

B. MATHEMATICS REQUIREMENTS 9-10

1. Complete 6 semester hours from the following:

	CSIT 270	Discrete Mathematics (3 hours lecture)	3
	STAT 401	Applied Statistics for the Sciences (3 hours lecture)	3

2. Complete 1 course from the following for 3-4 credits

	MATH116	Calculus A (4 hours lecture)	3
	MATH122	Calculus I (3 hours lecture)	4

4. TRACKS 35-44

Complete 1 of the following three tracks for a total of 38-44 semester hours:

A. COMPUTER SCIENCE TRACK 35-36

1. COMPUTER SCIENCE REQUIRED 9
 Complete 9 semester hours from the following:

	CSIT 365	Information Assurance and Security (3 hours lecture)	3
	CSIT 440	Data Mining (3 hours lecture)	3
	CSIT 416	IT Project Management (3 hours lecture)	3

2. COMPUTER SCIENCE ELECTIVES 15

- Complete 15 semester hours from the following:
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|--|----------|---|---|
| | CSIT 313 | Fund. of Programming Languages (3 hours lecture) | 3 |
| | CSIT 335 | Intro to Human-Computer Interaction (HCI) (3 hours lecture) | 3 |
| | CSIT 345 | Operating Systems (3 hours lecture) | 3 |
| | CSIT 357 | Artificial Intelligence (3 hours lecture) | 3 |
| | CSIT 358 | Multimedia Computing (3 hours lecture) | 3 |
| | CSIT 414 | Compiler Construction (3 hours lecture) | 3 |
| | CSIT 429 | Parallel and Distributed Computing (3 hours lecture) | 3 |
| | CSIT 431 | Introduction to Robotics (3 hours lecture) | 3 |
| | CSIT 432 | Systems Administration (3 hours lecture) | 3 |
| | CSIT 437 | Web Services (3 hours lecture) | 3 |
| | CSIT 445 | Computer Architecture (3 hours lecture) | 3 |
| | CSIT 451 | Mobile Computing (3 hours lecture) | 3 |
| | CSIT 460 | Computer Security (3 hours lecture) | 3 |
| | CSIT 473 | Image Processing (3 hours lecture) | 3 |
| | CSIT 474 | Computer Graphics (3 hours lecture) | 3 |
| | CSIT 475 | Scientific Computing (3 hours lecture) | 3 |
| | CSIT 490 | Honors Seminar in Computer Science (3 hours lecture) | 3 |
| | CSIT 495 | Topics in CS for Undergraduates (3 hours lecture) | 3 |
| | CSIT 498 | Undergraduate Research II (3 hours lecture) | 3 |
| | MATH340 | Probability (3 hours lecture) | 3 |

3. DOMAIN KNOWLEDGE 11-12

 Complete **one domain knowledge path** for 11-12 credits from the following five tracks

1. Biology

Complete 2 requirements 12 semester hours

- A. Complete 8 credits from the following

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|--|----------|--|---|
| | BIOL 112 | Principles of Biology I (3 hrs lect, 3 hrs lab) | 4 |
| | BIOL 113 | Principles of Biology II (3 hrs lect, 3 hrs lab) | 4 |

- B. Complete 4 credits from the following
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|----------|---|---|
| BIOL 213 | Introduction to Ecology (3 hrs lect, 3 hrs lab) | 4 |
| BIOL 230 | Cell and Molec. Bio. (3 hrs lect, 3 hrs lab) | 4 |

2. Chemistry Semester Hours

- Complete 11 credits from the following
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|---------|--|---|
| CHEM120 | Gen. Chem. I (3 Hours Lecture, 3 Hours Lab) | 4 |
| CHEM121 | Gen. Chem. II (3 Hours Lecture, 3 Hours Lab) | 4 |
| CHEM230 | Organic Chem. I (3 Hours Lecture) | 3 |

3. *Physics*

Complete 2 requirements 11-12 semester hours

A. *Complete 8 credits from the following*

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|----------|--|---|
| PHYS 191 | Un. Physics I(3 Hours Lecture, 3 Hours Lab) | 4 |
| PHYS 192 | Un. Physics II(3 Hours Lectore, 3 Hours Lab) | 4 |

B. *Complete 3-4 credits from the following*

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|----------|---|---|
| PHYS 210 | Mechanics (3 hours lecture, 2 hours lab) | 4 |
| PHYS 240 | Electricity and Mag. (3 hours lecture, 2 hours lab) | 4 |
| PHYS 242 | Circuit Theory (2 hours lecture, 2 hours lab) | 3 |
| PHYS 245 | Elect and Dig Circ (2 hours lecture, 2 hours lab) | 3 |
| PHYS 247 | Micro and Their App (2 hours lecture, 2 hours lab) | 3 |
| PHYS 280 | Astronomy (3 hours lecture, 2 hours lab) | 4 |

4. *Linguistics*

Complete 12 credits from the following

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|----------|--|---|
| LNGN 210 | Intro to General Linguistics (3 hours lecture) | 3 |
| LNGN 300 | Syntax (3 hours lecture) | 3 |
| LNGN 331 | Phonetics (3 hours lecture) | 3 |
| LNGN 445 | Natural Language Processing (3 hours lecture) | 3 |

*Note Biology and Chemistry from original program. We are including additional options for domain knowledge but students can complete program with the courses from the previous program from the Biology and Chemistry tracks.

B. BIOINFORMATICS TRACK 40

1. BIOLOGY REQUIREMENTS 26

Complete 23 semester hours from the following

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|----------|--|---|
| BIOL 112 | Principles of Biology I (3 hours lecture, 3 hours laboratory) | 4 |
| BIOL 113 | Principles of Biology II (3 hours lecture, 3 hours laboratory) | 4 |
| BIOL 230 | Cell and Molecular Biology (3 hours lecture, 3 hours lab) | 4 |
| BIOL 380 | Genetics (3 hours lecture, 3 hours lab) | 4 |
| BIOL 350 | Microbiology (3 hours lecture, 3 hours lab) | 4 |
| CHEM 370 | Biochemistry I (3 hours lecture) | 3 |

Complete 3 semester hours from the following:

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|----------|--|---|
| BIOL 487 | Statistical Genomics (3 hours lecture) | 3 |
| STAT 487 | Statistical Genomics (3 hours lecture) | 3 |

2.	CHEMISTRY/BIOCHEMISTRY REQUIREMENTS			14
	Complete 14 semester hours from the following:			
	CHEM	120	General Chemistry I (3 hours lecture, 3 hours lab)	4
	CHEM	121	General Chemistry II (3 hours lecture, 3 hours lab)	4
	CHEM	230	Organic Chemistry I (3 hours lecture)	3
	CHEM	231	Organic Chemistry II (3 hours lecture)	3

C. CHEMINFORMATICS TRACK 36-37

All the courses are maintained for the Cheminformatics track. New program also preserves established pre-requisites in all participating departments. Only chemistry courses maintained in the required courses. If the biology courses were maintained, the cheminformatics and bioinformatics tracks would have been identical. All Biology courses were moved into electives.

1.	CHEMISTRY/BIOCHEMISTRY REQUIREMENTS			21
	Complete 21 hours from the following:			
	CHEM	120	General Chemistry I (3 hours lecture, 3 hours lab)	4
	CHEM	121	General Chemistry II (3 hours lecture, 3 hours lab)	4
	CHEM	230	Organic Chemistry I (3 hours lecture)	3
	CHEM	231	Organic Chemistry II (3 hours lecture)	3
	CHEM	232	Organic Chemistry II (4 hours lab)	2
	CHEM	370	Biochemistry I (3 hours lecture)	3
	CHEM	372	Experimental Biochemistry I (1 hour lecture, 3 hours lab)	2
2.	CHEMINFORMATICS ELECTIVES			15-16
	Complete 15-16 semester hours from the following :			
	BIOL	112	Principles of Biology I (3 hours lecture, 3 hours laboratory)	4
	BIOL	113	Principles of Biology II (3 hours lecture, 3 hours laboratory)	4
	BIOL	230	Cell and Molecular Biology (3 hours lecture, 3 hours lab)	4
	BIOL	380	Genetics (3 hours lecture, 3 hours lab)	4
	BIOL	350	Microbiology (3 hours lecture, 3 hours lab)	4
	BIOL	434	Introductory Molecular Biology (3 hours lecture)	3
	BIOL	435	Experimental Molecular Biology (6 hours lab)	3
	BIOL	457	Virology (3 hours lecture)	3
	BIOL	458	Microbial Genetics (3 hours lecture)	3
	BIOL	497	Genomics (3 hours lecture)	3
	MATH	340	Probability (3 hours lecture)	3
	BIOL	487	Statistical Genomics (3 hours lecture)	3
	CSIT	440	Data Mining (3 hours lecture)	3
	CSIT	365	Information Assurance and Security (3 hours lecture)	3
	CSIT	416	IT Project Management (3 hours lecture)	3
	CSIT	498	Undergraduate Research II (3 hours lecture)	3

5.	FREE ELECTIVES	0-5
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