

CSCE Undergraduate Handbook 2009-2010

The purpose of this guide is to summarize the Computer Science and Computer Engineering undergraduate programs and to provide information concerning campus life.

It is the *students' responsibility* to consult the University Catalog of Studies and their faculty advisor when planning a program of study.

Departmental Contacts:

Department Head – Dr. Susan Gauch, sgauch@uark.edu

Associate Department Head – Dr. Gordon Beavers, gordonb@uark.edu

Main Office – 479-575-6197

<http://www.csce.uark.edu>

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1. University of Arkansas Information

Campus Information:

Catalog of Studies
<http://catalogofstudies.uark.edu>

College of Engineering Scholarships
479-575-3051
<http://www.engr.uark.edu/Scholarships&FinancialAid.htm>

Cooperative Education Program
479-575-2805
<http://www.engr.uark.edu/256.php>

Study Abroad
479-575-7582
<http://www.engr.uark.edu/130.php>

Honors College
479-575-7678
<http://honorscollege.uark.edu>

Registered Student Organizations
479-575-5255
<http://leadership.uark.edu>

Enhanced Learning Center
479-575-2885
<http://elc.uark.edu>

University Health Center
479-575-4451
<http://health.uark.edu>

Advanced English:

Every undergraduate student at the University of Arkansas is required to pass Advanced English (ENGL 2003) to meet the state requirements. ENGL 2003 is a three-hour course in composition and does not count as part of the total number of hours required for a degree in the College of Engineering.

Exemption from ENGL 2003 can be gained in one of the following ways:

- Demonstrating a satisfactory writing ability on the Advanced English Exemption Exam.
- Completing ENGL 2013 (Essay Writing)
- Achieving a grade of “A” or “B” in ENGL 1013 and a grade of “A” in ENGL 1023. (Courses must be taken at the University of Arkansas-Fayetteville).

Students must sign up for the Advanced English exam during their junior year and prior to completing 96 hours. If exemption is not gained by passing the exam prior to reaching 96 hours, students must register for the course. Clearance for graduation will not be granted without credit for Advanced English.

More information and detail can be found in the Catalog of Studies on the University of Arkansas website <http://catalogofstudies.uark.edu>

2. CSCE Department Information

Academic Advising:

Students will be assigned a faculty advisor their first semester of enrollment. Typically, this advisor will remain with the student throughout their academic career. Students can find the name of their faculty advisor in the ISIS system or by contacting the CSCE Department at 479-575-6197.

Faculty contact information can be found at <http://www.csce.uark.edu/2211.php>

How Advising Works:

Priority Registrations are held in the fall and spring semesters, allowing currently enrolled students to register for classes prior to new students entering the university. Students are strongly encouraged to register during these periods because certain classes tend to fill up fast and low enrollments could mean that classes get cancelled.

Students must see their advisor prior to any registration periods to review the course plans, answer questions, and get assistance with any academic problems. Advising periods are scheduled two weeks before Priority Registration begins.

Advisors will be provided with updated materials to assist in advising prior to registration periods.

How to Get Advised:

The first step to getting advised is to print out a copy of the Advising form, which can be found at <http://www.csce.uark.edu/2218.php>. You may want to bring an extra blank form in case corrections need to be made.

Complete the form and list the courses that you plan to take the following semester. Schedule a time with your faculty advisor during their posted advising times. The advisor will review the schedule plan and verify that pre-requisites have been met. This is also a good opportunity to talk about career plans, co-ops, and any other issues.

The completed form must be signed by the student and the advisor and submitted to the Administrative Assistant in JBHT 504. The advising hold will then be removed.

Degree Program Changes:

Students must meet all requirements of their degree programs and are expected to keep informed concerning current regulations, policies, and program requirements in their field of study. Changes made in curriculum at a level beyond that at which a student is enrolled might become graduation requirements. Changes made in the curriculum at a lower level than the one at which a student is enrolled are not required for that student. Students should consult their faculty advisor for additional information.

CSCE Majors:

The department offers the following undergraduate degrees:

- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Arts in Computer Science (granted through the Fulbright College of Arts and Sciences)

In addition, the department also offers the following graduate degrees:

- Master of Science in Computer Engineering
- Master of Science in Computer Science
- Doctor of Philosophy in Computer Science
- Doctor of Philosophy in Engineering

Strong students can receive support for their graduate studies through graduate assistantships. For more information and application procedure visit the Graduate School website <http://www.uark.edu/depts/gradinfo/>

Changing Majors:

Any student interested in changing their major to Computer Science or Computer Engineering should first visit with the Associate Department Head.

Students wanting to switch from CS to CE or CE to CS should discuss this first with their faculty advisor. The first two semesters of study are identical, so the transfer at that point is easy. There are minor differences in the in the third and fourth semester that still allow for change. After the fifth and sixth semester there are differences that might create some issues (such as having to take more coursework).

Completion of the forms to process the change of major should be done in the Academic Student Office in Bell 3189.

3. Degree Requirements Information

3.1 CSCE Honors Program

Admission requirements for the Honors Program are as follows: entering freshman must have at least a 3.5 high school GPA and at least 28 composite score on the ACT; entering transfer students must have a 3.25 GPA on their transfer work. Students who do not qualify initially for the Honors Program are eligible after one year if they earn at least a 3.25 GPA.

Application for the Honors Program must be made through the Academic Dean's office in Bell 3189.

The department considers the following requirements necessary to graduate with honors:

- The candidate must satisfy the requirements set forth by the College of Engineering.
- A student must obtain at least a 3.5 grade-point average in required Computer Engineering and/or Computer Science courses.
- The student must complete 7 hours of Honors credit in the major, which includes 4 hours of Honors Thesis taken as two consecutive semesters of CSCE 4912H and 3 hours of non-thesis class work.

Guidelines for completion of the honors program and required forms for submission of thesis and verification for degree completion can be found at

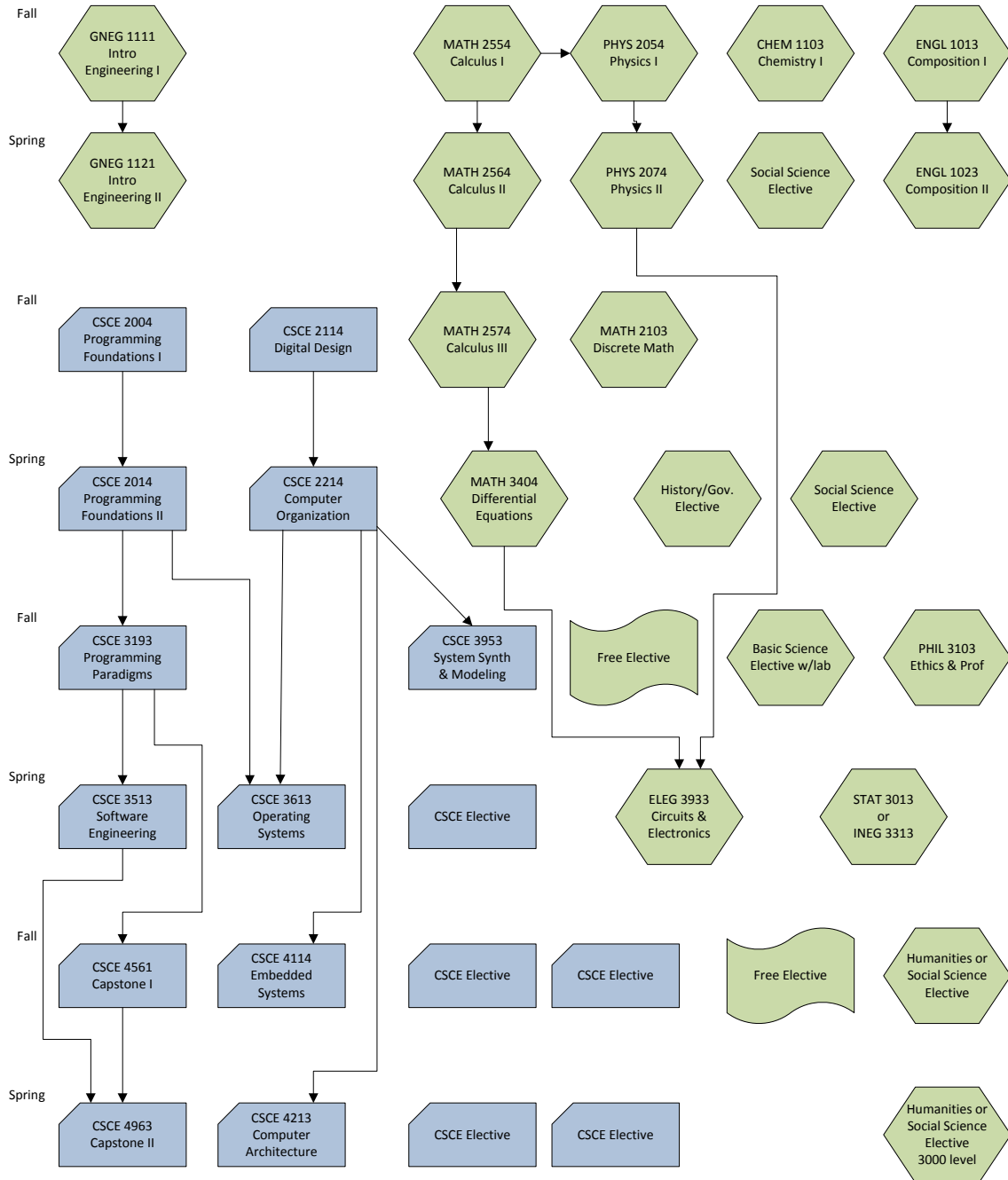
<http://www.csce.uark.edu/2309.php>

3.2 Computer Engineering B.S.

The following information pertains only to the Computer Engineering program. The flowchart and degree check summarize the degree requirements. The degree check is a useful tool to track progress through the program and is a condensed version of the form submitted for graduation clearance. The eight-semester program of study can be found in the Catalog of Studies.

Computer Engineering – Bachelor of Science

Fall 2009



COMPUTER ENGINEERING DEGREE CHECK FORM - CATALOG 2009-2010

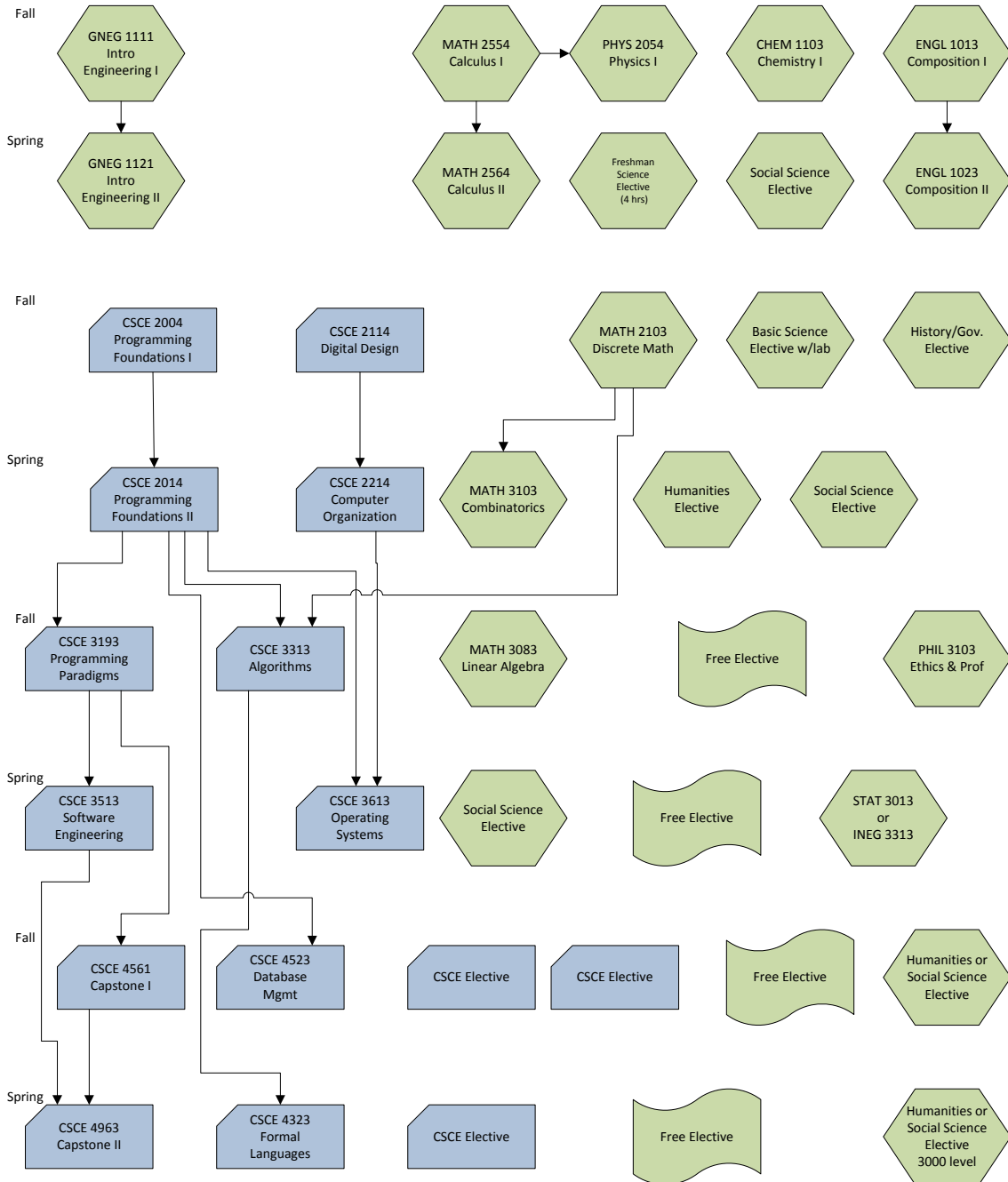
Engineering	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments		
CSCE 2004	Prog. Found. I	4								
CSCE 2014	Prog. Found. II	4								
CSCE 2114	Digital Design	4								
CSCE 2214	Computer Org	4								
CSCE 3193	Programming Paradigms	3								
CSCE 3513	Software Engineering	3								
CSCE 3613	Operating Systems	3								
CSCE 3953	System Synthesis/Mod	3								
CSCE 4114	Embedded Systems	4								
CSCE 4213	Computer Arch.	3								
CSCE 4561	Capstone I	1								
CSCE 4963	Capstone II	3								
ELEG 3933	Circuits/Electronics	3								
		3							CSCE elective	
		3							CSCE elective	
		3							CSCE elective	
		3							CSCE elective	
		3							CSCE elective	
Required hours -		57	<i>Completed hours -</i>						[] Requirements met	
Other	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments		
ENGL 1013	Composition I	3								
ENGL 1023	Composition II	3								
		3							Free Elective	
		3							Free Elective	
GNEG 1111	Intro to Engineering I	1								
GNEG 1121	Intro to Engineering II	1								
Advanced English Exam										
Required hours -		14	<i>Completed hours -</i>						[] Requirements met	
MATH	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments		
MATH 2103	Discrete Math	3								
MATH 2554	Calculus I	4								
MATH 2564	Calculus II	4								
MATH 2574	Calculus III	4								
MATH 3404	Differential Equations	4								
		3							Statistics Elective	
Required hours -		22	<i>Completed hours -</i>						[] Requirements met	
Human/Soc	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Option 1	Option 2	
		3						<i>Hist/ Govt.</i>	<i>Hist/ Govt.</i>	
		3						<i>Social Science</i>	<i>Social Science</i>	
		3						<i>Social Science</i>	<i>Social Science</i>	
		3						<i>Social Science</i>	<i>Humanities</i>	
PHIL 3103	Ethics/Profession	3						<i>Reqd Humanities</i>	<i>Reqd Humanities</i>	
		3						<i>Humanities 3000+</i>	<i>Social Science 3000+</i>	
Required hours -		18	<i>Completed hours -</i>						[] Requirements met	
Science	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments		
CHEM 1103	Univ. Chemistry I	3								
PHYS 2054	Univ. Physics I	4								
PHYS 2074	Univ. Physics II	4								
		3							Basic Science Elective	
		1							Basic Science Elective lab	
Required hours -		15	<i>Completed hours -</i>						[] Requirements met	

3.3 Computer Science B.S.

The following information pertains only to the Computer Science program. The flowchart and degree check summarize the degree requirements. The degree check is a useful tool to track progress through the program and is a condensed version of the form submitted for graduation clearance. The eight-semester program of study can be found in the Catalog of Studies.

Computer Science – Bachelor of Science

Fall 2009



COMPUTER SCIENCE BS DEGREE CHECK FORM CATALOG 2009-2010

Major	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments
CSCE 2004	Programming Found I	4						
CSCE 2014	Prog. Found II	4						
CSCE 2114	Digital Techniques I	4						
CSCE 2214	Computer Organization	4						
CSCE 3193	Programming Paradigms	3						
CSCE 3313	Algorithms	3						
CSCE 3513	Software Engineering	3						
CSCE 3613	Operating Systems	3						
CSCE 4323	Formal Languages	3						
CSCE 4523	Database Mgmt.	3						
CSCE 4561	CS Capstone I	1						
CSCE 4963	CS Capstone II	3						
		3						CS elective
		3						CS elective
		3						CS elective
Required hours -		47	Completed hrs-					<input type="checkbox"/> Requirements met
Other	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments
ENGL 1013	Composition I	3						
ENGL 1023	Composition II	3						
		3						Free Elective
		3						Free Elective
		3						Free Elective
		3						Free Elective
GNEG 1111	Intro to Engineering I	1						
GNEG 1121	Intro to Engineering II	1						
Advanced English Exam								
Required hours -		20	Completed hrs-					<input type="checkbox"/> Requirements met
MATH	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments
MATH 2103	Discrete Mathematics	3						
MATH 2554	Calculus I	4						
MATH 2564	Calculus II	4						
MATH 3083	Linear Algebra	3						
MATH 3103	Combinatorics	3						
		3						Statistics Elective
Required hours -		20	Completed hrs-					<input type="checkbox"/> Requirements met
Human/Soc	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments
		3						History/ Govt.
		3						Humanities
		3						Social Science
		3						Social Science
		3						Social Science
PHIL 3103	Ethics/Profession	3						Req'd Humanities
		3						3000+ elective
Required hours -		24	Completed hrs-					<input type="checkbox"/> Requirements met
Science	Course Name	Req. hrs.	Term	Grade	Hrs	D's	G.P.	Substitutions/Comments
CHEM 1103	Univ. Chemistry I	3						
PHYS 2054	Univ. Physics I	4						
		4						Freshman Science elective II
		3						Basic Science Elective
		1						Basic Science Elective lab
Required hours -		15	Completed hrs-					<input type="checkbox"/> Requirements met

3.4 CSCE B.S. Common Information

CSCE Basic Science Electives

Courses with Lab*:

ASTR 2003 Survey of the Universe
ASTR 2001L Survey of the Universe Lab

BIOL 1543 Principles of Biology
BIOL 1541L Principles of Biology Lab

BOTY 1003 Environmental Science
BOTY 1001L Environmental Science Lab

CHEM 1123 University Chemistry II
CHEM 1121L University Chemistry II Lab

GEOL 1113 General Geology I
GEOL 1111L General Geology I Lab

BIOL 1613 Principles of Zoology
BIOL 1611L Principles of Zoology Lab

BIOL 2213 Human Physiology
BIOL 2211L Human Physiology Lab

Courses without Lab*:

GEOL 4253 Petroleum Geology
CHEM 1101L Univ Chemistry I Lab

GEOL 4413 Remote Sensing
CHEM 1101L Univ Chemistry I Lab

*If the lab is not required for the associated course – students may opt to take CHEM 1101L, University Chemistry I Lab

CSCE B.S. Technical Electives

The CSCE Technical electives can be chosen from any CSCE 4000+ course except CSCE 490V, Individual Study.

In addition, the Computer Engineering students can choose to take the following courses:

CSCE 3943, UNIX Programming I, CSCE 3963, Perl Programming, CSCE 3973, UNIX Programming II

CSCE B.S. Humanities/Social Science Electives

All students at the University of Arkansas-Fayetteville are required to meet the University Core (State Minimum Core). If the core is not met, it could affect graduation. For specific course listings see page 40 of the Catalog of Studies.

All CSCE Students are required to take:

- **3 hours** of Humanities or Fine Arts numbered from the following list:
 - Fine Arts – ARCH 1003, ARHS 1003, ARTS 1003, COMM 1003, DANC 1003, DRAM 1003, HUMN 1003, LARC 1003, MLIT 1003
 - Humanities – CLST 1003, CLST 1013, HUMN 2124H, HUMN 1124H, HUMN 2003, WLIT 1113, WLIT 1123, any Foreign Language 2003 (note: higher level foreign language courses cannot be substituted),

- **3 hours** U.S. History or Government

Choose one of the following:

HIST 2003, HIST 2013, PLSC 2003

- **9 hours** of Social Science

Courses must be taken from at least two different departments:

AGEC 1103, AGEC 2103

ANTH 1023

ECON 2013, ECON 2023, ECON 2143*

GEOG 1123, GEOG 2003, GEOG 2023

HESC 1403, HESC 2413

HIST 1003, HIST 1013, HIST 1113, HIST 1123, HIST 2003**, HIST 2013**,

HUMN 2114H

PLSC 2013, PLSC 2203

PSYC 2003

RSOC 2603

SOCI 2013, SOCI 2033

*Students taking ECON 2143 cannot take ECON 2013 or 2023

**If not selected to meet the History/Government elective

- **6 hours** of 3000+ Humanities (Fine Arts) or Social Science

PHIL 3103 (this is a required course for CE & CS B.S. majors)

Any course numbered 3000 or above selected from the approved list at

<http://www.csce.uark.edu/2218.php>

Computer Engineering majors have two options to fulfilling the humanities/social science requirement and should pay careful attention to fulfilling either Option 1 or Option 2:

Option 1

History/Government

Social Science

Social Science

Social Science

PHIL 3103

Humanities 3000+

Option 2

History/Government

Social Science

Social Science

Humanities

PHIL 3103

Social Science 3000+

Computer Science B.S. majors have an additional 6 hours of humanities/social science requirement, which may be satisfied by any humanities/social science course.

3.5 Computer Science B.A.

The following information pertains only to the Computer Science Bachelor of Arts degree. More information on the program can be found in the Fulbright College section of the Catalog of Studies. The BA Core Requirements are listed on page 200 of the Catalog of Studies.

Fall Semester Year 1

3 ENGL 1013 Composition I

4 †MATH 2554

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

16 Semester Hours

Spring Semester Year 1

3 ENGL 1023 Composition II

3 Core from areas a, b, c, d or e (as needed)

4 CSCE 2004 Programming Foundations I

4 Core from area f (as needed)

3 Core from areas a, b, c, d or e (as needed)

17 Semester Hours

Fall Semester Year 2

4 CSCE 2014 Programming Foundations II

3 †MATH 2103 Discrete Mathematics

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

16 Semester Hours

Spring Semester Year 2

3 †Core from area g (if needed) or †Advanced Level Elective

3 †CSCE 3143 Data Structures

3 †‡MATH 3103 Combinatorial and Discrete Mathematics

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

15 Semester Hours

Fall Semester Year 3

3 †‡CSCE 3313 Algorithms

3 †‡CSCE 3000-4000 Level Elective

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

4 Core from area f (as needed)

16 Semester Hours

Spring Semester Year 3

3 †‡CSCE 3000-4000 Level Elective

3 †‡CSCE 3000-4000 Level Elective

3 †Core from area g (if still needed) or †Advanced Level Elective

3 Core from areas a, b, c, d or e (as needed)

4 Core from area f (as needed)

16 Semester Hours

Fall Semester Year 4

3 †‡CSCE 4313 Programming Languages

3 †‡CSCE 3000-4000 Level Elective

3 Core from areas a, b, c, d or e (as needed)

3 Core from areas a, b, c, d or e (as needed)

3 †Advanced Level Elective

1 General Elective

16 Semester Hours

Spring Semester Year 4

3 †‡CSCE 3000-4000 Level Elective

3 †Advanced Level Elective

3 Core from areas a, b, c, d or e (as needed)

3 General Elective

3 General Elective

15 Semester Hours

124 Total Hours

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 122 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 122 of this chapter.