

This Section applies only to Computer Science Majors

General-Education Requirements

The intent of the general-education requirements is to ensure that students graduate with knowledge of subjects beyond Computer Science, with particular emphasis on writing skills.

Writing Requirements

The following two courses are required:

WRT 105 Writing Studio 1

WRT 205 Writing Studio 2

English Requirements

Students must successfully complete six credits of English courses.

Courses **may be used:**

ETS 115 British Literary History

ETS 116 U.S. Literary History

ETS 121 Intro to Shakespeare

ETS 141 Reading and Interpretation

ETS 145 Reading Popular Culture

ETS 151 Interpretation of Poetry

ETS 152 Interpretation of Drama

ETS 153 Interpretation of Fiction

ETS 181 Class and Literary Texts

ETS 182 Race and Literary Texts

ETS 184 Ethnicity and Literary Texts

ETS 192 Gender and Literary Texts

ETS 211 Early European Literary History

ETS 215 Sophomore Poetry Workshop

ETS 217 Sophomore Fiction Workshop

ETS 220 Themes in Literature

ETS 230 Ethnic Literary Traditions

ETS 241 Reading and Interpretation II

ETS 246 Myth, Symbol and Archetype

ETS 252 Drama Theory on Film

ETS 279 American Self-Definitions

ETS 295 American Literature and Culture: Nineteenth Century

ETS 296 American Literature and Culture: Twentieth Century

Other courses may be used to satisfy this requirement with the permission of the CIS Program Committee.

Online courses—including online versions of the courses listed above—**cannot be used** to satisfy the English requirement.

Courses **may NOT be used:**

ETS 200 Selected Topics in English

ENG 201 English as a Second Language

ENG 202 English as a Second Language

ENG 203 Remedial Phonology for Speakers
of English as a Second Language

ENG 207 Rapid Review of English as a Second
Language

ENG 210 Special Problems in English as a
Second Language

ENG 211 Composition for Speakers of English
as a Second Language

ENG 213 Advanced Composition for Speakers
of English as a Second Language

ENG 505 Methodology of Teaching English as a
Second Language

EDU 505 Methodology of Teaching English as a
Second Language

WRT xxx

Arts, Humanities, and Social Sciences Requirements

Students are required to take PHI 251 (Logic), ECS 392 (Ethical Aspects of Engineering and Computer Science), and twelve additional credit hours of courses in fine arts, humanities, and/or social sciences. These courses (A/H/SS) are to be drawn from the offerings of the College of Arts and Sciences and the College of Visual and Performing Arts.

Courses from the following departments **may be used**:

Art Photography (APH)	Interior Design (ISD)
African American Studies (AAS)	Italian (ITA)
Applied Music (AMC)	Latin (LAT)
American Studies (AMS)	Linguistics (LIN)
Anthropology–Social and Cultural (ANT)	Literature in English Translation (LIT)
Art (ART)	Metalsmithing (MET)
Bulgarian (BGR)	Music History & Literature (MHL)
Ceramics (CER)	Museum Studies (MUS)
Chinese (CHI)	Public Affairs & Citizenship (PAF)
Communications Design (CMD)	Philosophy (PHI)
Comparative Literature (CLT)	Polish (POL)
Drama (DRA)	Political Science (PSC)
Economics (ECN)	Psychology (PSY)
English (ENG)	Printmaking (PRT)
English and Textual Studies (ETS)	Painting (PTG)
Fine Arts (FIA)	Religion (REL)
Fiber Arts (FIB)	Romance Languages (ROL)
Film (FIL)	Russian (RUS)
Foundation (FND)	Sculpture (SCU)
French (FRE)	Slavic (SLA)
Fashion Illustration (FSH)	Speech Communication (SPC)
Geography (GEO)	Sociology (SOC)
German (GER)	Social Science (SOS)
Greek (GRE)	Spanish (SPA)
Hebrew (HEB)	Surface Pattern Design (SPD)
Hindi (HIN)	Studio Research (STR)
History (HIS)	Swahili (SWA)
Humanities (HUM)	Art Video (VID)
Illustration (ILL)	Writing (WRT)
International Relations (IRP)	Women’s Studies (WSP)

The following courses/departments **may not be** used:

Art Education (AED)	Industrial Design (IND)
Astronomy (AST)	Mathematics (MAT)
Advertising Design (ADD)	Music Education (MUE)
Anthropology–Physical (see above)	Non-departmental AS (NAS)
Biology (BIO)	Physics (PHY)
Chemistry (CHE)	PSY 223, 273
Cognitive Science (COG)	Science Teaching (SCI)
Computer Graphics (CGR)	Speech Education (SHE)
Geology (GOL)	Undergraduate Research Program (URP)
GEO 155	WRT 105, WRT 205

Also excluded are any courses cross-listed in the College of Arts and Sciences and the School of Education.

Natural Science and Engineering Requirements

Eighteen credits of natural science and engineering courses are required. These courses must include:

ECS 101 Introduction to Engineering and Computer Science
ECS 102 Introduction to Computing
PHY 211 General Physics
PHY 221 General Physics Lab
A two-semester sequence in a laboratory science

For example, a student may take the second physics course (PHY 212) and its associated lab (PHY 222) to satisfy the two-semester requirement. For another example, after completing PHY 211, and 221, a student may take a two semester sequence in astronomy (AST 101 and 104) to satisfy the two semester requirement.

Courses that may be used include those in the following departments, except those courses whose content relates primarily to computing and/or mathematics, or to social and historical issues. Such courses may be appropriate for other distribution requirements.



Courses that **may be** used :

Aerospace Engineering (AEE)
Anthropology, Physical (ANT 131, 331,
431, 432, 433)
Astronomy (AST)
Bioengineering (BEN)
Biology (BIO)
Chemical Engineering (CEN)
Chemistry (CHE)

Civil Engineering (CIE)
Electrical Engineering (ELE)
Geology (GOL)
Industrial Engr. And Operation Research
(IOR)
Mechanical Engineering (MEE)
Materials Science (MTS)
Physics (PHY)

Courses that **may NOT be** used :

Social, Cultural Anthropology (ANT)
BIO 211
BIO 215
CEN 122
CHE 103, 113
CIE 272
Computer Engineering (CSE)
Engineering (EGR)

Geography (GEO)
GOL 102, 105
Industrial Systems Engineering (ISE)
Information Studies (IST)
MEE 285, 424, 471
NEU 211
PHY 101/111, 102/112, 105, 106
Technology & Society (PTS)

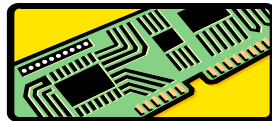
Free Electives

Any and all courses may be taken as free electives, with the following two exception:

CPS course do not count as free-elective credit for CS or SIS majors.

The following CIS courses do not count as free-elective credit for CS or SIS majors:

CIS 521	Discrete Mathematics and Data Structures
CIS 542	Computer Organization and Architecture
CIS 555	Principles of Programming I
CIS 556	Principles of Programming II



“But what ... is it good for?” –Engineer at the Advanced Computing Systems Division of IBM, 1968, commenting on the microchip. “640K ought to be enough for anybody”

Mathematics Requirements

Fifteen or Sixteen credit hours of Mathematics courses are required. No grade **below C-** is acceptable.

Students *must* take both:

MAT 295 Calculus I

MAT 296 Calculus II

Students *must* also take at least one of:

MAT 397 Calculus III

MAT 331 Linear Algebra

Students *must* also take:

CIS 321 Intro to Probability and Statistics

MAT 295, 296, and 397 are four-hour courses. MAT 331 is three hours.

Course Requirements for the Major

No grade **below C-** is acceptable for a course in the major category.

CIS Core Course Requirements

The following ten courses (33 credit hours) are required. These courses **must** be completed with a core GPA of at least 3.0. No grade **below C-** is acceptable for a course in the major category.

CIS 252	Intro to Computer Science
CIS 275	Intro to Abstract Mathematics
CIS 341	Computer Organization and Programming Systems
CIS 351	Data Structures
CIS 352	Programming Languages: Theory and Practice
CIS 453	Software Specification and Design
CIS 454	Software Implementation
CIS 473	Computability Theory
CIS 575	Introduction to Analysis of Algorithms
CIS 586	Design of Operating Systems

Upper-Division Course Restrictions

Eighteen credit hours of upper-division courses are required. At least 9 of the 18 credits must be computer science or computer engineering courses. Course selection depends on the choice of the CS or the SIS option.

Computer Science Upper-Division Option

Upper-division courses for the CS option include the following:

CIS 373 Introduction to Automata Theory	CIS 581 Concurrent Programming
CIS 390 Honors Seminar in Computer and Information Science	CSE 397 Computer Laboratory I
CIS 400 Selected Topics	CSE 398 Computer Laboratory II
CIS 425 Introduction to Computer Graphics	CSE 483 Windows Programming
CIS 428 Introduction to Cryptography	CSE 561 Digital Machine Design
CIS 467 Introduction to Artificial Intelligence	CSE 572 Switching Theory and Sequential Machine Design
CIS 475 Logic and Automated Reasoning	CSE 581 Introduction to Data-Base Management Systems
CIS 531 Compiler Construction	ELE 558 Data Networks: Basic Principles
CIS/MAT 545 Finite Mathematics	MAT 512 Introduction to Real Analysis
CIS 553 Software Systems Implementation	MAT 532 Applied Linear Algebra
CIS 554 Object Oriented Programming in C++	MAT 572 Introduction to Set Theory
CIS/IST 563 Natural Language Processing	PHI 378 Minds and Machines
CIS 565 Introduction to Artificial Neural Networks	PHI 551 Symbolic Logic
CIS 567 Knowledge Representation and Reasoning	PHI 552 Modal Logic

Other courses offered on an irregular basis may be applied. Students may choose any other CIS course numbered above 300, except those not intended for undergraduate CS majors or that carry no credit hours.

Courses that **do not** qualify as upper-division electives include:

CIS 371	Professional Practice
CIS 471	Professional Practice
CIS 521	Discrete Mathematics and Data Structures
CIS 542	Computer Organization and Architecture
CIS 555	Principles of Programming I
CIS 556	Principles of Programming II
CIS 571	Professional Practice

CS students may also choose any MAT courses numbered above 400, except for the following:

MAT 485	Differential Equations and Matrix Algebra for Engineers
MAT 487	Abstract Mathematics for Engineers
MAT 521	Introduction to Probability and Statistics

CS students may also choose topics courses (e.g., PHI 460 Logic and Foundations of Mathematics); however, they must petition the CIS curriculum committee to have the specific course accepted before taking the course.

Systems and Information Upper-Division Option

In addition to the distribution and core requirements already described, students must earn a grade of C– or better in each course while completing a minimum of 18 hours of advanced courses in one of many recognized academic disciplines. The program of courses must be approved by the curriculum committee of CIS, in consultation with the academic department overseeing the chosen discipline.



*“Sometimes it pays to stay in bed on Monday, rather than spending the rest of the week debugging Monday's code.”
Dan Salomon*

College of Engineering and Computer Science

Computer Science
Effective Fall 2006

Name _____
SUID _____

Minor: _____

CREDIT	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR +/-	
	GRADE	F	S	F	S	F	S	F		S
G English (12 cr) Minimum Grade C-										
E	WRT105	Studio 1: Practices of Academic Writing	(3)___	3						
N	WRT205	Studio 2: Critical Research and Writing	(3)___			3				
		English Elec. (LIT or ETS) _____	(3)___			3				
E		English Elec. (LIT or ETS) _____	(3)___				3			
D SSH/VPA (18 credits)										
U	ECS 392	Ethical Aspects of ECS	(3)___					3		
C	PHI 251	Logic	(3)___	3						
A	SSH/VPA	_____	(3)___	3						
T	SSH/VPA	_____	(3)___			3				
I	SSH/VPA	_____	(3)___					3		
O	SSH/VPA	_____	(3)___						3	
N Natural Sciences (12 cr) Two semester lab sequence in Natural Sciences										
	PHY211	General Physics 1	(3)___		3					
R	PHY221	General Physics Lab 1	(1)___	1						
E	NS/ENGR	_____	(4)___				4			
Q	NS/ENGR	_____	(4)___			4				
M Free Electives (9 cr)										
N	Free Elec	_____	(3)___					3		
T	Free Elec	_____	(3)___						3	
S	Free Elec	_____	(3)___							3
Mathematics (15-16 cr) Minimum Grade of C-										
	MAT295	Calculus 1	(4)___	4						
M	MAT296	Calculus 2	(4)___		4					
A	MAT397/ 331	Calculus or Linear Algebra	(4-3)___			4 or 3				
J	CIS321	Intro. to Probability & Statistics	(4)___			4				
O Engineering Courses (6 cr)										
R	ECS101	Intro. to Engineering & Computer Sci	(3)___	3						
	ECS102	Intro. to Computing	(3)___	3						
Comp Sci Core (33 cr) 3.0 GPA & Minimum Grade C-										
	CIS252	Intro. to Computer Science	(4)___		4					
	CIS275	Intro. to Discrete Mathematics	(3)___			3				
	CIS341	Comp. Organization & Prog. Systems	(3)___			3				
R	CIS351	Data Structures	(4)___			4				
E	CIS352	Programming Lang: Theory & Prac.	(4)___				4			
Q	CIS453	Software Specification & Design	(3)___					3		
U	CIS454	Software Implementation	(3)___						3	
I	CIS473	Computability Theory	(3)___						3	
R	CIS575	Intro. to Analysis of Algorithms	(3)___					3		
E	CIS586	Operating Systems	(3)___						3	
M Upper Division Courses (18 cr) Minimum Grade C- At least 9 credits of Upper Division MUST be in Computer Science										
E	Upper Div	_____	(3)___					3		
N	Upper Div	_____	(3)___							3
T	Upper Div	_____	(3)___						3	
S	Upper Div	_____	(3)___						3	
	Upper Div	_____	(3)___							3
	Upper Div	_____	(3)___							3
TOTAL CREDITS			123-124	16	15	13-14	18	16	15	15

GPA WORKSHEET

REQUIREMENTS: Minimum grade of C- in English, Mathematics, Core, and Upper Division Courses

122 credits to graduate

2.0 Overall GPA to graduate

3.0 Core Course GPA

Restrictions/exclusions as noted in the Undergraduate Handbook

CORE GPA TALLY SHEET:

2) Divide Total Grade Points by Total Course Credits for Core Grade Point Average (GPA).

CORE COURSE	HR	GRD	TOTAL GRD POINTS	TOTAL COURSE CR	CORE GPA	CALCULATION DATE AND INITIALS
CIS252	4					
CIS275	3					
CIS341	3					
CIS351	4					
CIS352	4					
CIS453	3					
CIS454	3					
CIS473	3					
CIS575	3					
CIS586	3					
				÷	=	
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				÷	=	
				÷	=	
				÷	=	
				÷	=	

GRADING CHART: Credit hours X points per grade = Grade Points Earned

GRD	PTS
A	4.0000
A-	3.6666
B+	3.3333
B	3.0000
B-	2.6666
C+	2.3333
C	2.0000
C-	1.6666
D	1.0000
F	0.0000

In most cases an excellent approximation can be obtained by taking A-= 11/3, B+=10/3, etc. The correct GPA; however, is that determined by using the table.