

UNIVERSITY OF
Nebraska
Lincoln

Pioneering new frontiers.

Bachelor of Science in
Computer Science

Advising Brochure
2011 – 2012

Department of
Computer Science & Engineering
College of Arts & Sciences

256 Avery Hall

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<http://cse.unl.edu>

The B.S. Degree in Computer Science is accredited by
the Computing Accreditation Commission of ABET.
<http://www.abet.org>

rev: September 30, 2011

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	3
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 —	<i>Technical Elective</i>	301	3
CSCE 3/4 —	<i>Technical Elective</i>	302	3
CSCE 3/4 —	<i>Technical Elective</i>	401	3
	(Raikes only - AI or HCI)	496	<u>(3)</u>
			44

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		<u>3</u>
			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
436	Advanced Embedded Systems	s
437	File & Storage Systems	so
438	Sensor Networks	fe
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	so
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
Self-Managing Comp Sys (fo)	
Software Architechure (fe)	Informatics

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)	44
Mathematics	16
Natural Science	12
Choose 3 technical elective courses in one area for an optional “focus”!	

II. Minor Area of Study: MATH 208 for Mathematics!

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)	–

See <http://ace.unl.edu/certifiedcourses.shtml> for listing.

IV. College Distribution (CD) Requirements:

(In addition to and distinct from ACE)

1. Written Communication (another ACE 1)	3
2. Math and Science (all in major)	–
3. Humanities/History (CLAS,ENGL,HIST,PHIL,RELG)	
– Department 1	3
– Department 2	3
4. Social Sciences (ANTH,COMM,GEOG,POLS,PSYC,SOCI)	3
5. Foreign Language 101 ₅ , 102 ₅ , 201 ₃ , 202 ₃	0-16 *

* 2 semesters at 200 level **or** 4 years H.S. **or** English second language.

Total hours for graduation: 125, of which typically 72 are in the major, 4 in the Math minor, and 33–49 in the General Studies (ACE and CD), leaving 0–16 as pure electives.

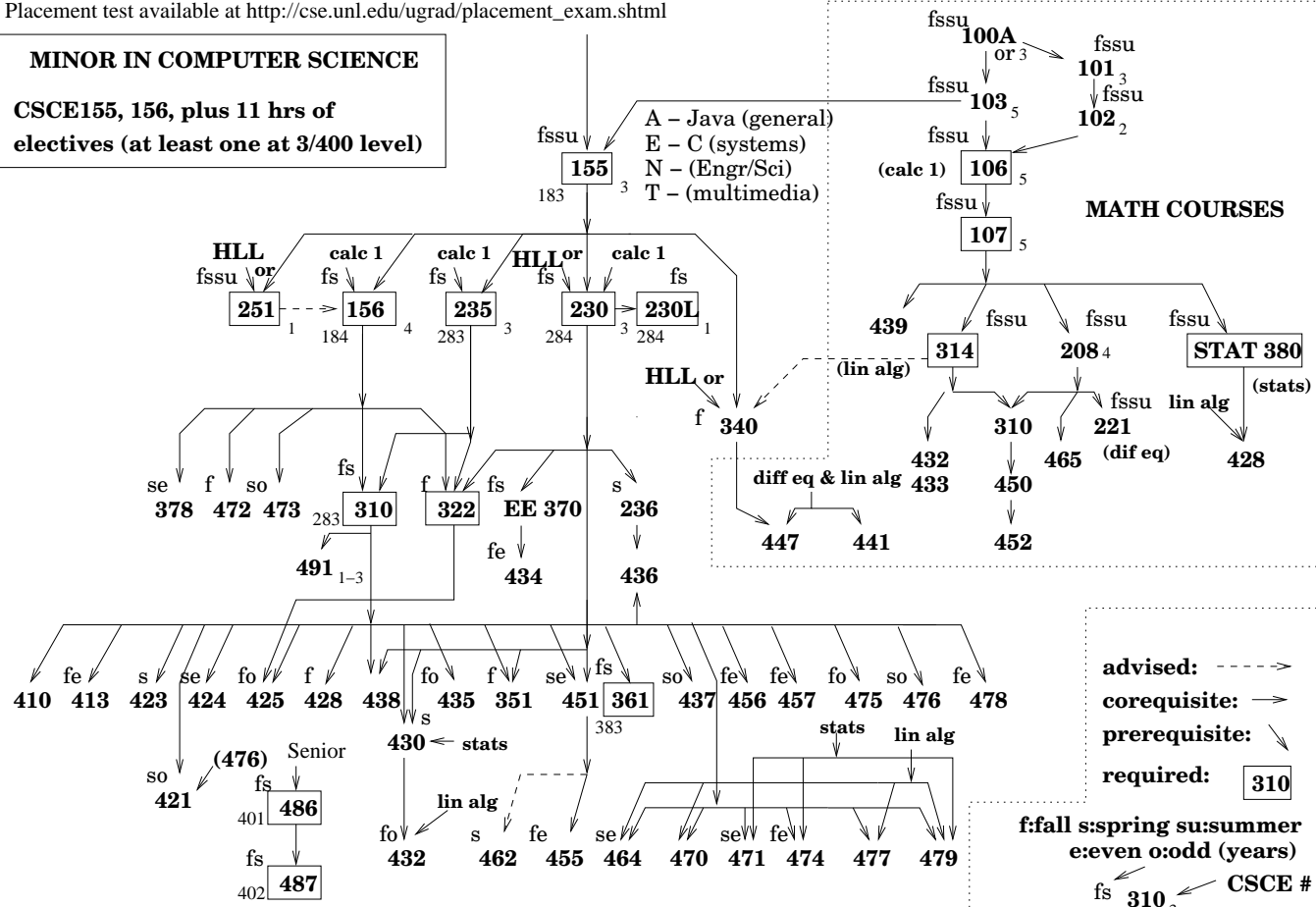
Example Eight Semester Schedule - 125 hrs

Fall 1					Spring 1			
CSCE	155	CS I	3		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
			14		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?)	4
Elect		(focus?)	3					16
			17					

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

Placement test available at http://cse.unl.edu/ugrad/placement_exam.shtml

MINOR IN COMPUTER SCIENCE
CSCE155, 156, plus 11 hrs of
electives (at least one at 3/400 level)



COMPUTER SCIENCE PROGRAM
Computer Science & Engineering
and Supporting Courses