

Bachelor of Arts In Applied Computer Science (2016)

Computer Science Department, Kennesaw State University

Overview and Advising

Ver. 5

BA ACS Program Coordinator

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PROGRAM OVERVIEW

The Bachelor of Arts in Applied Computer Science (BA-ACS) is an innovative and interdisciplinary degree program. New in 2014, the BA-ACS complements our BS Computer Science, and both programs can lead into the MS Computer Science. The BA-ACS provides a broad multi-discipline educational experience, with required courses in Applied Computer Science, Information Systems, Software Engineering, Computer Science, CS Education, Foreign Languages, and an interdisciplinary minor. The BA program combines traditional computer science theory with application examples and hands-on used by industry.

The BA targets emerging fields within computer science including those spanning other disciplines. Coursework includes Web Development, Social Media, Database, Game Design, Linux OS, Mobile Computing, Data Warehousing, Cloud Computing, Data Mining, and Robotics. The BA can integrate with many other disciplines through the required minor. With a wide range of electives and a foreign language the program of study expands the student's outlook while allowing students to investigate the overlap and synergies between the minor discipline and computer science.

COMPARE AND CONTRAST

Differences between Our Bachelor of Arts and the Bachelor of Science:

The Bachelor of Arts is interdisciplinary, where students take in addition to their Applied Computer Science courses: Software Engineering, Information Technology, Computer Science, Information Systems, a minor from another discipline, and foreign languages. Our Computer Science Advisory Board suggested an approach for the Bachelor of Arts that includes hands-on assignments with tools actually used by industry. Interdisciplinary Computer Science is a crucial long-term direction in the computing discipline, for both research and application in computing.

Similarities between Our Bachelor of Arts and the Bachelor of Science:

Both programs include traditional Computer Science theory, mathematics, and science. The Bachelor of Science is currently ABET accredited [*ABET is the accrediting agency for CS, Technology and Engineering degree programs*], while the Bachelor of Arts, as a new program, is planned for ABET accreditation in the future. Both programs can lead to graduate study. Both programs allow undergraduate research experiences, coops, interns.

OTHER COMPUTING DISCIPLINES

- Information Systems is about the management of computing technology and resources within an organization or business enterprise.
- Computer Engineering is about the design and construction of the internals of a computer system and its components.
- Information Technology studies the function of technology and its application and integration.
- Software Engineering is about the formal design of large software systems for reliability and safety using approved and auditable processes and strategies.

COLLEGE OF COMPUTING AND SOFTWARE ENGINEERING

The College of Computing and Software Engineering (CCSE) is dedicated to all aspects of computing and its applications in engineering, science, and technology. We offer numerous undergraduate and graduate degree and certificate programs in all aspects of computing, including Computer Science, Gaming and Software Engineering, and Information Technology.

Through labs and internships we provide students with knowledge, skills, and hands-on experiences in order to meet the many challenges of the 21st century. Our mission is to set and maintain high-quality academic standards for student success and to help improve the quality of life by tackling tomorrow's complex problems through the application of computing, software engineering, and information technologies.

The CCSE at KSU is an excellent choice for undergraduate and graduate students who desire a quality educational experience, and we offer opportunities for students at all stages of their careers who are looking toward the next phase of their education. An outstanding faculty, sophisticated facilities, cutting edge technology and curriculum, extensive discovery and research opportunities, and personalized attention are just some of the wonderful resources and services available to our students. Please explore and see for yourself the world of opportunities that awaits you, especially the possibilities to work closely with our outstanding world-class faculty educators and researchers as well as our staff at CCSE/KSU.

Working in close collaboration with other campus offices, all of us in the CCSE are committed to providing quality education and service in a professional and efficient manner, positioning our students to be successful leaders and innovators in a world of ever-increasing challenges and demands. We look forward to assisting you in achieving your academic goals for undergraduate and graduate study.

Thank you for choosing or considering the CCSE at KSU to pursue your educational needs.

E.K. Park, PhD

Dean of CCSE

KSU

DEPARTMENT OF COMPUTER SCIENCE

The CS Department has roots dating back to the 1970s, but is also very young as a separate department with its own unique identity, having split with the Information Systems department on July 1, 2011. Our faculty take pride in our teaching and program excellence, and the department also hosts internationally-recognized research faculty. The department offers a Peer-Mentor program to help students in the lower division courses, supports a tutoring room, has labs in the Atrium building on the Marietta campus as well as Chastain Pointe suite 206 on the Kennesaw campus, hosts its own cloud computing system for teaching and research. We also have a Computer Science Commons area on the 2nd floor of the Atrium building, J263, for student and faculty collaboration.

Computer Science is a difficult and demanding major that requires persistence and determination, but leads to highly rewarding careers with exciting and dynamic opportunities in evolving technology.

ADVISING NOTES

MINORS

The BA-ACS program requires an interdisciplinary minor. Minors are from 15 to 18 credit hours of coursework that can be taken as a self-contained unit. The prerequisites for each course in the minor build on the other courses in the minor and require no additional external courses once the requirements for the first course have been met.

MINORS IN THE COLES COLLEGE OF BUSINESS

The BA-ACS program allows students to select a minor from the Coles College of Business. BA-ACS students have permission to take the required courses in the BA-ACS major from Coles College. BA-ACS students also have permission to take the minors in Information Systems and Information Security and Assurance. ***Students need to complete three upper level major courses before taking upper level Coles courses.***

WHEN A MINOR REQUIRES A COURSE THAT IS ALSO REQUIRED IN THE MAJOR

The interdisciplinary nature of the BA-ACS can result in, depending on the minor chosen by the student, a course being a requirement for both the BA-ACS major and the student's choice of minor. The 2016 KSU Undergraduate Catalog states:

- "When a student's major and minor programs require the same courses, the credit hours for some of those courses may be counted toward both the major and minor."
- "However, at least 9 hours of minor must be non-duplicative with course requirements in the major." (6-9 hours MAY be duplicated).
- "Courses in the minor may be used to fulfil electives (free electives, technical electives, related studies, etc.) required by the student's major degree program. "

For instance, the BA requires two IS courses, IS 2200 Information Systems and Communication and IS 3260 Web Dev I, which total to 6 hours (3hrs each). Those courses may be duplicated and count for both the major and the minor (if IS or ISA minor). However, the **total number of hours for the degree remains constant at 120 hours**, consequently an additional 6 hours of major electives will be required.

SENIOR PROJECT CS 4850

This course should be taken in the last semester prior to graduation, not earlier.

COURSE SUBSTITUTIONS AND TRANSFERS FROM OTHER MAJORS

The program coordinator may approve substitutions for the major. We welcome transfers from other majors and will approve substitutions into the major from other courses that have been completed, when that is appropriate. Courses must have a grade of 'C' or better for substitution.

WEB SITES

Computer Science Department: <http://ccse.kennesaw.edu/cs/>

College of Computing and Software Engineering: <http://ccse.kennesaw.edu/>

College of Computing and Software Engineering Advising Center: <http://ccse.kennesaw.edu/advising/>

KSU Registrar: <http://registrar.kennesaw.edu/>

BACHELOR OF ARTS IN APPLIED COMPUTER SCIENCE

Degree Program Requirements 03/08/16

General Education Area (44 hours), with a lab science sequence **44**

Specific General Education requirement for this major:

Math 1113 Precalculus

Math 1190 Calculus

Any lab-based science sequence. Note that the science sequence selected may limit the choice of minor.

LOWER DIVISION MAJOR REQUIREMENTS (AREA F) **19**

<u>COURSE</u>	<u>TITLE</u>	<u>PREREQ</u>	<u>Lecture-Lab-Credit</u>
ACST 2301	Problem Solving and Computer Game Programming	Admission	3-0-3
IS 2200	Information Systems and Communication	Eng 1101 & Math 1112/3	3-0-3
MATH 1107	Elementary Statistics	Math 1112 or 1113	3-0-3
CS/CSE 1301	Programming Principles I	Math 1112 or 1113	3-2-4
FL 2001	Intermediate Foreign Language and Culture I	Introductory language	3-0-3
FL 2002	Intermediate Foreign Language and Culture II	Introductory language	3-0-3

UPPER DIVISION MAJOR REQUIREMENTS **30**

ACST 3150	Programming with .Net Framework	CS 1301	3-2-4
IS 3260	Web Development I or IT 3203	IS 2200	3-0-3
Database	IS 3280 Data Management (by substitution) Or CS 3410 or CSE 3153 Database (prereq subst)	IS 2200 ACST 3150	3-0-3
ACST 3510	Computer Architecture & Robotics	ACST 3150	3-0-3
ACST 3530	Linux Operating Systems & Networking	ACST 3510	3-0-3
ACST 3330	Data Structures & Database Applications	Database	3-0-3
ACST 3540	Social Media & Global Computing	ACST 3150	3-0-3
ACST 3710	Digital Game Design	ACST 3150	3-0-3
ACST 4620	Computing Security	ACST 3530	3-0-3
CS 4850	Senior Project	Department Approval	2-0-2

INTERDISCIPLINARY MINOR OR CONCENTRATION **15-18**

Select one minor/concentration from this list, other minors require department approval.

Information Technology Minor	Chemistry Minor
Software Engineering Minor	Applied mathematics Minor
Information Security and Assurance Minor	Biology Minor
Business Information Systems Minor	Applied Stats & Data Analysis Minor
Environmental Science Minor	Geographical information Systems Concentration

INTERDISCIPLINARY MAJOR ELECTIVES or approved substitution **6**

ACST 3720	Process and Systems Modeling	ACST 3710	3-0-3
ACST 4320	Data Warehousing and Mining	ACST 3330	3-0-3
ACST 4550	Mobile Computing with Android	ACST 3530	3-0-3
ACST 4570	Cloud Computing	ACST 3530	3-0-3
IS 3760	Web Development II	IS 3260 & permission	3-0-3
CS 3610	Software Engineering	CS 3410	3-0-3
CSED 4416	Teaching of Computer Science	Department Approval	3-0-3

FREE ELECTIVES *Recommended: IT 1324 or CS/CSE 1302* **3-6**

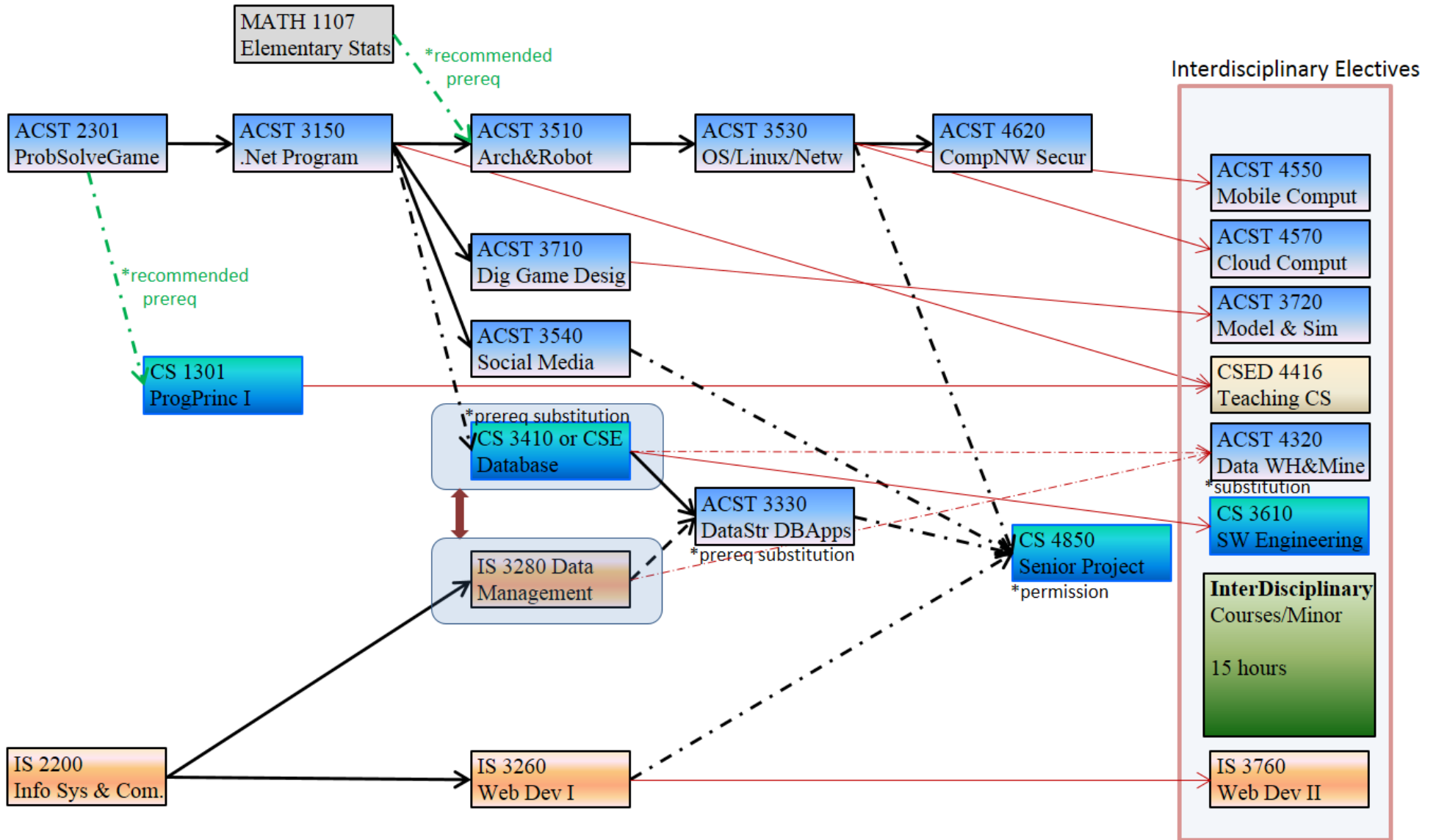
PROGRAM TOTAL **120**

UNIVERSITY-WIDE DEGREE REQUIREMENTS

See listing of requirements

BA ACS Prerequisite Structure 3/8/16

Major Required Courses: ACS, CS, IS



3-Year Plan of Study FALL Start: BA Applied Computer Science 2/22/16

Fall 1		CrHours
MATH 1113	Precalculus	3 <i>GE</i>
ENGL 1101	Eng. Comp. I	3 <i>GE</i>
IS 2200	Info. Sys. and Comm.	3 <i>LD</i>
ACST 2301	ProbSolv&GameDes	3 <i>LD</i>
FL 1002	Intro. Foreign Lang.	3 <i>GE</i>
Total Semester Hours		15

Spring 1		CrHours
MATH 1190	Calculus I	4 <i>GE</i>
ENGL 1102	Eng. Comp. II	3 <i>GE</i>
ECON 1100	Global Economics	3 <i>GE</i>
CS 1301	Prog. Princ. I	4 <i>LD</i>
Free Elective	Free Elective	3 <i>FE</i>
Total Semester Hours		17

Summer 1		CrHours
ACST 3150	.Net Programming	4 <i>UD</i>
Minor/Elec	Minor / Free elec	3 <i>MI</i>
MATH 1107	Elementary Stats	3 <i>LD</i>
Total Semester Hours		10

Fall 2		CrHours
IS 3260	Web Development	3 <i>LD</i>
HIST 1110	Intro. World History	3 <i>GE</i>
Humanities	Hum. or Fine Arts	3 <i>GE</i>
ACST 3510	CompArch & Robot	3 <i>UD</i>
Science	Lab science sequence	4 <i>GE</i>
Total Semester Hours		16

Spring 2		CrHours
PSYC 2105	Soc. Iss. Pers. Psyc.	2 <i>GE</i>
IS/CS/CSE	Database Course	3 <i>UD</i>
ACST 3540	Social Media	3 <i>UD</i>
ACST 3530	OpSys&Linux	3 <i>UD</i>
Science	Lab science seq.	4 <i>GE</i>
Total Semester Hours		15

Summer 2		CrHours
ACST 3710	Digital Game Design	3 <i>UD</i>
ACST 3330	DS & DB Apps	3 <i>UD</i>
ACST 4xxx	Major Elective	3 <i>ME</i>
Total Semester Hours		9

Fall 3		CrHours
Minor	Approved Minor	3 <i>MI</i>
HIST 2112	America Since 1890	3 <i>GE</i>
ENG 2110	World Literature	3 <i>GE</i>
FL 2001	Foreign Lang. & Cul.	3 <i>LD</i>
Minor	Approved Minor	3 <i>MI</i>
Total Semester Hours		15

Spring 3		CrHours
Minor	Approved Minor	3 <i>MI</i>
POLS 1101	American Govern.	3 <i>GE</i>
Minor	Approved Minor	3 <i>MI</i>
FL 2002	Interm. Forn. Lang.	3 <i>LD</i>
CS 4850	Senior Project	2 <i>UD</i>
Total Semester Hours		14

Summer 3		CrHours
ACST 4620	Comp. Security	3 <i>UD</i>
ACST 4xxx	Major Elective	3 <i>ME</i>
Minor	Approved Minor	3 <i>MI</i>
Total Semester Hours		9

**3-Year Plan of Study SPRING Start:
BA Applied Computer Science 2/22/16**

Spring 1		CrHours
MATH 1113	Precalculus	3 <i>GE</i>
ENGL 1101	Eng. Comp. I	3 <i>GE</i>
ECON 100	Global Economics	3 <i>GE</i>
IS 2200	Info. Sys. and Comm.	3 <i>LD</i>
ACST 2301	ProbSolv&GameDes	3 <i>LD</i>
Total Semester Hours		15

Summer 1		CrHours
ACST 150	.Net Programming	4 <i>UD</i>
MATH 107	Elementary Stats	3 <i>LD</i>
CS 1301	Prog. Princ. I	4 <i>LD</i>
Total Semester Hours		11

Fall 1		CrHours
IS 3260	Web Development	3 <i>LD</i>
ACST 3510	CompArch & Robot	3 <i>UD</i>
Science	Lab science seq.	4 <i>GE</i>
MATH 1190	Calculus I	4 <i>GE</i>
ENGL 102	Eng. Comp. II	3 <i>GE</i>
Total Semester Hours		17

Spring 2		CrHours
FL 1002	Intro. Foreign Lang.	3 <i>GE</i>
IS/CS/CSE	Database Course	3 <i>UD</i>
ACST 3540	Social Media	3 <i>UD</i>
ACST 3530	OpSys&Linux	3 <i>UD</i>
Science	Lab science sequence	4 <i>GE</i>
Total Semester Hours		16

Summer 2		CrHrs
ACST 3710	Digital Game Des	3 <i>UD</i>
ACST 330	DS & DB Apps	3 <i>UD</i>
ACST 4xxx	Major Elective	3 <i>ME</i>
Total Semester Hours		9

Fall 2		CrHours
Minor	Approved Minor	3 <i>MI</i>
HIST 110	Intro. World History	3 <i>GE</i>
ENG 2110	World Literature	3 <i>GE</i>
FL 2001	Foreign Lang. & Cul.	3 <i>LD</i>
Minor	Approved Minor	3 <i>MI</i>
Total Semester Hours		15

Spring 3		CrHours
Minor	Approved Minor	3 <i>MI</i>
POLS 101	American Govern.	3 <i>GE</i>
Minor	Approved Minor	3 <i>MI</i>
FL 2002	Interm. Foreign Lang.	3 <i>LD</i>
HIST 112	America Since 1890	3 <i>GE</i>
Total Semester Hours		15

Summer 3		CrHours
ACST 620	Comp. Security	3 <i>UD</i>
ACST 4xxx	Major Elective	3 <i>ME</i>
Minor	Approved Minor	3 <i>MI</i>
Total Semester Hours		9

Fall 3		CrHours
Minor/Elec	Minor / Free elective	3 <i>MI</i>
PSYC 2105	Soc. Iss. Pers. Psyc.	2 <i>GE</i>
	Free Elective	3 <i>FE</i>
CS 850	Senior Project	2 <i>UD</i>
Humanities	Hum. or Fine Arts	3 <i>GE</i>
Total Semester Hours		13

4-Year Plan-of-Study **FALL** Start: BA Applied Computer Science 2/22/16

Fall 1		Credit Hours	
MATH 1113	Precalculus	3	GE
ENGL 1101	Eng. Comp. I	3	GE
FL 1002	Intro. Foreign Lang.	3	GE
ACST 2301	ProbSolv&GameDes	3	LD
IS 2200	Info. Systems & Comm.	3	LD
Total Semester Hours		15	

Spring 1		Credit Hours	
MATH 1190	Calculus I	4	GE
ENGL 1102	Eng. Comp. II	3	GE
ECON 1100	Global Economics	3	GE
CS 1301	Prog. Princ. I	4	LD
Total Semester Hours		14	

Fall 2		Credit Hours	
IS 3260	Web Development I	3	LD
ACST 3150	.Net Programming	4	UD
Science	Lab science sequence	4	GE
FL 2001	Foreign Lang. & Cul.	3	LD
Humanities	Humanities/Fine Arts	3	GE
Total Semester Hours		17	

Spring 2		Credit Hours	
MATH 1107	Elementary Statistics	3	LD
IS/CS/CSE	Database Course	3	UD
Science	Lab science sequence	4	GE
FL 2002	Intermed. Foreign Lang.	3	LD
ACST 3540	Social Media	3	UD
Total Semester Hours		16	

Fall 3		Credit Hours	
HIST 1110	Intro. World History	3	GE
Minor	Approved Minor	3	MI
ENG 2110	World Literature	3	GE
ACST 3510	CompArch & Robot	3	UD
POLS 1101	American Govern.	3	GE
Total Semester Hours		15	

Spring 3		Credit Hours	
PSYC 2105	Soc. Iss. Pers. Psyc.	2	GE
Minor	Approved Minor	3	MI
Minor	Approved Minor	3	MI
ACST 3530	OpSys&Linux	3	UD
ACST 3330	DS & DB Applications	3	UD
Total Semester Hours		14	

Fall 4		Credit Hours	
Minor or elect	Approved Minor	3	MI
Minor	Approved Minor	3	MI
HIST 2112	America Since 1890	3	GE
ACST 3710	Digital Game Design	3	UD
ACST 4XXX	Major Elective	3	ME
Total Semester Hours		15	

Spring 4		Credit Hours	
Free Elective	Free Elective	3	FE
Minor	Approved Minor	3	MI
ACST 4620	Comp. Security	3	UD
ACST 4XXX	Major Elective	3	ME
CS 4850	Senior Project	2	UD
Total Semester Hours		14	

Credit Hours count 62

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4-Year Plan-of-Study **SPRING** Start
BA Applied CS 2/22/16

Spring 1		Credit Hours	
MATH 1113	Precalculus	3	GE
ENGL 1101	Eng. Comp. I	3	GE
FL 1002	Intro. Foreign Lang.	3	GE
ACST 2301	ProbSolv&GameDes	3	LD
IS 2200	Info. Systems & Comm.	3	LD
Total Semester Hours		15	

Fall 1		Credit Hours	
ACST 3150	.Net Programming	4	UD
Science	Lab science seq.	4	GE
FL 2001	Foreign Lang. & Cul.	3	LD
CS 1301	Prog. Princ. I	4	LD
Total Semester Hours		15	

Spring 2		Credit Hours	
MATH 1107	Elementary Statistics	3	LD
Science	Lab science seq	4	GE
FL 2002	Intermed. For. Lang.	3	LD
ENGL 1102	Eng. Comp. II	3	GE
MATH 1190	Calculus I	4	GE
Total Semester Hours		17	

Fall 2		Credit Hours	
HIST 1110	Intro. World History	3	GE
IS/CS/CSE	Database Course	3	UD
Minor	Approved Minor	3	MI
ACST 3510	CompArch & Robot	3	UD
POLS 1101	American Govern.	3	GE
Total Semester Hours		15	

Spring 3		Credit Hours	
ECON 1100	Global Economics	3	GE
Minor	Approved Minor	3	MI
ACST 3530	OpSys&Linux	3	UD
ACST 3330	DS & DB Apps	3	UD
ACST 3540	Social Media	3	UD
Total Semester Hours		15	

Fall 3		Credit Hours	
Minor	Approved Minor	3	MI
Minor	Approved Minor	3	MI
HIST 2112	America Since 1890	3	GE
ACST 3710	Digital Game Design	3	UD
ACST 4XXX	Major Elective	3	ME
Total Semester Hours		15	

Spring 4		Credit Hours	
IS 3260	Web Development I	3	LD
Minor	Approved Minor	3	MI
ACST 4620	Comp. Security	3	UD
ACST 4XXX	Major Elective	3	ME
ENG 2110	World Literature	3	GE
Total Semester Hours		15	

Fall 4		Credit Hours	
Minor or elect	Approved Minor	3	MI
CS 4850	Senior Project	2	UD
PSYC 2105	Soc. Iss. Pers. Psyc.	2	GE
Humanities	Humanities/Fine Arts	3	GE
Free Elective	Free Elective	3	FE
Total Semester Hours		13	

BA ACS Project Offerings

This is a projection of the planned offering of BA-ACS courses. Future semesters are indicated based on whether the year is an even or odd year (i.e. 2016 is an even year). The BA-ACS plans to offer the same courses in both even and odd years, as the table illustrates. Other disciplines in the CCSE will vary between even and odd years.

		D=day	E=evening	O=Online	X/Y means X or Y but X preferred		
Course Number		Fall Even years	Spring Odd years	Summer Odd years	Fall Odd years	Spring Even years	Summer Even years
ACST 2301	Required	D/E	D	-	D/E	D	-
ACST 3150	Required	D/E	-	D	D/E	-	D
ACST 3330	Required	-	D/O	D/O	-	D/O	D/O
ACST 3510	Required	D/E	-	-	D/E	-	-
ACST 3540	Required	-	D,O	-	-	D,O	-
ACST 3530	Required	-	D,O	-	-	D,O	-
ACST 3710	Required	D	-	D	D	-	D
ACST 4620	Required	-	O/D	O	-	O/D	O
ACST 3720	Elective	As Needed	-	-	-	-	-
ACST 4320	Elective	-	-	O/D	-	-	O/D
ACST 4550	Elective	-	O/D	-	-	O/D	-
ACST 4570	Elective	D	-	-	D	-	-

