Bachelor of Science with Major in Computer Science (Changes effective spring 2016 unless otherwise noted.)

Admission Requirements
All students must meet the minimum admission requirements of the University. Please refer to the Admissions section of this catalog.

All students must meet the preprofessional requirements, MAC 1147 and COP 2220, in order to be accepted into the Computer Science program. MAC 1114 and MAC 1140 may be substituted for MAC 1147.

Prerequisite Coursework for Transfer Students
Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual*.

All courses not listed with the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

~~Students transferring from a Florida community or state college should have completed 60 lower-division credits, including the following (see Degree Requirements section for minimum grade):~~

~~Introduction to Programming in C~~	~~COP 2220~~	~~3~~
~~Calculus with Analytic Geometry 1 and 2~~	~~MAC 2311, 2312 **or**~~	~~8-10*~~
~~Calculus for Engineers 1 and 2~~	~~MAC 2281, 2282~~	~~8-10*~~
~~Physics for Engineers with Labs (Change effective summer 2016.)~~	~~PHY 2043, 2048L, PHY 2044, 2049L **or**~~	~~8*~~
~~General Physics (with Calculus) 1 and 2 with Labs~~	~~PHY 2048, 2048L PHY 2049, 2049L~~	~~10*~~
~~Additional science course(s) designed for science majors+~~		~~4-8*~~

~~* The number of credits varies among lower-division institutions.~~

~~+ One or two science courses to bring the total credits in calculus, physics and other sciences to at least 21 credits. These additional science courses must come from biology, chemistry or geology, and be equivalent to courses taken by science majors at FAU. Florida community or state college students: note that CHM 1040 does not satisfy this requirement.~~

Degree Requirements
The minimum number of credits required for the Bachelor of Science degree with major in Computer Science is 120 credits. This degree will be awarded to students who:

1. Satisfy all admission and degree requirements for the department;

Specific Degree Requirements	
General Education (1)	
Foundations of Written Communication	6

Foundations of Society and Human Behavior	6
Foundations of Global Citizenship	6
Foundations of Creative Expressions	6
Subtotal	**24**

Mathematics and Science (2) (Lower Division)		
Calculus with Analytic Geometry 1 (4)	MAC 2311	4
Calculus with Analytic Geometry 2 (4)	MAC 2312	4
General Physics for Engineers 1 (4)	PHY 2048	3
General Physics Lab 1 (4)	PHY 2048L	1
Physics for Engineers 2 (4)	PHY 2044	3
General Physics Lab 2 (4)	PHY 2049L	1
Discrete Mathematics	MAD 2104	3
Science #		3
Science or Elective #		3
Additional Math Elective		3-4
Subtotal		**28-29**

~~***Other Lower Division Requirements (2)***~~		
~~Foreign Language 1~~		~~4~~
~~Foreign Language 2~~		~~4~~
~~Public Speaking~~	~~SPC 2608~~	~~3~~
Subtotal		~~**11 0**~~

2. Meet all University general requirements for the Bachelor of Science degree. This includes the completion of the Foreign Language Graduation Requirement, which usually requires students to take two semesters of a college-level foreign language or equivalent;

3. Complete all the computer science core courses described below with ~~at least a 2.5 GPA and earn~~ a grade of "C" or better ~~in COP 3014 and COP 3530~~;

4. Complete physics, calculus and mathematics elective courses with a grade of "C" or better in each of the courses;

5. ~~Earn a grade of "C" or better in Introduction to Programming in C (COP 2220), Foundations of Computer Science (COP 3014) and Data Structures (COP 3530);~~

6. Complete the requirements for Computer Science electives and other electives as described below.

Pass/Fail Grades: Note that while the University may offer some courses with the pass/fail option, Computer Science students may not use this option.

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Core **Courses**
All students must take the following core courses, which total 40 credits:

Computer Science Core (5)		
Introduction to Programming in C	COP 2220	3
Foundations of Computer Science	COP 3014	3
~~Foundations of Computer Science Lab~~	~~COP 3014L~~	~~1~~
Introduction to Logic Design	CDA 3201C	4
Data Structures and Algorithm Analysis*	COP 3530	3
Introduction to Internet Computing	COP 3813	3
Computer Operating Systems	COP 4610	3
~~Discrete Mathematics~~	~~MAD 2104~~	~~3~~
Stochastic Models for Computer Science	STA 4821	3
Introduction to Database Structures	COP 3540	3
Introduction to Microprocessor Systems	CDA 3331C	4
Formal Languages and Automata Theory	COT 4420	3
Design and Analysis of Algorithms	COT 4400	3
Principles of Software Engineering	CEN 4010	3
Engineering Design 1	EGN 4950C	2
Engineering Design 2	EGN 4952C	3
~~Senior Seminar~~	~~COT 4935~~	~~1~~
Subtotal		~~40~~ 43

* A grade of "C" or better is required.

Computer Science Electives (6)	~~9~~ 19
Free Electives (6) (7)	~~8~~ 6
Total	**120**

Computer Science Electives

To satisfy the computer science (CS) elective requirement, all students must take 19 credits chosen from Computer Science and Computer Engineering upper-division courses that are not in the above CS core (students can take EGN 4040 and ISM 4133 for CS elective credit). In order to provide advanced content, as well as programming experience in a language other than C/C++, one of these elective courses must be: COP 4020, COP 4593, COP 4703 or CAP 4630. Students seeking a specialty may consider concentrating on one of the following groups of courses; additional courses from these groups may be taken as other electives (note that 5000-level or 6000-level CS courses can be taken as CS electives).

Internet Technology		
Introduction to Data Communications	CNT 4104	3
Introduction to Data and Network Security	CNT 4403	3
Component Program with .NET	COP 4593	3
Applied Database Systems	COP 4703	3
Web Services	COP 4814	3

Applications		
Introduction to Artificial Intelligence	CAP 4630	3
Computer Animation	CAP 4034	3

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Computer Graphics Methods	CAP 4730	3

Software Engineering		
Software Engineering Project	CEN 4910	3
Object-Oriented Design and Programming	COP 4331	3
Advanced Systems Analysis and Design	ISM 4133	3

System Performance		
Introduction to Queueing Theory	MAP 4260	3
Modeling and Simulation of Systems	CAP 4833	3
Introduction to Computer Systems Performance Evaluation	CEN 4400	3

System Programming		
Programming Languages	COP 4020	3
UNIX System Programming	COP 4604	3

Computer Architecture		
Structured Computer Architecture	CDA 4102	3
Introduction to VLSI	CDA 4210	3
CAD-Based Computer Design	CDA 4204	3

The following courses may be taken as computer science electives. The group classification will be designated when offered:

Topics in Computer Science	COT 4930	1-3
Topics in Computer Science	COT 5930	1-3
Directed Independent Study	COT 4900	1-3

Special permission is required to count more than 3 credits of directed independent study. Up to 3 computer science elective credits can be earned by taking Cooperative Education - Computer Science (COT 3949), with each one-semester period of COT 3949 contributing 1 credit.

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Other **Electives**

One of the following mathematics courses must be taken and must be passed with a grade of "C" or better:

Calculus with Analytic Geometry 3	MAC 2313	4
Numerical Methods	MAD 3400	3
Differential Equations 1	MAP 2302	3 **or**
Engineering Math 1	MAP 3305	3
Introduction to Queueing Theory*	MAP 4260	3

Matrix Theory	MAS 2103	3
Modern Algebra	MAS 4301	3

* Cannot be used as a Computer Science elective if used to satisfy the mathematics requirement.

Three of the remaining credits must be used to take SPC 2601, Public Speaking. Elective courses cannot include COP 2220, COP 2224, COP 2510 or STA 4032. Also, students must make sure that they have the necessary minimum of 120 credits for graduation.

Sample Four-Year Program of Study for Bachelor of Science in Computer Science

First Year, Fall (13 credits)		
College Writing 1**	ENC 1101	3
Calculus with Analytical Geometry 1	MAC 2311	4
Calculus for Engineers 1**	MAC 2281	4
FAU Core* Foundations of Society and Human Behavior		3
FAU Core* Foundations of Global Citizenship		3

First Year, Spring (13 credits)		
College Writing 2**	ENC 1102	3
Calculus for Engineers 2**	MAC 2282	4
Calculus with Analytical Geometry 2	MAC 2312	4
FAU Core* Foundations of Society and Human Behavior		3
FAU Core* Foundations of Creative Expression		3
Foundations of Written Expression		3

Second Year, Fall (14 credits)		
General Physics for Engineers 1	PHY 2048	3
General Physics Lab 1	PHY 2048L	1
Foreign Language 1		4
Science #		3
FAU Core* Foundations of Creative Expression		3

Second Year, Spring (14 credits)		
General Physics 2 (with calculus) with Lab**	PHY 2049 & L	4
Physics for Engineers 2	PHY 2044	3
General Physics Lab 2	PHY 2049L	1
Foreign Language 2		4
Introduction to Programming in C**	COP 2220	3
Public Speaking	SPC 2608	3

Third Year, Fall (14 credits)		
Foundations of Computer Science	COP 3014	3

Foundations/Computer Science Lab	COP 3014L	1
Introduction to Logic Design	CDA 3201C	4
Discrete Mathematics	MAD 2104	3
Science or Elective #		3

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Third Year, Spring (16 credits)		
Data Structures and Algorithm Analysis	COP 3530	3
Introduction to Internet Computing	COP 3813	3
Stochastic Models/Comp. Science	STA 4821	3
Introduction to Microprocessor Systems	CDA 3331C	4
Free Elective (one course)		3

Third Year, Summer (9 credits)		
CS Elective @		3
Formal Languages and Automata Theory	COT 4420	3
FAU Core* Foundations of Global Citizenship		3

Fourth Year, Fall (15 credits)		
Principles of Software Engineering	CEN 4010	3
Introduction to Database Structures	COP 3540	3
CS Elective @		3
Free Elective (one course)		3
Additional Math Elective		3-4

Fourth Year, Spring (12 credits)		
Design and Analysis of Algorithms	COT 4400	3
Computer Operating Systems	COP 4610	3
Computer Science Elective @		3
Senior Seminar	COT 4935	1
Free Elective		2
Total		**120**

* FAU Core: One of the humanities or social science courses listed elsewhere in the catalog that satisfies the FAU Core Curriculum requirements for all four-year students. These include courses that satisfy the writing component for the Writing Across Curriculum (Gordon Rule) requirement; these must be passed with a grade of "C" or better.

** Must be passed with a grade of "C" or better.

Science: Students must take one or two additional science courses that are designed for science majors to bring physics and science to at least 12 credits total. Consult an advisor to check a specific course. These must be passed with a grade of "C" or better.

@ Computer Science Elective: see Consult an advisor for a list. previously shown in this section.

Second Bachelor's Degree

Individuals seeking a second bachelor's degree must satisfy all admission and degree requirements of a first bachelor's degree, except for free electives, general education and foreign language. The minimum number of FAU credits needed to earn a second bachelor's degree in Computer Science is 30 credits at the 3000 level or higher, but for most students the number of credits required to meet the degree requirements will be considerably larger.

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Computer Science Minor

The minor in Computer Science is available to all FAU undergraduates who are not majoring in Computer Science or Computer Engineering. This minor can be earned by successfully completing the following requirements and obtaining a grade of 'C' or better in Computer Science core courses from the list below:

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~~Calculus for Engineers 1~~	~~MAC 2281 **or**~~	~~4~~
Calculus with Analytical Geometry **or**	MAC 2311	4 **or**
Methods of Calculus	MAC 2233	3
Discrete Mathematics	MAD 2104	3
Introduction to Programming in C	COP 2220	3
Foundations of Computer Science	COP 3014	3
Foundations/Computer Science Lab	COP 3014L	1
Data Structures and Algorithm Analysis	COP 3530	3
Minimum upper-division computer science and engineering credits in addition to above courses		9
Total*		**25-26**

* At least 75 percent of credits earned must be from FAU.

Acknowledgment of a minor in Computer Science is official upon successful completion of an FAU degree program.

Approved by:	*Date:*
Department Chair:	3/22/16
College Curriculum Chair:	3/22/16
College Dean:	3/22/2016
UUPC Chair:	4/1/16
Undergraduate Studies Dean:	4/6/16
UFS President:	
Provost:	