARRANGED			Zych, J
31264	lecture-discussion	31	ARRANGED			Kale, L

31265	lecture-discussion	32	ARRANGED			Zilles, C
31267	lecture-discussion	57	ARRANGED			Kerkhoven, T
31268	lecture-discussion	73	ARRANGED			Lavalle, S

**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						

**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
31271	lecture	AL1	02:00 PM - 02:50 PM	MWF	room 1103 Siebel Center for Comp Sci	Peiper, C
31273	laboratory-discussion	AY1	ARRANGED			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
31352	lecture-discussion	N3	02:00 PM - 03:15 PM	TR	room 1320 Digital Computer	Li, C; Doan, A; Cheng, T; Olson, L

					Laboratory	
31352: 3 hours						
31355	lecture-discussion	N4	02:00 PM - 03:15 PM	TR	room 1320 Digital Computer Laboratory	Li, C; Doan, A; Cheng, T; Olson, L
31355: 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
37945	lecture-discussion	E3	09:00 AM - 09:50 AM	MWF	room 441 Altgeld Hall	Kostochka, A
37945: Quant Reasoning II course.Instructor Approval Required						
37945: 3 hours						
37948	lecture-discussion	E4	09:00 AM - 09:50 AM	MWF	room 441 Altgeld Hall	Kostochka, A
37948: Quant Reasoning II course.Instructor Approval Required						
37948: 4 hours						

**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
31359	lecture-discussion	T3	03:30 PM - 04:45 PM	TR	room 1404 Siebel Center for Comp Sci	Garland, M; Dong, S
31359: 3 hours						
31361	lecture-discussion	T4	03:30 PM - 04:45 PM	TR	room 1404 Siebel Center for Comp Sci	Garland, M; Dong, S
31361: 4 hours						

**419 *Advanced Comp Graphics*** Credit: 3 or 4 hours.

(C S 319) Advanced methods for representing, displaying, and rendering two-, three-, and four- dimensional scenes. General algebraic curves and surfaces, splines, Gaussian and bump-function representation, fractals,

particle systems, constructive solid geometry methods, lighting models, radiosity, advanced ray-tracing methods, surface texturing animation techniques, data visualization methods. Same as CSE 428. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 418.

CRN	Type	Section	Time	Days	Location	Instructor
31366	lecture-discussion	C3	10:00 AM - 10:50 AM	MWF	room 1302 Siebel Center for Comp Sci	Hart, J
31366: 3 hours						
39734	lecture-discussion	C4	10:00 AM - 10:50 AM	MWF	room 1302 Siebel Center for Comp Sci	Hart, J
39734: 4 hours						

**420 Intro to Parallel Programming** Credit: 3 or 4 hours.

(C S 320) Introduction to fundamental issues in design and development of parallel programs for various types of parallel computers. Various programming models according to both machine type and application area. Cost models, debugging, and performance evaluation of parallel programs with actual application examples. Same as CSE 402, and ECE 492. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 400 or CS 225; or advanced programming experience.

CRN	Type	Section	Time	Days	Location	Instructor
31370	lecture-discussion	D3	11:00 AM - 11:50 AM	MWF	room 1310 Digital Computer Laboratory	Padua, D
31370: 3 hours						
39736	lecture-discussion	D4	11:00 AM - 11:50 AM	MWF	room 1310 Digital Computer Laboratory	Padua, D
39736: 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 225, and CS 232 or ECE 390.

CRN	Type	Section	Time	Days	Location	Instructor
31375	lecture-discussion	B3	09:00 AM - 09:50 AM	MWF	room 1404 Siebel Center for Comp Sci	Agha, G; Young, P
31375: 3 hours						

31376	lecture-discussion	B4	09:00 AM - 09:50 AM	MWF	room 1404 Siebel Center for Comp Sci	Agha, G; Young, P
31376: 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 225; CS 232 or ECE 390.

CRN	Type	Section	Time	Days	Location	Instructor
31378	lecture-discussion	C3	10:00 AM - 10:50 AM	MWF	room 1404 Siebel Center for Comp Sci	Campbell, R
31378: 3 hours						
31379	lecture-discussion	C4	10:00 AM - 10:50 AM	MWF	room 1404 Siebel Center for Comp Sci	Campbell, R
31379: 4 hours						

**424 *Real-Time Systems*** Credit: 3 or 4 hours.

(C S 324) Examples of real-time computing systems; real-time scheduling and resource management algorithms; analytical and efficient validation methods; examples of real-time operating systems; temporal consistency of real-time data; formal methods for specification of and reasoning about timing constraints. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 423 and CS 431.

CRN	Type	Section	Time	Days	Location	Instructor
31382	lecture-discussion	P3	02:00 PM - 03:15 PM	TR	room 1131 Siebel Center for Comp Sci	Caccamo, M
31382: 3 hours						
39741	lecture-discussion	P4	02:00 PM - 03:15 PM	TR	room 1131 Siebel Center for Comp Sci	Caccamo, M
39741: 4 hours						

**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 423 or consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
31384	lecture-discussion	T	03:30 PM - 04:45 PM	TR	room 1310 Digital Computer Laboratory	Gupta, I

**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
31383	lecture-discussion	N3	12:30 PM - 01:45 PM	TR	room 1109 Siebel Center for Comp Sci	Adve, V
31383: 3 hours						
39432	lecture-discussion	N4	12:30 PM - 01:45 PM	TR	room 1109 Siebel Center for Comp Sci	Adve, V
39432: 4 hours						

**428 Software Engineering, II** Credit: 3 or 4 hours.

(C S 329) Software development, management and maintenance. Topics include project and configuration management, collaborative development models, software quality assurance, interoperability domain engineering and software reuse, and software re-engineering. Same as CSE 429. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 427.

CRN	Type	Section	Time	Days	Location	Instructor
31389	lecture-discussion	Q3	12:30 PM - 01:45 PM	TR	room 1310 Digital Computer Laboratory	Johnson, R
31389: 3 hours						
39377	lecture-discussion	Q4	12:30 PM - 01:45 PM	TR	room 1310 Digital Computer Laboratory	Johnson, R
39377: 4 hours						

**429 Software Engineering II, ACP** Credit: 3 hours.

Course is identical to CS 428 except for the additional writing component. See CS 428. Prerequisite: CS 427 Software Engineering, I.

CRN	Type	Section	Time	Days	Location	Instructor
Page 15 - Computer Science, Spring 2005						

41483	lecture-discussion	Q3	12:30 PM - 01:45 PM	TR	room 1310 Digital Computer Laboratory	Johnson, R
41483: 3 hours						

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

(C S 331) 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 232 or ECE 390; CS 423.

Students must register for one lab and one lecture section.

CRN	Type	Section	Time	Days	Location	Instructor
31398	laboratory	AB1	03:00 PM - 04:50 PM	W	room ARR Siebel Center for Comp Sci	Sha, L; Jamall, M
31399	laboratory	AB2	05:00 PM - 06:50 PM	R	room ARR Siebel Center for Comp Sci	Sha, L; Jamall, M
31401	laboratory	AB3	05:00 PM - 06:50 PM	W	room ARR Siebel Center for Comp Sci	Sha, L; Cheema, A
31403	laboratory	AB4	02:00 PM - 03:50 PM	F	room ARR Siebel Center for Comp Sci	Sha, L; Cheema, A
31393	lecture	AL3	11:00 AM - 12:15 PM	TR	room 1310 Digital Computer Laboratory	Sha, L
31393: 3 hours						
31396	lecture	AL4	11:00 AM - 12:15 PM	TR	room 1310 Digital Computer Laboratory	Sha, L
31396: 4 hours						

**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
31405	lecture-discussion	S3	03:30 PM - 04:45 PM	TR	room 1320 Digital Computer	Harrison, W

					Laboratory	
31405: 3 hours						
31407	lecture-discussion	S4	03:30 PM - 04:45 PM	TR	room 1320 Digital Computer Laboratory	Harrison, W
31407: 4 hours						

**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
33859	laboratory	AB1	ARRANGED			
33861	lecture	AL1	11:00 AM - 12:20 PM	MW	room 269 Everitt Elec and Comp Engr Lab	Carter, N

**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 231 or ECE 290; one of MATH 461, MATH 463, ECE 413.

CRN	Type	Section	Time	Days	Location	Instructor
31410	lecture-discussion	R	02:00 PM - 03:15 PM	TR	room 1404 Siebel Center for Comp Sci	Kravets, R; Patel, M; Luo, H
31410: 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
31423	lecture-discussion	Q3	12:30 PM - 01:45 PM	TR	room 1320 Digital Computer Laboratory	Ponce, J; Bergstrom, A; Mobahi, H
31423: 3 hours						

31424	lecture-discussion	Q4	12:30 PM - 01:45 PM	TR	room 1320 Digital Computer Laboratory	Ponce, J; Bergstrom, A; Mobahi, H
31424: 4 hours						

**446 Machine Learning & Pattern Rec** Credit: 3 or 4 hours.

(C S 346) Organized review of basic theoretical concepts and methods of machine learning and recognition; decision space and linguistic and relational representation of objects; statistical and deterministic recognition algorithms; various types of learning, including adaptive, procedural, and inductive; selected applications; and medical consulting, determination of cost-optimal classification rules, inferential information systems, and computer vision. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 273 and CS 440.

CRN	Type	Section	Time	Days	Location	Instructor
31421	lecture-discussion	P3	12:30 PM - 01:45 PM	WF	room 1310 Digital Computer Laboratory	Roth, D; Chan, J
31421: 3 hours						
39433	lecture-discussion	P4	12:30 PM - 01:45 PM	WF	room 1310 Digital Computer Laboratory	Roth, D; Chan, J
39433: 4 hours						

**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
31427	lecture-discussion	B3	09:00 AM - 09:50 AM	MWF	room 2251 Vet Med Basic Sciences Bldg	Bond, S
31427: 3 hours						
31430	lecture-discussion	B4	09:00 AM - 09:50 AM	MWF	room 2251 Vet Med Basic Sciences Bldg	Bond, S
31430: 4 hours						

**455 Numerical Methods for PDEs** Credit: 3 or 4 hours.

(C S 355) Introduction to numerical techniques for initial and boundary value problems in partial differential equations; includes finite difference and finite element discretization techniques, direct and iterative solution methods for discrete problems, and programming techniques and usage of FORTRAN packages. Same as CSE

411, and MATH 455. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: CS 257; one of MATH 380, MATH 385, MATH 386, MATH 441.

CRN	Type	Section	Time	Days	Location	Instructor
39584	lecture-discussion	N3	12:30 PM - 01:45 PM	TR	room 1103 Siebel Center for Comp Sci	De Sturler, E
39584: 3 hours						
39585	lecture-discussion	N4	12:30 PM - 01:45 PM	TR	room 1103 Siebel Center for Comp Sci	De Sturler, E
39585: 4 hours						

**462 Logic Design** Credit: 3 hours.  
(C S 362) Same as ECE 462 and MATH 491. See ECE 462.

CRN	Type	Section	Time	Days	Location	Instructor
33958	discussion-recitation	C	10:00 AM - 10:50 AM	MWF	room 132 Bevier Hall	Vaidya, N

**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
31552	lecture-discussion	GR3	11:00 AM - 12:15 PM	TR	room 1302 Siebel Center for Comp Sci	Ramos, E
31552: 3 hours						
31558	lecture-discussion	GR4	11:00 AM - 12:15 PM	TR	room 1302 Siebel Center for Comp Sci	Ramos, E
31558: 4 hours						
31457	lecture-discussion	UG3	11:00 AM - 12:15 PM	TR	room 1404 Siebel Center for Comp Sci	Har-Peled, S
31457: 3 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
39586	lecture-discussion	D3	09:30 AM - 10:45 AM	TR	room 1103 Siebel Center for Comp Sci	Meseguer, J
39586: 3 hours						
39587	lecture-discussion	D4	09:30 AM - 10:45 AM	TR	room 1103 Siebel Center for Comp Sci	Meseguer, J
39587: 4 hours						

**477 Formal Software Dev Methods** Credit: 3 or 4 hours.

Mathematical models, languages and methods for software specification, development and verification. Same as ECE 478. Prerequisite: CS 225 or CS 400; CS 273 or MATH 414.

CRN	Type	Section	Time	Days	Location	Instructor
39588	lecture-discussion	B3	09:30 AM - 10:45 AM	TR	room 1131 Siebel Center for Comp Sci	Viswanathan, M
39588: 3 hours						
39589	lecture-discussion	B4	09:30 AM - 10:45 AM	TR	room 1131 Siebel Center for Comp Sci	Viswanathan, M
39589: 4 hours						

**493 Senior Project in CS II, ACP** Credit: 3 hours.

(C S 293) Continuation 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 3 undergraduate hours. Students must enroll for a two term sequence, CS 492 and CS 493. Credit is not given for both CS 493 and a project course in another engineering department for the same project. Prerequisite: CS 492.

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

CRN	Type	Section	Time	Days	Location	Instructor
31260	lecture-discussion	CS	04:00 PM - 04:50 PM	T	room 1302 Siebel Center for Comp Sci	Johnson, R

31260: Advanced Composition course.

31260: 3 hours

**494 Senior Project in CS II** Credit: 3 hours.

Same as CS 493 but without additional writing component. See CS 493. Students must enroll for a two-semester sequence, CS 492 and CS 494. Credit is not given for both CS 494 and a project course in another engineering department for the same project. Prerequisite: CS 492.

CRN	Type	Section	Time	Days	Location	Instructor
40242	lecture-discussion	CS	04:00 PM - 04:50 PM	T	room 1302 Siebel Center for Comp Sci	Johnson, R
40242: 3 hours						

**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
40484	lecture	AT	05:00 PM - 07:50 PM	T	room 2269 Beckman Institute	Ahuja, N; Twidale, M
40484: Instructor Approval Required Topic: Visualizing and Navigating Knowledge Networks. Prerequisite: Admission to the course is by permission of the instructor, only. Eligible students should demonstrate familiarity with one or more of the following: network analysis, programming methodologies, graphic design, human perception and cognition, statistics, computer vision, computer speech analysis, computer graphics, and human computer interaction. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours. This section meets with ECE 498NA, LIS 490KNU and LIS 490KNG						
39547	lecture	CAG	09:30 AM - 10:45 AM	WF	room 1310 Digital Computer Laboratory	Gunter, C
39547: Topic: Foundations of Security. Prerequisite: CS 498RHC, "Information Assurance" or Consent of Instructor. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours.						
41139	lecture	CEL	01:00 PM - 01:50 PM	TR	room 1111 Siebel Center for Comp Sci	Garnett, G; Kamin, S; Campbell, R; Karahalios, K; Harrison, W
41139: Topic: Cell phone programming Credit: 3 Undergraduate hours; 3 or 4 Graduate hours Prerequisite: Permission of instructor Project course on developing software for cell phones and other small-format computing devices; particular emphasis on GSM phones and Pocket PCs.						
41438	lecture	GG	03:00 PM - 04:50 PM	F	room ARR Siebel Center for Comp Sci	Garnett, G; Campbell, R

41438: Topic: Computing Arts II Credit: 3 Undergraduate hours; 3 or 4 Graduate hours Prerequisite: Computing Arts I or consent of instructor						
31592	lecture-discussion	HOU	11:00 AM - 12:15 PM	TR	room 1131 Siebel Center for Comp Sci	Hou, J
31592: Topic: Network Systems Lab. Prerequisite: CS 438. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours.						
39659	lecture	KGK	09:30 AM - 10:45 AM	WF	room 1103 Siebel Center for Comp Sci	Karahalios, K
39659: Topic: Social Computing. Credit: 3 Undergraduate hours; 3 or 4 Graduate hours.						
31594	lecture-discussion	LBP	03:00 PM - 05:30 PM	W	Siebel Center for Comp Sci	Pitt, L
31594: Topics in CS Education: 3 hours credit Meets in 0220 Siebel Center Recently the ACM K-12 task force proposed a model curriculum for computer science education. Among the recommendations was a "Level II" course aimed at early high school, taken by all students, and covering a broad range of topics in Computer Science at an appropriate level. A preliminary draft of detailed learning standards will be available in January. One of many impediments to the widespread adoption of such a curriculum is the dearth of curricular materials. In this course we will work in teams to develop materials aligned with the new standards, and that cover a broad range of CS topics. Students will develop explorations for online distribution, including programming investigations using a variety of kid-friendly environments including the Etoys scripting language provided in Squeak (smalltalk), Logo (NetLogo, Microworlds Logo), among others. No prior knowledge of these languages is expected. For part of the course, students will work with future and current teachers enrolled in Curriculum & Instruction 436: Computers						
40022	lecture-discussion	PGD	04:00 PM - 04:50 PM	TR	room 1111 Siebel Center for Comp Sci	Campbell, R; Woodley, M
40022: 3 hours Topic: Games Studio Course. Prerequisite: CS 225 or Consent of Instructor. Credit: 3 hours.						
39660	laboratory	PS	ARRANGED			Woodley, M
	lecture	PS	11:00 AM - 11:50 AM	M	room 1302 Siebel Center for Comp Sci	Woodley, M
: 3 hours Topic: Programming Studio. Credit: 3 Undergraduate hours. Discussion groups will be created after the beginning of the semester.						
39662	lecture	SH	09:30 AM - 10:45 AM	WF	room 1131 Siebel Center for Comp Sci	Hinrichs, S
39662: Topic: Cybersecurity Laboratory. Prerequisite: CS498RHC (Information Assurance) or Consent of Instructor. 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: Instructor Approval Required						

**511 *Design of Database Mgmt Sys*** Credit: 4 hours.

(C S 411) The internal workings of database management systems: query interpretation, concurrency control, distribution, data buffering, schema management. Considers traditional database management systems and newer approaches. Presents and analyzes the course material in terms of a particular target application. Prerequisite: CS 411.

CRN	Type	Section	Time	Days	Location	Instructor
31602	lecture-discussion	P	02:00 PM - 03:15 PM	WF	room 1310 Digital Computer Laboratory	Hwang, S; Chang, K
31602: 4 hours						

**512 *Data Mining*** Credit: 3 or 4 hours.

(C S 412) Advanced course which introduces data mining concepts, principles and algorithms. Course will cover: introduction, data warehouse and OLAP technology for data mining, data preprocessing, primitives, languages, system architectures for data mining, concept description, association analysis, sequential pattern analysis, classification and prediction, cluster analysis, mining complex types of data, data mining applications and trends in data mining. Prerequisite: CS 411 and CS 473.

CRN	Type	Section	Time	Days	Location	Instructor
31604	lecture-discussion	F	09:30 AM - 10:45 AM	TR	room 1302 Siebel Center for Comp Sci	Han, J
31604: 4 hours						

**522 *Programming Language Semantics*** Credit: 4 hours.

(C S 422) Topics in the theory of programming languages including: functional programming, meta-circular interpreters, typed, untyped and polymorphic lambda-calculi, and denotational semantics. Prerequisite: CS 422 and CS 426.

CRN	Type	Section	Time	Days	Location	Instructor
39590	lecture-discussion	R	12:30 PM - 01:45 PM	WF	room 1131 Siebel Center for Comp Sci	Rosu, G
39590: 4 hours						

**533 Parallel Computer Architecture** Credit: 4 hours.

(C S 433) Theoretical aspects of parallel and pipeline computation; time and processor bounds on classes of computations; data alignment network speed and cost bounds; conflict-free access memories; and overall computer system ideas. Same as CSE 522 and ECE 533. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
31610	lecture-discussion	S	09:30 AM - 10:45 AM	TR	room 1109 Siebel Center for Comp Sci	Torrellas, J
31610: 4 hours						

**548 Comp Models of Cognitive Proc** Credit: 4 hours.

(C S 448) Formal models and concepts in vision and language; detailed analysis of computer vision, language, and learning problems; relevant psychological results and linguistic systems; and survey of the state of the art in artificial intelligence. Same as ECE 548. Prerequisite: CS 440.

CRN	Type	Section	Time	Days	Location	Instructor
31614	lecture-discussion	R	12:30 PM - 01:45 PM	TR	room 1131 Siebel Center for Comp Sci	Dejong, G
31614: 4 hours						

**576 Topics in Automated Deduction** Credit: 2 to 4 hours.

(C S 476) Advanced topics in computer-aided methods for formal deduction, selected from areas of current research, such as: resolution theorem proving strategies, special relations, equational reasoning, unification theory, rewrite systems, mathematical induction, program derivation, hybrid inference systems, and programming with logic. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
31622	lecture-discussion	N	12:30 PM - 01:45 PM	TR	room 1214 Siebel Center for Comp Sci	Gunter, E
31622: 4 hours						

**579 Computational Complexity** Credit: 4 hours.

(C S 479) Same as ECE 579 and MATH 578. See ECE 579.

CRN	Type	Section	Time	Days	Location	Instructor
41446	lecture-discussion	F	01:00 PM - 01:50 PM	MWF	room 169 Everitt Elec and Comp Engr Lab	Roman, M

41446: 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. May be repeated in the same or subsequent terms as topics vary. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
31660	lecture-discussion	438	ARRANGED			Kravets, R; Luo, H
31660: 1 hours This section is designated to complement CS 438, Communication Networks. Interested students must contact the instructor for approval to register. Prerequisite: Concurrent enrollment in CS 438. Credit: 1 hour.						
31634	lecture-discussion	AD	ARRANGED			Doan, A
31634: 1 hours Topic: Seminar on Managing Distributed and Heterogeneous Data. Prerequisite: Undergraduate database and machine learning background is a plus. Credit: 1 hour.						
31625	lecture-discussion	AP	ARRANGED			Padua, D; Adve, V
31625: 1 hours Topic: Advanced Compiler Technology. Prerequisite: CS 426. Credit: 1 hour.						
31628	lecture-discussion	BPB	ARRANGED			Bailey, B
31628: 1 hours Topic: Seminar in Human-Computer Interaction. Credit: 1 hour.						
31623	lecture	DCS	04:00 PM - 04:50 PM	M	room 1404 Siebel Center for Comp Sci	Chang, K
31623: 1 hours Topic: Department of CS Research Seminar. Credit: 1 hour.						
31652	lecture-discussion	DNR	ARRANGED			Roth, D
31652: 1 hours Topic: Learning and Knowledge. Credit: 1 hour.						
40245	lecture-discussion	EA	ARRANGED			Amir, E
40245: 1 hours Topic: Advanced Methods in Knowledge Representation and Reasoning. Prerequisite: CS 498EA, (Fall 04) or CS 497EA, (Spring 04); or knowledge of inference methods in logic and probabilities Credit: 1 hour.						
41757	lecture-discussion	ER	ARRANGED			Ramos, E
41757: 1 hours Topic: Advanced Topics in Analysis of Algorithms. Prerequisite: CS 473 or CS 475 or consent of instructor.						
31637	lecture-discussion	GHY	ARRANGED			Garland, M; Hart, J; Yu, Y
31637: 1 hours Topic: Research Topics in Computer Graphics. Credit: 1 hour.						
40247	lecture-	HAN	ARRANGED			Han, J

	discussion					
40247: 1 hoursTopic: Advanced Seminar on Data Mining. Credit: 1 hour.						
31641	lecture-discussion	HLZ	ARRANGED			Liu, L; Han, J; Zhai, C
31641: 1 hoursTopic: Advanced Seminar on Data Mining in Bioinformatics. Credit: 1 hour.						
40248	lecture-discussion	IG	ARRANGED			Gupta, I
40248: 1 hoursTopic: Advanced Seminar in Distributed Systems. Prerequisite: CS 425 or CS 598 IG or basic distributed systems knowledge. Credit: 1 hour.						
31649	lecture-discussion	JM	ARRANGED			Meseguer, J
31649: 1 hoursMAUDE: Theory and applications. Prerequisite: Credit or concurrent registration in CS 476 or consent of instructor. Credit: 1 hour.						
31653	lecture-discussion	JT	ARRANGED			Torrellas, J
31653: 1 hoursTopic: Advanced Topics in Computer Architecture. Prerequisite: CS 433 and consent of instructor. Credit: 1 hour.						
31633	lecture-discussion	KCC	ARRANGED			Chang, K
31633: 1 hoursTopic: Mining the Web: Searching, Integration and Discovery. Prerequisite: CS 411 recommended but not required. Credit: 1 hour.						
41587	lecture-discussion	KGK	ARRANGED			Karahalios, K
41587: 1 hoursTopic: Social Computing						
40246	lecture-discussion	LVK	ARRANGED			Kale, L
40246: 1 hoursTopic: Parallel Objects for Resource Management and Fault Tolerance. Credit: 1 hour.						
31644	lecture-discussion	MH	ARRANGED			Heath, M
31644: 1 hoursTopic: Parallel Algorithms and Software. Credit: 1 hour.						
31659	lecture-discussion	MSW	ARRANGED			Winslett, M; Olson, L
31659: 1 hoursTopic: Database and Information Systems Seminar. Credit: 1 hour.						
31647	lecture-discussion	NET	ARRANGED			Kravets, R; Luo, H
31647: 1 hoursTopic: Advanced Topics in Computer Networking. Credit: 1 hour.						
31646	lecture-discussion	REJ	ARRANGED			Johnson, R
31646: 1 hoursTopic: Software Architecture Seminar. Credit: 1 hour.						

31630	lecture-discussion	RHC	ARRANGED			Campbell, R
31630: 1 hoursTopic: Security Reading Seminar. Prerequisite: CS 225 and CS 423. Credit: 1 hour.						
31643	lecture-discussion	SHP	ARRANGED			Har-Peled, S
31643: 1 hoursTopic: Computational Geometry Research Seminar. Credit: 1 hour.						
31650	lecture-discussion	SRR	04:00 PM - 04:50 PM	R		Ray, S
31650: 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.) For more information, please see: <a href="http://www.ews.uiuc.edu/~swarup/anncbt/">http://www.ews.uiuc.edu/~swarup/anncbt/</a>						

**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						

**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
40099	lecture-discussion	AMD	02:00 PM - 04:50 PM	R	room 46 Library and Info Science Bldg	Gasser, L
40099: 4 hoursTopic: Agents and Multi-Agents for Dynamic Information Systems. Meets with LIS 590/AMD						
39669	lecture-discussion	BPB	12:30 PM - 01:45 PM	WF	room 1302 Siebel Center for Comp Sci	Bailey, B
39669: 4 hoursTopic: Research Topics in Human-computer Interaction. Prerequisite: CS 498BPB, Principles of User-Interface Design, or consent of instructor. Credit: 4 hours.						
40235	lecture-discussion	BRS	03:00 PM - 05:50 PM	M	room 131 Library and Info Science Bldg	Schatz, B
40235: 4 hoursTopic: Architecture of Network Information Systems. Prerequisite: CS 411 and LIS 456 or consent of instructor. Credit: 4 hours. Meets with LIS 566, Section A.						

39665	lecture-discussion	CXZ	02:00 PM - 03:15 PM	TR	room 1214 Siebel Center for Comp Sci	Zhai, C
39665: 4 hoursTopic: Advanced Topics in Information Retrieval. Prerequisite: Background in one of the following areas: information retrieval, machine learning, natural language processing or data mining. Credit: 4 hours.						
39668	lecture-discussion	DAF	11:00 AM - 12:15 PM	WF	room 1131 Siebel Center for Comp Sci	Forsyth, D
39668: 4 hoursTopic: Computer Games. This course is a graduate seminar, involving lectures, paper reading, discussion and projects related to computer games. We will examine topics in computer graphics and human-computer interaction that are related to computer games.Prerequisites include a working knowledge of computer graphics and a willingness to read papers with some mathematical content.						
39667	lecture-discussion	DM	03:30 PM - 04:45 PM	TR	room 1131 Siebel Center for Comp Sci	Marinov, D
39667: 4 hoursTopic: Software Testing and Analysis. Credit: 4 hours.						
31662	lecture-discussion	EA	12:30 PM - 01:45 PM	TR	room 1302 Siebel Center for Comp Sci	Amir, E
31662: 4 hoursTopic: Decision-Making Under Uncertainty. Prerequisite: CS 498EA, (Fall 04) or CS 497EA, (Spring 04); or knowledge of inference methods in logic and probabilities. Credit: 4 hours.						
39663	lecture-discussion	KN	11:00 AM - 12:15 PM	WF	room 1302 Siebel Center for Comp Sci	Nahrstedt, K
39663: 4 hoursTopic: Advanced Topics in Multimedia Systems. Prerequisite: CS 423/CS 438 or CS 414 or equivalent; or consent of instructor. Credit: 4 hours.						
39670	lecture-discussion	MP	02:00 PM - 03:15 PM	TR	room 1302 Siebel Center for Comp Sci	Parthasarathy, M
39670: 4 hoursTopic: Algorithmic Software Verification. This course requires mathematical maturity, and some knowledge of automata theory (CS 273) and propositional logic. Credit: 4 hours						
31665	lecture-discussion	REJ	09:00 AM - 10:45 AM	TR	room 1310 Digital Computer Laboratory	Johnson, R
31665: 4 hoursTopic: Object-Oriented Programming and Design. Prerequisite: Graduate standing or Consent of Instructor. Credit: 4 hours.						
41496	lecture-discussion	SOS	10:00 AM - 12:50 PM	F	room 1304 Siebel Center for Comp Sci	Gasser, L
41496: 4 hoursTopic: Self-Organizing Information Systems Cross-listed with LIS 590 SOS. This research seminar will investigate self-organizing properties of complex information systems and ways of designing adaptive, self-organizing information collections. Some examples of self-organizing information systems include collaborative filtering systems, adaptive websites, market-based information economies, self-generating language communities, and personal information collections. A methodological focus of the seminar will be the use of simulation methods as an investigative and design tool.						
39664	lecture-discussion	YZY	02:00 PM - 03:15 PM	WF	room 1302 Siebel Center for Comp	Yu, Y

					Sci	
39664: 4 hours Topic: Advanced Graphics Rendering and Animation. Prerequisite: CS 418. Credit: 4 hours.						

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						