

## **Program Proposal for a Direct Converted Program**

### **BS in COMPUTER SCIENCE**

<b>Document</b>	<b>Page number</b>
Curriculum Sheet	p. 2 – p. 3
4-year Roadmap	p. 4 – p. 5
Two Year Course Schedule (2018 – 2019 AY and 2019 – 2020 AY)	p. 6

## CURRICULUM SHEET

<b>Program Name (Major/minor/option/emphasis as applicable):</b> <b>Computer Science</b>		
<b>Major Courses – Required Major Core</b>		
Course Number	Course Title	Units
CS 1300	Discrete Structures	4
CS 1400	Introduction to Programming and Problem Solving	4
CS 2400	Data Structures and Advanced Programming	4
CS 2640	Computer Organization and Assembly Programming	3
CS 3110	Formal Languages and Automata	3
CS 3310	Design and Analysis of Algorithms	4
CS 3650	Computer Architecture	4
CS 3750	Computers and Society <i>(GE B5 or D4) (double counted)</i>	3
CS 4080	Programming Languages	3
CS 4310	Operating Systems	3
CS 4630	Undergraduate Seminar	1
CS 4800	Software Engineering	3
BIO 1110/1110L	Life Science & Lab <i>(GE B2, B3) (double counted)</i>	2/1
MAT 1140	Calculus I <i>(GE B4) (double counted)</i>	4
MAT 1150	Calculus II	4
MAT 2250	Linear Algebra with Applications to Differential Equations	4
PHY 1510/1510L	Introduction to Newtonian Mechanics & Lab <i>(GE B1, B3) (double counted)</i>	3/1
PHY 1520/1520L	Introduction to Electromagnetism and Circuits & Lab	3/1
STA 2260	Probability and Statistics for Computer Scientists and Engineers	3
<b>Total Number of MAJOR CORE units</b>		<b>65<sup>1</sup></b>

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<sup>1</sup> Includes double counted units

<b>Program Name (Major/minor/option/emphasis as applicable): Computer Science</b>		
<b>Major Courses – Required Electives</b>		
<b>At Least 12 Units from:</b>		
CS 3010	Numerical Methods	3
CS 3520	Symbolic Programming	3
CS 3560	Object-Oriented Design and Programming	3
CS 3700	Parallel Processing	3
CS 3800	Computer Networks	3
CS 4110	Compilers and Interpreters	3
CS 4200	Artificial Intelligence	3
CS 4350	Database Systems	3
CS 4450	Computer Graphics	3
CS 4500	Computability	3
CS 4600	Cryptography and Information Security	3
CS 4650	Big Data Analytics and Cloud Computing	3
CS 4700	Game Development	3
CS 4810	Software Engineering Practice	3
CS 4900	Honors	3
CS 4990	Special Topics for Upper Division Students	1-3
<b>No More Than 3 Units from:</b>		
CS 2450	Programming Graphical User Interfaces	3
CS 2560	C++ Programming	3
CS 2600	Unix and Scripting	3
CS 2990	Special Topics for Lower Division Students	1-3
<b>No More Than 4 Units from:</b>		
CS 2000	Special Study for Lower Division Students	1
CS 4000	Special Study for Upper Division Students	1
CS 4410	Internship in Computer Science	1-2
CS 4610	Senior Project	1
CS 4620	Senior Project	1
MAT 3470	Combinatorics	3
MAT 3800	Mathematics of Operations Research I	3
MAT 3810	Mathematics of Operations Research II	4
MAT 4020	Introduction to Numerical Analysis II	3
MAT 4750	Graph Theory	3
MAT 4800	Mathematical Programming	4
MAT 4850	Mathematical Modeling I	4
MAT 4860	Mathematical Modeling II	3
<b>Total Number of MAJOR ELECTIVE units</b>		<b>19</b>
<b>Total Number of UNRESTRICTED ELECTIVE units</b>		<b>0</b>
<b>TOTAL NUMBER OF MAJOR and UNRESTRICTED ELECTIVE UNITS</b>		<b>84</b>
<b>TOTAL NUMBER OF MAJOR and UNRESTRICTED ELECTIVE UNITS (after double counting)</b>		<b>72</b>

## 4-YEAR ROADMAP

### Computer Science Major Curriculum Year: 2018-2019

*Your department has developed this road map, taking into account prerequisites and schedule restrictions.*

*You should pay attention to these concerns when deviating from this plan.*

Year 1	Fall	Units	Spring	Units	Comment
	<b>CS 1300</b> Major Core	4	<b>CS 1400</b> Major Core	4	Students must meet with their faculty advisor at least once each year.
	<b>MAT 1140</b> GE Area B4/Major Core	4*	<b>MAT 1150</b> Major Core	4	
	<b>GE A2</b>	3	<b>BIO 1110/1110L</b> GE Area B2, B3	3	* 3-units double-counted with GE, 1-unit applied towards major core
	<b>GE</b>	3	<b>GE</b>	3	
			<b>GE</b>	3	
<i>Only four classes are recommended in the first semester</i>					
<b>Total Units</b>		<b>14</b>	<b>Total Units</b>	<b>17</b>	
				<b>Total Units for Year</b>	<b>31</b>

Year 2	Fall	Units	Spring	Units	Comment
	<b>CS 2400</b> Major Core	4	<b>CS 2640</b> Major Core	3	* 3-units double-counted with GE, 1-unit applied towards major core
	<b>CS Elective</b> Major Core	3	<b>CS 3310</b> Major Core	4	
	<b>MAT 2250</b> Major Core	4	<b>PHY 1520/1520L</b> Major Core	4	
	<b>PHY 1510/1510L</b> GE Area B1, B3/Major Core	4*	<b>GE</b>	3	
			<b>GE</b>	3	
<b>Total Units</b>		<b>15</b>	<b>Total Units</b>	<b>17</b>	
				<b>Total Units for Year</b>	<b>32</b>

Computer Science Department

Year 3	Fall	Units	Spring	Units	Comment
	<b>CS 3110</b> Major Core	3	<b>CS 4080</b> Major Core	3	<i>CS Electives must include at least 12 units from the preferred electives as listed in the catalog.</i>
	<b>CS 3650</b> Major Core	4	<b>CS Elective</b> Major Core	3	
	<b>STA 2260</b> Major Core	3	<b>CS Elective</b> Major Core	3	
	<b>GE</b>	3	<b>GE</b>	3	
	<b>GE</b>	3	<b>GE</b>	3	
	<i>Take the Graduation Writing Test</i>				
<b>Total Units</b>	<b>16</b>	<b>Total Units</b>	<b>15</b>		
			<b>Total Units for Year</b>	<b>31</b>	

Year 4	Fall	Units	Spring	Units	Comment
	<b>CS 4800</b> Major Core	3	<b>CS 4310</b> Major Core	3	<i>One course must be completed in each of the GE Areas B5, C4 and D4.</i>
	<b>CS 4630</b> Major Core	1	<b>CS Elective</b> Major Core	3	
	<b>CS Elective</b> Major Core	4	<b>CS Elective</b> Major Core	3	<i>All GE Area A courses and all lower division GE courses in a GE area must be completed before taking the GE Synthesis course in that area.</i>
	<b>CS 3750</b> GE Synthesis B5/Major Support	3	<b>GE Synthesis</b>	3	
	<b>GE Synthesis</b>	3			
	<i>Request a graduation check</i>			<i>File an application to graduate</i>	
<b>Total Units</b>	<b>14</b>	<b>Total Units</b>	<b>12</b>		
			<b>Total Units for Year</b>	<b>26</b>	

<b>Total Units on Plan</b>	<b>120</b>
<b>Major Core Units</b>	<b>72</b>
<b>General Education Units</b>	<b>48</b>
<b>Unrestricted Elective Units</b>	<b>0</b>

## TWO-YEAR COURSE SCHEDULE

Course	Academic Year 2018-2019		Academic Year 2019-2020	
	Fall	Spring	Fall	Spring
1280	x	x	x	x
1300	x	x	x	x
1400	x	x	x	x
2000	R	R	R	R
2400	x	x	x	x
2450	x		x	
2560	x	x	x	x
2600	x		x	
2640	x	x	x	x
2990	x		x	
3010		x		x
3110	x	x	x	x
3310	x	x	x	x
3520		x		x
3560	x		x	
3650	x	x	x	x
3700		x		x
3750	x	x	x	x
3800	x	x	x	x
4000	R	R	R	R
4080	x	x	x	x
4110	x		x	
4200	x	x	x	x
4310	x	x	x	x
4350	x	x	x	x
4410	R	R	R	R
4450		x		x
4500		x		x
4600	x	x	x	x
4610	R	R	R	R
4620	R	R	R	R
4630	x	x	x	x
4650	x		x	
4700		x		x
4800	x	x	x	x
4810	x			
4900			x	
4990	x	x	x	x

R = scheduled upon request