

Program Modification

Program modifications must be submitted by October 15, 2010 for priority catalog review

Date (Change if modified and update the file name with the new date): 2010 2011 Catalog Copy 4.18.11; REV 4.26/11

Program Area: COMP

Semester /Year First affected: Fall 2011

Instructions: Please use this Program Modification form for changes to existing program requirements, units, outcomes, emphases or options, or for other programmatic concerns. For minor changes (faculty or address changes, additions of approved electives, minor editing for clarity, and other minor updates) use the Program Update form, available at the Curriculum website.

Paste the latest approved version of your entire program in the left AND right boxes below. Make your deletions in the LEFT column by using the strikethrough feature in Word or underlining, and highlight. Insert new language or other changes to the program on the RIGHT and highlight in **YELLOW** for easy identification. If possible, please align the two columns so that changes appear side-by-side with the original text.

CURRENTLY APPROVED PROGRAM

COMPUTER SCIENCE

Programs Offered

- Bachelor of Science in Computer Science
- Minor in Computer Science
- Minor in Computer Game Design and Development
- Master of Science in Computer Science
- Bachelor of Science in Information Technology

The Computer Science degree offers the latest cutting edge education for various industrial and applied fields. Students are given a strong background in computer hardware and software, as well as a substantial amount of “hands-on” experience. The program stresses interdisciplinary applications in other sciences and business and prepares students for graduate studies.

PROPOSED PROGRAM

COMPUTER SCIENCE

Programs Offered

- Bachelor of Science in Computer Science
- Minor in Computer Science
- Minor in Computer Game Design and Development
- Master of Science in Computer Science
- Bachelor of Science in Information Technology

The Computer Science degree offers the latest cutting edge education for various industrial and applied fields. Students are given a strong background in computer hardware and software, as well as a substantial amount of “hands-on” experience. The program stresses interdisciplinary applications in other sciences and business and prepares students for graduate studies.

Careers

The program prepares students for careers in high-tech, computer and Internet-driven industries, where interdisciplinary, dynamic and innovative professionals trained in the latest technologies are increasingly sought.

Program Learning Outcomes

Students graduating from the Computer Science program will be able to:

- Demonstrate critical thinking and problem solving skills by identifying, evaluating, analyzing and presenting fundamental software solutions and their applications;
- Demonstrate the knowledge of current computing practices and broad technology use in industry and society, including a working knowledge of software development techniques;
- Be cognizant of emerging new technologies and industrial practices connected to the computer industry;
- Demonstrate communication, research and cooperation skills by working effectively with others in interdisciplinary group settings - both inside and outside the classroom; and
- Demonstrate a sense of exploration that enables them to pursue rewarding careers in high-tech and bio-tech industries with life-learning.

Faculty

William J. Wolfe, Ph.D.

Professor of Computer Science
Chair, Computer Science Program
Bell Tower West, Room 2225
(805) 437-8985
william.wolfe@csuci.edu

Peter Smith, Ph.D.

Professor of Computer Science
Academic Advisor
Bell Tower West, Room 2265
(805) 437-8882
peter.smith@csuci.edu

Andrzej A. J. Bieszczad, Ph.D.

Associate Professor of Computer Science

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Andrzej A. J. Bieszczad, Ph.D.

Associate Professor of Computer Science

Director of the Masters Program
Bell Tower West, Room 2285
(805) 437-2773
aj.bieszczad@csuci.edu

Contact Information
<http://compsci.csuci.edu>

Bachelor of Science in Computer Science - (123 units)

Special Grade Requirement

A grade of C- or better is required in all pre-requisite courses in the major

Lower Division Required Major Courses.....	42
Upper Division Required Major Courses	29
Upper Division Elective Major Courses.....	12
Elective Courses	6
General Education.....	28
American Institutions Requirement	6
TOTAL	123 units

Note: General Education Included in Major Requirements 14

Lower Division Requirements - 42 units

COMP 150	Object-Oriented Programming.....	4
	GE-B4	
COMP 151	Data Structures and Program Design.....	4
COMP 162	Computer Architecture and Assembly Language.....	3
COMP 232	Programming Languages	3
COMP 262	Computer Organization and Architecture.....	3
MATH 150	Calculus I.....	4
	GE-B3	
MATH 151	Calculus II.....	4
MATH 230	Logic and Mathematical Reasoning.....	3
	GE-A3, B3	
MATH 240	Linear Algebra.....	3

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	GE-B3	
MATH 151	Calculus II.....	4
MATH 230	Logic and Mathematical Reasoning.....	3
	GE-A3, B3	
MATH 240	Linear Algebra.....	3

Science: Choose either

- a. Physics 200 General Physics I (4), Physics 201 General Physics II (4) and a course from GE section B2.
- or**
- b. Physics 200 General Physics I (4), Biology 200 Principles of Organismal and Population Biology (4), Biology 212 Neurobiology and Cognitive Science (3) GE B1 and B2

Upper Division Requirements - 41 units

Major Requirements - 29 units

COMP 350	Introduction to Software Engineering	3
COMP 362	Operating Systems	4
COMP 447	Societal Issues in Computing.....	3
	GE-B4, D, INTD	
COMP 454	Automata, Languages and Computation	3
COMP 491	Capstone Preparation	1
COMP 499	Capstone Project	3
MATH 300	Discrete Mathematics	3
MATH 352	Probability and Statistics.....	3
—MATH 354	Analysis of Algorithms	3

Choose three units from the following:

COMP 420	Database Theory and Design.....	3
COMP 464	Computer Graphic Systems and Design I	3

Electives - 12 units

Choose 12 Elective units from:

COMP 345	Digital Image Processing	3
	(MATH/PHYS) GE-B1, B4, INTD	
COMP 351	Distributed Computing	3
COMP 420	Database Theory and Design.....	3
COMP 421	Unix for Programmers.....	3
COMP 424	Computer System Security.....	3
COMP 425	Computer Game Programming.....	3
COMP 429	Computer Networks.....	3
COMP 445	Image Analysis & Pattern Recognition (MATH/PHYS)	3
	GE-B1, B4, INTD	

Science: Choose either

- a. Physics 200 General Physics I (4), Physics 201 General Physics II (4) and a course from GE section B2.
- or**
- b. Physics 200 General Physics I (4), Biology 200 Principles of Organismal and Population Biology (4), Biology 212 Neurobiology and Cognitive Science (3) GE B1 and B2

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	GE-B4, D, INTD	
COMP 454	Automata, Languages and Computation.....	3
COMP 491	Capstone Preparation.....	1
COMP 499	Capstone Project.....	3
MATH 300	Discrete Mathematics	3
MATH 352	Probability and Statistics.....	3
MATH 354	Analysis of Algorithms	3

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COMP 351	Distributed Computing.....	3
COMP 420	Database Theory and Design	3
COMP 421	Unix for Programmers.....	3
COMP 424	Computer System Security.....	3
COMP 425	Computer Game Programming.....	3
COMP 429	Computer Networks	3
COMP 445	Image Analysis & Pattern Recognition (MATH/PHYS).....	3
	GE-B1, B4, INTD	

COMP 451	Advanced Object Oriented Programming....	3
COMP 452	Computational Bioinformatics (MATH).....	4
COMP 462	Embedded Systems	3
COMP 464	Computer Graphic Systems and Design I....	3
COMP 469	Artificial Intelligence/Neural Nets.....	3
COMP 490	Topics in Computer Science.....	3
COMP 492	Internship.....	1-3
COMP 494	Independent Research	1-3
COMP 497	Directed Studies	3
ENGL 482	Technical Writing	3
MATH 429	Operations Research	3
MATH 448	Scientific Computing	3
GE B3, B4, INTD		

COMP 451	Advanced Object Oriented Programming ...	3
COMP 452	Computational Bioinformatics (MATH).....	4
COMP 462	Embedded Systems	3
COMP 464	Computer Graphic Systems and Design I....	3
COMP 469	Artificial Intelligence/Neural Nets	3
COMP 490	Topics in Computer Science	3
COMP 492	Internship	1-3
COMP 494	Independent Research	1-3
COMP 497	Directed Studies	3
ENGL 482	Technical Writing.....	3
MATH 429	Operations Research.....	3
MATH 448	Scientific Computing.....	3
GE B3, B4, INTD		

Proposed Course of Study

Freshman Year - 31 units

COMP 150	Object-Oriented Programming GE-B4	4
COMP 151	Data Structures and Program Design	4
COMP 162	Computer Architecture and Assembly Language.....	3
ENGL 105	Composition and Rhetoric.....	3*
GE-A2		
MATH 150	Calculus I	4
GE-B3		
MATH 151	Calculus II.....	4
MATH 230	Logic and Mathematical Reasoning	3
GE-A3, B3		
GE Section A or C		3
* or ENGL 102 and 103		6

Sophomore Year - 23 - 24 units

COMP 232	Programming Languages.....	3
COMP 262	Computer Organization & Architecture	3
MATH 240	Linear Algebra	3
MATH 300	Discrete Mathematics	3

Science: Choose either

- a. Physics 200 General Physics I (4), Physics 201 General Physics II (4) and a course from GE section B2.
- or**
- b. Physics 200 General Physics I (4), Biology 200

Proposed Course of Study

Freshman Year - 31 units

COMP 150	Object-Oriented Programming GE-B4	4
COMP 151	Data Structures and Program Design.....	4
COMP 162	Computer Architecture and Assembly Language.....	3
ENGL 105	Composition and Rhetoric.....	3*
GE-A2		
MATH 150	Calculus I.....	4
GE-B3		
MATH 151	Calculus II.....	4
MATH 230	Logic and Mathematical Reasoning	3
GE-A3, B3		
GE Section A or C.....		3
* or ENGL 102 and 103		6

Sophomore Year - 23 - 24 units

COMP 232	Programming Languages	3
COMP 262	Computer Organization & Architecture	3
MATH 240	Linear Algebra.....	3
MATH 300	Discrete Mathematics	3

Science: Choose either

- a. Physics 200 General Physics I (4), Physics 201 General Physics II (4) and a course from GE section B2.
- or**
- b. Physics 200 General Physics I (4), Biology 200

Principles of Organismal and Population Biology (4),
 Biology 212 Neurobiology and Cognitive Science (3)
 GE B1 and B2

Junior Year - 19 units + GE

COMP	350	Introduction to Software Engineering	3
COMP	362	Operating Systems	4
COMP	421	Unix for Programmers	3
COMP	454	Automata, Languages, & Computation.....	3
MATH	352	Probability and Statistics.....	3
MATH	354	Analysis of Algorithms	3

Senior Year - 19 units + GE

COMP	420	Database Theory and Design.....	3
COMP	424	Computer System Security.....	3
COMP	429	Computer Networks.....	3
COMP	447	Societal Issues in Computing	3
		GE-B4, D, INTD	
COMP	469	Artificial Intelligence/Neural Nets	3
COMP	491	Capstone Preparation	1
COMP	499	Capstone Project	3

General Education Courses Included in Major

Requirements - 14 units

COMP	150	Object-Oriented Programming	4
		GE-B4	
COMP	447	Societal Issues in Computing Sciences	3
		GE-B4, D	
MATH	150	Calculus I	4
		GE-B3	
MATH	230	Logic and Mathematical Reasoning	3
		GE-A3, B3	

Minor in Computer Science
 (23 units)

The Computer Science minor teaches the fundamentals of computer systems and

Principles of Organismal and Population Biology (4),
 Biology 212 Neurobiology and Cognitive Science (3)
 GE B1 and B2

Junior Year - 19 units + GE

COMP	350	Introduction to Software Engineering.....	3
COMP	362	Operating Systems.....	4
COMP	421	Unix for Programmers.....	3
COMP	454	Automata, Languages, & Computation	3
MATH	352	Probability and Statistics	3
MATH	354	Analysis of Algorithms	3

Senior Year - 19 units + GE

COMP	420	Database Theory and Design	3
COMP	424	Computer System Security.....	3
COMP	429	Computer Networks	3
COMP	447	Societal Issues in Computing	3
		GE-B4, D, INTD	
COMP	469	Artificial Intelligence/Neural Nets	3
COMP	491	Capstone Preparation.....	1
COMP	499	Capstone Project.....	3

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MATH	150	Calculus I.....	4
		GE-B3	
MATH	230	Logic and Mathematical Reasoning	3
		GE-A3, B3	

Minor in Computer Science
 (23 units)

The Computer Science minor teaches the fundamentals of computer systems and

programming. This minor includes the fundamentals of computer programming, including design, implementation, and testing of object-oriented programs. It also teaches the basic architecture of the computer hardware, including the fundamental components of a computer system and the logical reasoning that it is based upon. Since these computer skills are extremely useful in most other disciplines, enhancing the students knowledge of technology no matter which major they have chosen.

Careers

Computer Programmer; Computer Systems Analyst; Any career that requires a basic knowledge of computer systems and programming

Requirements - 23 units

Lower Division Requirements - 14 units

COMP 105	Computer Programming Introduction.....	3
COMP 150	Object Oriented Programming	4
COMP 151	Data Structures and Program Design.....	4
COMP 162	Computer Architecture and Assembly.....	3

Upper Division Requirements - 9 units

Three upper-division courses from the CS program approved by the advisor.

Master of Science in Computer Science

(Offered through CI Extended University Program)

The MS in Computer Science prepares students for advanced careers in high-tech, computer-driven industries, including applications to business, aerospace, education, military, and government where interdisciplinary, dynamic and innovative professionals trained in latest technologies are increasingly sought. Students develop a strong background in computer theory, software and hardware, as well as skills to conduct applied research. The program stresses interdisciplinary applications while preparing students for a wide range of industry, academic, and research positions.

<http://www.cs.esuci.edu/MSCS/>

Admission

Students seeking admission are expected to have an undergraduate degree in computer science, mathematics, engineering, or science. Other majors will be considered on a case by

programming. This minor includes the fundamentals of computer programming, including design, implementation, and testing of object-oriented programs. It also teaches the basic architecture of the computer hardware, including the fundamental components of a computer system and the logical reasoning that it is based upon. Since these computer skills are extremely useful in most other disciplines, enhancing the students knowledge of technology no matter which major they have chosen.

Careers

Computer Programmer; Computer Systems Analyst; Any career that requires a basic knowledge of computer systems and programming

Requirements - 23 units

Lower Division Requirements - 14 units

COMP 105	Computer Programming Introduction.....	3
COMP 150	Object Oriented Programming	4
COMP 151	Data Structures and Program Design	4
COMP 162	Computer Architecture and Assembly.....	3

Upper Division Requirements - 9 units

Three upper-division courses from the CS program approved by the advisor.

Master of Science in Computer Science

(Offered through CI Extended University Program)

The MS in Computer Science prepares students for advanced careers in high-tech, computer-driven industries, including applications to business, aerospace, education, military, and government where interdisciplinary, dynamic and innovative professionals trained in latest technologies are increasingly sought. Students develop a strong background in computer theory, software and hardware, as well as skills to conduct applied research. The program stresses interdisciplinary applications while preparing students for a wide range of industry, academic, and research positions.

Admission

Students seeking admission are expected to have an undergraduate degree in Computer Science or an undergraduate degree in Mathematics with an emphasis in computer science. The applicant is expected to have a 2.7 or higher cumulative undergraduate grade point

case basis. The applicant is expected to have a 2.7 or higher cumulative undergraduate grade point average (GPA). A GRE report is also required for applicant whose GPA is less than 3.0.

Graduation

To obtain the degree, the student must complete each course with a minimum grade of B, and defend a thesis before an examination committee.

Required Courses - 32 units

COMP 599	Graduate Seminar	2
COMP 597	Thesis	6
Electives (minimum of <u>18</u> units must be COMP).....		24

Electives - 24 units

A minimum of 18 units must be COMP

COMP 510	Algorithms	3
COMP 520	Advanced Database Systems	3
COMP 524	Security.....	3
COMP 529	Network Computing	3
COMP 549	Human-Computer Interaction.....	3
COMP 550	Advanced Software Engineering.....	3
COMP 566	Geometry and Computer Graphics.....	3
COMP 569	Artificial Intelligence	3
COMP 571	Biologically Inspired Computing	3
COMP 572	Neural Networks	3
COMP 575	Multi-agent Systems	3
COMP 578	Data Mining	3
COMP 590	Special Topics in Computer Science.....	3
COMP 581	Mathematical Methods in Artificial Intelligence (MATH).....	3
COMP 597	Master Thesis	1-6
COMP 599	Graduate Seminar	1
MATH 510	Probabilistic Methods & Measure Theory	3
MATH 511	Functional Analysis	3
MATH 555	Actuarial Sciences.....	3
MATH 565	Research In Mathematics Education	3
MATH 582	Number Theory And Cryptography	3
MATH 584	Algebraic Geometry & Coding Theory.....	3
MATH 587	Markov Chains & Markov Processes.....	3

average (GPA). General Graduate Record Examination (GRE) record is required. The application package includes a checklist for all required documents. Foreign applicants usually must satisfy additional requirements specified elsewhere in the catalog.

Candidates with undergraduate degrees from other disciplines will be considered on a case-by-case basis and may be provisionally accepted. The conditions will usually include a selection of foundation Computer Science courses as determined by the admission committee. The following is a collection of foundation courses:

- Introduction to Programming (COMP150)
- Data Structures and Algorithms (COMP151)
- Computer System Architecture and Assembly Languages (COMP162)
- Programming Languages (COMP232)
- Software Engineering (COMP350)
- Operating Systems (COMP362)

Some of the foundation courses may be satisfied by the equivalent candidate's undergraduate courses. The student will have to apply for a formal direct mapping to the waived CSUCI course to obtain the credit.

Some remedial work in Math foundations may also be prescribed for candidates that lack proper background. Normally, it is assumed that the candidates have taken equivalents of the following Math courses:

- Calculus I (MATH150)
- Calculus II (MATH151)
- Logic and Mathematical Reasoning (MATH230)
- Linear Algebra (MATH240)
- Discrete Math (MATH300)
- Probability and Statistics (MATH352)

NOTE: The remedial courses must be completed before enrolling into any graduate course.

Graduation

To obtain the degree, the student must complete each course with a minimum grade of B, and defend a thesis before an examination committee.

NOTE: Any remedial courses are in addition to the following graduation requirements.

Required Courses - 32 units

COMP 599	Graduate Seminar	2
COMP 597	Thesis.....	6
Electives (minimum of <u>18</u> units must be COMP)		24

Electives - 24 units

A minimum of 18 units must be COMP

MATH 588	Stochastic Analysis	3
PHYS 510	Advanced Image Analysis Techniques	3
PHYS 546	Pattern Recognition.....	3

Graduate Writing

Assessment Requirement

Writing proficiency prior to the awarding of the degree is demonstrated by successful completion of COMP 597 Masters Thesis with a grade of B or higher.

Bachelor of Science in Information Technology

Programs Offered

- Bachelor of Science in Information Technology

This BSIT program is specifically designed to provide an avenue of advancement for students with associate's degrees in a technology discipline such as networking (e.g.: Moorpark College's Associate in Science Degree in Computer Network Systems Engineering). This new program gives the student the opportunity to complete a Bachelor of Science degree in Information Technology. The course work will provide a foundation in mathematics, programming, networking, databases, web, computer architecture and information systems. The BSIT sits between a BS in Computer Science and a BS in Management Information Systems, emphasizing the fastest growing segments of the both: Web Systems, Databases, and Networks. For a foundation, the BSIT program draws from both camps: mathematics, science, and computer programming from Computer Science, and business organization and project management from Management Information Systems. From there it adds depth in Web Programming and Technology, Database Theory and Design, and Data Communications and Networking, while allowing for further depth in these or related areas such as e-Commerce, Computer Security, and Multimedia.

Careers

Potential career options for BSIT graduates include: Computer Systems Integrator, Computer Systems Manager, Information Technology Designer, Information Technology Support, Database Systems Manager, Database Systems Designer, Data Communications Analyst, Network Manager, Network Designer, Web Technology Manager, Web Technology Support.

COMP 510	Advanced Image Analysis Techniques (MATH/PHYS).....	3
COMP 520	Advanced Database Systems	3
COMP 524	Security	3
COMP 529	Network Computing.....	3
COMP 546	Pattern Recognition (MATH/PHYS).....	3
COMP 549	Human-Computer Interaction	3
COMP 550	Advanced Software Engineering	3
COMP 554	Algorithms.....	3
COMP 566	Geometry and Computer Graphics	3
COMP 569	Artificial Intelligence.....	3
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COMP 572	Neural Networks.....	3
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COMP 590	Special Topics in Computer Science	3
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MATH 582	Number Theory And Cryptography.....	3
MATH 584	Algebraic Geometry & Coding Theory	3
MATH 587	Markov Chains & Markov Processes	3
MATH 588	Stochastic Analysis.....	3

Graduate Writing

Assessment Requirement

Writing proficiency prior to the awarding of the degree is demonstrated by successful completion of COMP 597 Masters Thesis with a grade of B or higher.

Bachelor of Science in Information Technology

Program Learning Outcomes and Contact Information

<http://www.cs.csuci.edu/>

Bachelor of Science in Information Technology - (121 units)

Lower Division Requirements

Students entering this program are expected to have completed an associate's degree (or equivalent) in a technology area, including:

1. Statistics
2. One semester of a Laboratory science (Physics, Chemistry, or Biology).
3. First course in Java programming language.
4. First course in Computer Architecture and Assembly Language.
5. CSU GE Certification or courses fulfilling the CI lower division general education requirements.
6. A minimum of 10 units of lower division coursework in a technology area (computer technology, electronics technology, manufacturing technology, engineering, computer science, etc.).

Students who have not completed these 60 units prior to their admission to the program will be required to complete them at CI or a community college. Course substitutions for these requirements may be made with the approval of the program chair.

Remaining Requirements - 61 units

Mathematics and Science Requirements

7 units

MATH 301	Discrete Mathematics for IT	3
	Lab Science II-Physics, Chemistry or Biology	4

Core Courses - 26 units

COMP 151	Data Structures and Program Design	4
COMP 262	Computer Organization and Architecture.....	3
COMP 362	Operating Systems	4
COMP 420	Database Theory and Design.....	3
IT 280	Web Programming.....	3
IT 429	Computer Networks for IT	3
MIS 310	Management Information Systems.....	3
MGT 307	Management of Organizations	3

Programs Offered

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Careers

Potential career options for BSIT graduates include: Computer Systems Integrator, Computer Systems Manager, Information Technology Designer, Information Technology Support, Database Systems Manager, Database Systems Designer, Data Communications Analyst, Network Manager, Network Designer, Web Technology Manager, Web Technology Support.

Program Learning Outcomes and Contact Information

<http://compsci.csuci.edu/>

Bachelor of Science in Information Technology - (121 units)

Lower Division Requirements

Students entering this program are expected to have completed an associate's degree (or equivalent) in a technology area, including:

1. Statistics
2. One semester of a Laboratory science (Physics, Chemistry, or Biology).

As a graduation requirement, all CI students must complete

Upper Division Interdisciplinary GE - (9 units)

48 units of General Education. Nine of the 48 units must be resident upper division, interdisciplinary courses numbered in the 330-349 or 430-449 ranges.

Electives 15 units

Choose 15 units from the following:

Note: 9 units of the 15 units must be taken in IT courses

ART	324	Communication Design Technology: Web Design.....	3
ART	326	Digital Media Art: 3D Computer Animation	3
COMP	232	Programming Languages	3
COMP	337	Survey of Computer Gaming.....	3
COMP	345	Digital Image Processing (MATH/PHYS)	3
COMP	350	Introduction to Software Engineering	3
COMP	425	Computer Game Programming	3
COMP	447	Societal Issues in Computing.....	3
COMP	449	Human Computer Interaction (PSY).....	3
COMP	452	Computational Bioinformatics (MATH).....	4
IT	400	.....e-Commerce	3
IT	401	..... Web Intelligence	3
IT	402	.....Advanced IT Programming	3
IT	424	..... Computer System Security for IT	3
IT	464	..... Computer Graphics for IT	3
IT	469	..Artificial Intelligence/Neural Networks for IT	3
IT	490	..... Special Topics for IT	3
MATH	137	Strategies and Game Design.....	3
MATH	330	Mathematics and Fine Arts.....	3
MATH	437	Mathematics for Game Programming	3
(Additional electives to be added based on faculty availability).....			
Capstone - 4 units			
MGT	471	Project Management	3

3. First course in Java programming language.
4. First course in Computer Architecture and Assembly Language.
5. CSU GE Certification or courses fulfilling the CI lower division general education requirements.
6. A minimum of 10 units of lower division coursework in a technology area (computer technology, electronics technology, manufacturing technology, engineering, computer science, etc.).

Students who have not completed these 60 units prior to their admission to the program will be required to complete them at CI or a community college. Course substitutions for these requirements may be made with the approval of the program chair.

Remaining Requirements - 61 units

Mathematics and Science Requirements

7 units

MATH	301	Discrete Mathematics for IT	3
		Lab Science II-Physics, Chemistry or Biology	4

Core Courses - 26 units

COMP	151	Data Structures and Program Design.....	4
COMP	262	Computer Organization and Architecture	3
COMP	362	Operating Systems.....	4
COMP	420	Database Theory and Design	3
IT	280	Web Programming	3
IT	429	Computer Networks for IT.....	3
MIS	310	Management Information Systems	3
MGT	307	Management of Organizations.....	3

As a graduation requirement, all CI students must complete

Upper Division Interdisciplinary GE - (9 units)

48 units of General Education. Nine of the 48 units must be resident upper division, interdisciplinary courses numbered in the 330-349 or 430-449 ranges.

Electives 15 units

Choose 15 units from the following:

IT	499	BSIT Capstone Project	1
BSIT Summary - 121 units			
Lower Division Requirements			60
Mathematics and Science Requirements			7
Core Courses			26
Upper Division Interdisciplinary GE			9
Upper Division Electives			15
Capstone	4		

Proposed Course of Study

Junior Year

Fall - 17 units

Lab Science II (Second semester Bio, Chem, or Phys).....4			
ENGL	330	Interdisciplinary Writing	3
COMP	151	Data Structures	4
COMP	262	Computer Organization and Architecture	3
MATH	301	Discrete Mathematics for IT	3

Spring - 16 units

COMP	447	Societal Issues in Computing	3
COMP	362	Operating Systems	4
COMP	420	Database Theory and Design	3
IT	280	Web Programming	3
MGT	307	Management of Organizations	3

Senior Year

Fall - 15 units

IT	400	eCommerce	3
IT	402	Advanced IT Programming	3
IT	429	Computer Networks for IT	3
MGT	471	Project Management	3
MIS	310	Management Information Systems	3

Spring - 13 units

COMP	449	Human Computer Interaction (PSY)	3
IT	424	Computer System Security for IT	3
IT	401	Web Intelligence	3
IT	490	Special Topics for IT	3
IT	499	BSIT Capstone	1

Note: 9 units of the 15 units must be taken in IT courses

ART	324	Communication Design Technology: Web Design	3
ART	326	Digital Media Art: 3D Computer Animation	3
COMP	232	Programming Languages	3
COMP	337	Survey of Computer Gaming	3
COMP	345	Digital Image Processing (MATH/PHYS)	3
COMP	350	Introduction to Software Engineering	3
COMP	425	Computer Game Programming	3
COMP	447	Societal Issues in Computing	3
COMP	452	Computational Bioinformatics (MATH)	4
IT	400	e-Commerce	3
IT	401	Web Intelligence	3
IT	402	Advanced IT Programming	3
IT	424	Computer System Security for IT	3
IT	464	Computer Graphics for IT	3
IT	469	Artificial Intelligence/Neural Networks for IT	3
IT	490	Special Topics for IT	3

Additional electives to be added based on faculty availability).....

Capstone - 4 units

MGT	471	Project Management	3
IT	499	BSIT Capstone Project	1

BSIT Summary - 121 units

Lower Division Requirements			60
Mathematics and Science Requirements			7
Core Courses			26
Upper Division Interdisciplinary GE			9
Upper Division Electives			15
Capstone	4		

Proposed Course of Study

Junior Year

Fall - 17 units

Lab Science II (Second semester Bio, Chem, or Phys) 4			
ENGL	330	Interdisciplinary Writing	3
COMP	151	Data Structures	4
COMP	262	Computer Organization and Architecture	3

	MATH 301	Discrete Mathematics for IT	3
	<i>Spring - 16 units</i>		
	COMP 447	Societal Issues in Computing	3
	COMP 362	Operating Systems.....	4
	COMP 420	Database Theory and Design	3
	IT 280	Web Programming	3
	MGT 307	Management of Organizations.....	3
	Senior Year		
	<i>Fall - 15 units</i>		
	IT 400	eCommerce	3
	IT 402	Advanced IT Programming.....	3
	IT 429	Computer Networks for IT.....	3
	MGT 471	Project Management.....	3
	MIS 310	Management Information Systems	3
	<i>Spring - 13 units</i>		
	IT 424	Computer System Security for IT	3
	IT 401	Web Intelligence.....	3
	IT 464	Computer Graphics for IT	3
	IT 490	Special Topics for IT	3
	IT 499	BSIT Capstone	1

SUMMARY OF CHANGES

- 1) The Admission section was extended to spell out the rules about the required background for graduate studies in Computer Science.
- 2) Two graduate courses were cross-listed with PHYS.
- 3) Remove MATH137, MATH300, MATH437, COMP499 from the electives for BSIT.

JUSTIFICATION

- 1)The first change is to provide a better guide to the candidates and the admission committee.

2) The PHYS courses contain material usually taught in a Computer Science curriculum. The number of courses outside of COMP is limited to two in the graduate program, so if a student took both PHYS courses that limit was used preventing students from taking courses that are truly outside of the discipline.

Since one of the PHYS course numbers (PHYS510) collided with the number of the existing COMP course (COMP510 Algorithms), COMP510 has been renumbered to COMP554; that number is in line with the undergraduate foundation course on algorithms.

3) MATH137, MATH300, MATH437, COMP499 are not appropriate as electives for Bachelor of Science in Information Technology

_____ Andrzej Bieszczad _____

Proposer of Program Modification

Date

Program:

Program Chair		
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Signature

Date

Curriculum Chair		
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Signature

Date

Dean of Faculty		
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Signature

Date