University of Nebraska Lincoln

Pioneering new frontiers.

Bachelor of Science in

Computer Science

Advising Brochure

2010 – 2011

Department of

Computer Science & Engineering
College of Arts & Sciences

256 Avery Hall

info@cse.unl.edu
http://cse.unl.edu

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Computer Science Major Requirements

Computer Science & Engineering Courses:

up to 6 hrs P/N with permission and at least 13 hrs of 400 level CSCE (if not in Raikes School)

Course	Title	RAIK	Hrs
CSCE 155	Introduction to Comp Sci I	183	4
CSCE 156	Introduction to Comp sci II	184	4
CSCE 230	Computer Organization	284	3
CSCE 230L	Computer Organization Lab	(284)	1
CSCE 235	Introduction to Discrete Struct	(283)	3
CSCE 251	Unix Programming		1
CSCE 310	Data Structures & Algos	283	3
CSCE 322	Programming Lang Concepts		3
CSCE 361	Intro to Software Engineering	383	3
CSCE 486	CS Professional Development	381&2	2
CSCE 487	CS Senior Design Project	402	3
CSCE 351 or 451	OS Kernels or OS Principles		3
CSCE 423 or 428	Des & An Algos or Automata		3
CSCE 3/4 ____	*Technical Elective*	301	3
CSCE 3/4 ____	*Technical Elective*	302	3
CSCE 3/4 ____	*Technical Elective*	401	3
	(Raikes only - AI or HCI)	496	(3)
			45

Mathematics Courses:

MATH 106	Analytic Geom & Calculus I	5
MATH 107	Analytic Geom & Calculus II	5
MATH 314	Linear Alg (Matrix Theory)	3
STAT 380	Statistics & Applications	3
		16

Natural Science Courses: 12

Must include two labs (**bold face**) from one area. Choose from the following areas:

- CHEM **109**, **110**, **221** or CHEM **113**, 114/**116**
- PHYS 211/**221**, 212/**222**, 213/**223**, ASTR 204/**224**
- BIOS 102, **103**, **109**, **111**, 112/**112L**, 206/**112L**, 206/**205**, **207**
- GEOL **101**, **103**, **210**, 212
- METR **200**, 205, 370
- ANTH 242/**242L**

CSCE Technical Electives

CSCE	Course Title	Frequency
Informatics focus options:		
410	Information Retrieval Systems	
413	Database Systems	fe
464	Internet Systems & Programming	se
470	Computer Graphics	
471	Bioinformatics	se
472	Digital Image Processing	f
473	Computer Vision	so
474	Data Mining	fe
Artificial Intelligence focus options:		
421	Foundations of Constraint Sat Theory	so
475	Multiagent Systems	fo
476	Artificial Intelligence	so
478	Machine Learning	fe
479	Neural Networks	
Networking & High-End Computing:		
430	Computer Architecture (grad school def.)	s
432	High-Performance Processor Architectures	fo
434	VLSI Design	fe
435	Cluster & Grid Computing	fo
437	File & Storage Systems	so
455	Distributed Operatings Systems	fe
456	Parallel Algorithms & Programming	fe
462	Communication Networks	s
Foundations focus options:		
340	Numerical Analysis	f
421	Foundations of Constraint Sat Theory	so
423	Design & Analysis of Algorithms	s
424	Computational Complexity Theory	se
428	Automata, Computation, & Formal Languages	f
477	Cryptography & Computer Security	
Additional Choices:		
351	Operating System Kernels	f
378	Human Computer Interaction	se
399H	Honors Thesis	fssu
425	Compiler Construction	fo
451	Operating System Principles	se
457	Systems Administration	fe
491 & 498	Internship & Computer Problems	fssu

Recent CSCE 496 Special Topics Electives

Title	Focus Area
Data and Network Security (se)	Networking & High End
Embedded Systems (s)	Networking & High End
Self-Managing Comp Sys (fo)	
Software Architechure (fe)	Informatics
Sensor Networks (fe)	Networking

Math Courses as Technical Electives

MATH 428	Principles of Operations Research	s
MATH 432	Linear Optimization	fe
MATH 433	Nonlinear Optimization	so
MATH 439	Math Models in Biology	s?
MATH 441	Approximation of Functions	f?
MATH 447	Numerical Analysis II	f
MATH 450	Combinatorics	fo
MATH 452	Graph Theory	se

Computer Science Degree Requirements

I. Major Area of Study:

Computer Science (C or higher required in CSCE)	45
Mathematics	16
Natural Science	12
Focus (optional)	9

The focus is earned by taking 3 courses in any one area (see page 3) in addition to all other major requirements.

II. Minor Area of Study:

Only MATH 208 is needed for a Mathematics minor. A second minor is suggested.

III. ACE Student Learning Outcomes:

Max of 9 hrs in any one department for ACE 4-10.

1.	Written Communication (in Raikes)	3
2.	Oral Communication (in Raikes)	3
3.	Math & Computation (all in major)	–
4.	Natural Sciences (all in major)	–
5.	Humanities/History	3
6.	Social Sciences (in Raikes)	3
7.	Fine Arts	3
8.	Ethics (all in major)	–
9.	Human Diversity	3
10.	Integrated Knowledge (all in major)	–

IV. College Distribution (CD) Requirements:

(In addition to and distinct from ACE)

1.	Written Communication	3
2.	Math and Science (all in major)	–
3.	Humanities/History	
	– Department 1	3
	– Department 2	3
4.	Social Sciences	3
5.	Foreign Language (101, 102, 201, 202)	0-16 ⋆

⋆ Must complete 2 semesters of 200 level **or** 4 years high school **or** have English as a second language.

Total hours for graduation: 125, of which typically 73 are in the major, 4 in the Math minor, and 33–49 in the General Studies (ACE and CD), leaving 0–15 as pure electives.

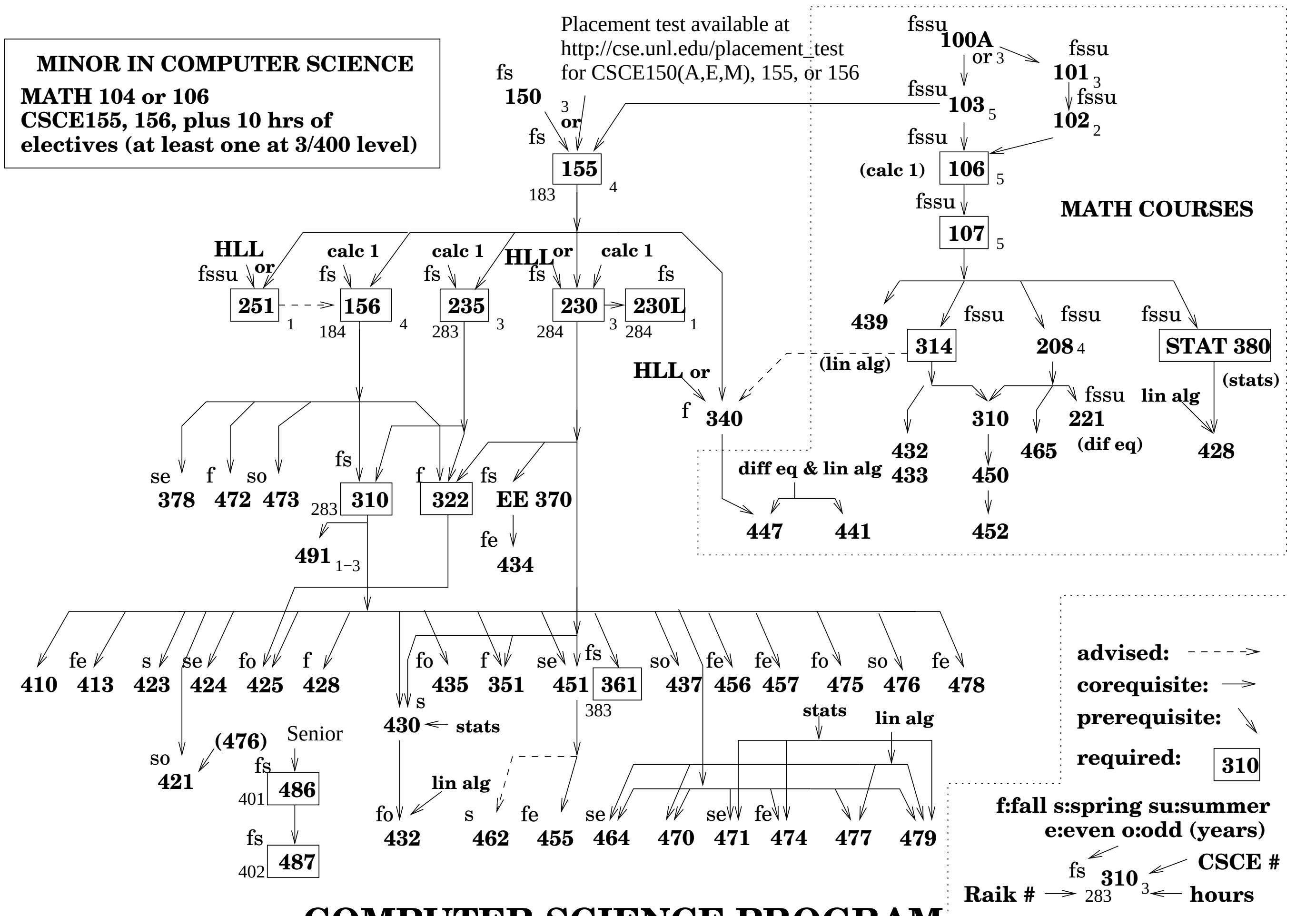
Example Eight Semester Schedule - 125 hrs

Fall 1				**Spring 1**			
CSCE	155	CS I	4	CSCE	156	CS II	4
MATH	106	Calc I	5	CSCE	235	Discrete	3
		ACE 1	3	CSCE	251	Unix	1
Lang	201	Language	3	MATH	107	Calc II	5
			15	Lang	202	Language	3
							16
Fall 2				**Spring 2**			
CSCE	230	Comp Org	3	CSCE	310	Algos	3
CSCE	230L	Lab	1	STAT	380	Stats	3
Elect		MATH 208?	4	MATH	314	Lin Alg	3
NatSci		(with lab)	4	NatSci		(with lab)	4
		ACE 2	3			CD 1	3
			15				16
Fall 3				**Spring 3**			
CSCE	322	Lang Conc	3	CSCE	3/4XX	elective	3
CSCE	361	Soft Engr	3	CSCE	3/4XX	elective	3
NatSci			4			CD 3 (1st)	3
		ACE 5	3			CD 3 (2nd)	3
		ACE 6	3			CD 4	3
			16				15
Fall 4				**Spring 4**			
CSCE	351	or 428	3	CSCE	423	or 451	3
CSCE	3/4XX	elective	3	CSCE	487	CS Sen Des	3
CSCE	486	CS Prof	2			ACE 9	3
		ACE 7	3	Elect		(focus?)	3
Elect		(focus?)	3	Elect		(open?)	3
Elect		(focus?)	3				15
			17				

For assistance with general college requirements, contact the
Arts & Sciences Advising Center, 107 Oldfather Hall, 472-4190,
http://ascweb.unl.edu/advise.html

MINOR IN COMPUTER SCIENCE

MATH 104 or 106
CSCE155, 156, plus 10 hrs of electives (at least one at 3/400 level)



HLL: any High Level Language

COMPUTER SCIENCE PROGRAM

Computer Science & Engineering and Supporting Courses

rev 6/3/2010