

**DEGREE/PROGRAM CHANGE
FORM C
Form Number: C1396**

Fields marked with * are required

Name of Initiator: Lourdes McKenna **Email:** lourdes@unm.edu **Phone Number:** 505 277-3112 **Date:** 06-03-2014

Associated Forms exist? Initiator's Title
Faculty Contact Administrative Contact
Department Admin Email
Branch Admin Phone

Proposed effective term

Semester Year

Course Information

Select Appropriate Program
Name of New or Existing Program
Select Category Degree Type
Select Action

Exact Title and Requirements as they should appear in the catalog. If there is a change, upload current and proposed requirements.

See current catalog for format within the respective college (upload a doc/pdf file)

[Form C Undergrad 2014.docx](#)
[BSCS 4-Year Plan.pdf](#)

Does this change affect other departmental program/branch campuses? If yes, indicate below.

Reason(s) for Request (enter text below or upload a doc/pdf file)

Upload a document that includes justification for the program, impact on long-range planning, detailed budget analysis and faculty workload implications.(upload a doc/pdf file)

[Budgetary and Faculty Load Implications Form C.docx](#)

Are you proposing a new undergraduate degree or new undergraduate certificate? If yes, upload the following documents.

Upload a two-page Executive Summary authorized by Associate Provost. (upload a doc/pdf file)

Upload memo from Associate Provost authorizing go-ahead to full proposal. (upload a doc/pdf file)

CS Undergraduate Curriculum

Current Information	New Information
<p data-bbox="186 304 500 331">Graduation Requirements</p> <p data-bbox="186 373 799 934">To receive the Bachelor of Science in Computer Science, a student must satisfy all general University of New Mexico regulations concerning baccalaureate programs and must complete all work defined by the following groups. Only courses with a grade of C- or better may be used to satisfy any of the requirements defined herein. The following courses cannot be used to satisfy any of the requirements listed below: Reserve Officers Training (ROTC), recreational physical education (PE-NP), Introductory Studies courses (e.g., IS-E 100) and mathematics courses prior to calculus. If in doubt about the applicability of a course, contact an undergraduate advisor in the Computer Science Department. Graduation criteria for the B.S.C.S. is as follows:</p> <ol data-bbox="186 976 787 1291" style="list-style-type: none"> <li data-bbox="186 976 609 1003">1. Completion of 130 credit hours. <li data-bbox="186 1050 711 1113">2. Completion of at least 42 credit hours in courses numbered 300 or above. <li data-bbox="186 1155 782 1291">3. Completion of 51 credit hours in computer science consisting of the following courses, which total 42 credit hours, completed with a grade of C or better: <p data-bbox="186 1297 750 1360">One of CS 151L or CS 152L (with grades of B- or better)</p> <p data-bbox="186 1367 506 1394">CS 241L Data Organization</p> <p data-bbox="186 1400 613 1428">CS 251L Intermediate Programming</p> <p data-bbox="186 1434 636 1497">CS 261 Mathematical Foundations of Computer Science</p> <p data-bbox="186 1503 578 1530">ECE 238L Computer Logic Design</p> <p data-bbox="186 1537 750 1564">CS 293 Social and Ethical Issues in Computing</p> <p data-bbox="186 1570 750 1633">CS 341L Introduction to Computer Architecture and Organization</p> <p data-bbox="186 1640 592 1667">CS 351L Design of Large Programs</p> <p data-bbox="186 1673 678 1701">CS 361L Data Structures and Algorithms I</p> <p data-bbox="186 1707 678 1734">CS 362 Data Structures and Algorithms II</p> <p data-bbox="186 1740 592 1768">CS 357L Declarative Programming</p> <p data-bbox="186 1774 571 1801">CS 375 Numerical Computation</p> <p data-bbox="186 1808 539 1835">CS 460 Software Engineering</p> <p data-bbox="186 1841 636 1869">CS 481 Computer Operating Systems</p>	<p data-bbox="826 304 1140 331">Graduation Requirements</p> <p data-bbox="826 373 1432 934">To receive the Bachelor of Science in Computer Science, a student must satisfy all general University of New Mexico regulations concerning baccalaureate programs and must complete all work defined by the following groups. Only courses with a grade of C- or better may be used to satisfy any of the requirements defined herein. The following courses cannot be used to satisfy any of the requirements listed below: Reserve Officers Training (ROTC), recreational physical education (PE-NP), Introductory Studies courses (e.g., IS-E 100) and mathematics courses prior to calculus. If in doubt about the applicability of a course, contact an undergraduate advisor in the Computer Science Department. Graduation criteria for the B.S.C.S. is as follows:</p> <ol data-bbox="826 976 1427 1291" style="list-style-type: none"> <li data-bbox="826 976 1248 1003">1. Completion of 120 credit hours. <li data-bbox="826 1050 1351 1113">2. Completion of at least 42 credit hours in courses numbered 300 or above. <li data-bbox="826 1155 1421 1291">3. Completion of 51 credit hours in computer science consisting of the following courses, which total 42 credit hours, completed with a grade of C or better: <p data-bbox="826 1297 1388 1360">One of CS 151L or CS 152L (with grades of B- or better)</p> <p data-bbox="826 1367 1140 1394">CS 241L Data Organization</p> <p data-bbox="826 1400 1247 1428">CS 251L Intermediate Programming</p> <p data-bbox="826 1434 1269 1497">CS 261 Mathematical Foundations of Computer Science</p> <p data-bbox="826 1503 1211 1530">ECE 238L Computer Logic Design</p> <p data-bbox="826 1537 1388 1564">CS 293 Social and Ethical Issues in Computing</p> <p data-bbox="826 1570 1388 1633">CS 341L Introduction to Computer Architecture and Organization</p> <p data-bbox="826 1640 1226 1667">CS 351L Design of Large Programs</p> <p data-bbox="826 1673 1312 1701">CS 361L Data Structures and Algorithms I</p> <p data-bbox="826 1707 1312 1734">CS 362 Data Structures and Algorithms II</p> <p data-bbox="826 1740 1226 1768">CS 357L Declarative Programming</p> <p data-bbox="826 1774 1205 1801">CS 375 Numerical Computation</p> <p data-bbox="826 1808 1172 1835">CS 460 Software Engineering</p> <p data-bbox="826 1841 1269 1869">CS 481 Computer Operating Systems</p>

The remaining 9 credit hours are technical electives of the student's choosing to be taken from among the Computer Science Department offerings. (Certain courses in the Department of Electrical and Computer Engineering are also acceptable as technical electives.) All courses used as technical electives are subject to the approval of an undergraduate advisor and must be completed with a grade of B or better.

CS 259L may be substituted for CS 152L and CS 251L but only 5 credit hours credit is awarded. The computer science credit hour requirement is reduced to 50, but the overall graduation requirement remains at 130.

The following additional rules apply:

Department offerings below the 300-level cannot be used as technical electives. The following courses also cannot be used as technical electives: CS 394, 401, 492, 494.

At most 3 credit hours of CS 499 may be used toward satisfaction of this requirement.

At least 15 credit hours at or above the 300-level used to satisfy this requirement must be taken from full-time University of New Mexico Computer Science Department faculty.

At least 18 credit hours must be taken in the Computer Science Department at the University of New Mexico.

4. Completion of the Mathematics sequence:
MATH 162 Calculus I, with a grade of B- or better
MATH 163 Calculus II
MATH 314 or 321 Linear Algebra
STAT 345 Elements of Mathematical Statistics and Probability Theory

5. 9 credit hours of communications skills: ENGL 110 (or ENGL 112; or ENGL 113), ENGL 120 and one of ENGL 219 (Technical and Professional Writing), ENGL 220 (Expository Writing) or CJ 130 (Public Speaking).

The remaining 9 credit hours are technical electives of the student's choosing to be taken from among the Computer Science Department offerings. (Certain courses in the Department of Electrical and Computer Engineering are also acceptable as technical electives.) All courses used as technical electives are subject to the approval of an undergraduate advisor and must be completed with a grade of B or better.

CS 259L may be substituted for CS 152L and CS 251L but only 5 credit hours credit is awarded. The computer science credit hour requirement is reduced to 50, but the overall graduation requirement remains at 120.

The following additional rules apply:

Department offerings below the 300-level cannot be used as technical electives. The following courses also cannot be used as technical electives: CS 394 and 494.

At most 3 credit hours of CS 499 may be used toward satisfaction of this requirement.

At least 15 credit hours at or above the 300-level used to satisfy this requirement must be taken from full-time University of New Mexico Computer Science Department faculty.

At least 18 credit hours must be taken in the Computer Science Department at the University of New Mexico.

4. Completion of the Mathematics sequence:
MATH 162 Calculus I, with a grade of B- or better
MATH 163 Calculus II
MATH 314 or 321 Linear Algebra
STAT 345 Elements of Mathematical Statistics and Probability Theory

5. 9 credit hours of communications skills: ENGL 110 (or ENGL 112; or ENGL 113), ENGL 120 and one of ENGL 219 (Technical and Professional Writing), ENGL 220 (Expository Writing) or CJ 130 (Public Speaking).

Part of this requirement may be satisfied by passing an authorized proficiency examination. ENGL 110 and 120 are waived if the student obtains:

- an ACT score of 25 or higher (prior to October 1989)
- an ACT score of 29 or higher (after October 1989)
- an SAT score of 580 or higher (prior to April 1995) or
- an SAT score of 650 or higher (after April 1995)

When a student is exempted from ENGL 110 and 120, the student's total credit requirement is still the minimum required by the University for a bachelor's degree. Students may have to take additional credit hours to meet that minimum.

6. Satisfaction of University Core Curriculum requirements with a grade of C or better in humanities, social sciences, fine arts, and second language(s), and additional non-technical courses to total a minimum of 30 credit hours. See the description of the Core Curriculum in this Catalog.

7. Four (3 or more credit) science courses taken by science and engineering majors, two of which must come from one of the following sequences, including the laboratories. The remaining credit hours can be more advanced courses in the discipline chosen for the sequence or they can be additional introductory laboratory science credit hours.

ASTR 270-270L, 271-271L
BIOL 201, 202, 203L, 204L
CHEM 121, 123L, 122, 124L
EPS 101-105L and 201L or ENV5 101-102L and EPS 201L
PHYC 160, 160L-161, 161L

Physics is recommended.

8. Course work sufficient to satisfy requirements of a minor. Minors approved by the College of Arts and Sciences are generally acceptable for Computer Science majors. The UNM Catalog should be consulted for the requirements for

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- an SAT score of 580 or higher (prior to April 1995) or
- an SAT score of 650 or higher (after April 1995)

When a student is exempted from ENGL 110 and 120, the student's total credit requirement is still the minimum required by the University for a bachelor's degree. Students may have to take additional credit hours to meet that minimum.

6. Satisfaction of University Core Curriculum requirements with a grade of C or better in humanities, social sciences, fine arts, and second language(s), and additional non-technical courses to total a minimum of 30 credit hours. See the description of the Core Curriculum in this Catalog.

7. Four (3 or more credit) science courses taken by science and engineering majors, two of which must come from one of the following sequences, including the laboratories. The remaining credit hours can be more advanced courses in the discipline chosen for the sequence or they can be additional introductory laboratory science credit hours.

ASTR 270-270L, 271-271L
BIOL 201, 202, 203L, 204L
CHEM 121, 123L, 122, 124L
EPS 101-105L and 201L or ENV5 101-102L and EPS 201L
PHYC 160, 160L-161, 161L

Physics is recommended.

8. Course work sufficient to satisfy requirements of a minor. Minors approved by the College of Arts and Sciences are generally acceptable for Computer Science majors. The UNM Catalog should be consulted for the requirements for

<p>completing a minor in various fields of study. An interdisciplinary minor of not less than 24 credit hours can be developed to suit the goals of individual students; such a minor must be approved by the Undergraduate Curriculum Committee of the department.</p> <p>The following courses taken from the Department of Electrical and Computer Engineering satisfy this requirement:</p> <p>Minor in Computer Engineering: ECE 203, 206L, 213, 321, 322, 338 and 438.</p> <p>Minor in Electrical Engineering: ECE 203, 206L, 213, 314, 321 and two of ECE 322, 340, 360, 371, or 445.</p> <p>No course included in the mathematics requirement for CS majors (STAT 345, MATH 314, 321 or 375) may be applied toward the mathematics minor.</p> <p>Mathematics minors may not use Department of Mathematics courses for Teachers and Education Students in constructing the minor. MATH 317 and MATH 327 cannot be used in constructing the minor. Statistics minors must substitute 6 credit hours of advance statistics for STAT 145 (not accepted by the department) and STAT 345 (already required of all computer science majors).</p> <p>Students minoring in business cannot minor in Management Information Systems (MIS). In particular, the following courses cannot be used in constructing the minor: MGMT 290 (STAT 245, 329, 330, 331, 336, 337 and 437, 439, 449, 450, 459, 460, 461, or any course related to CS or computer applications.</p> <p>Courses taken to satisfy the requirements for a minor may also be used to satisfy the requirements of categories 1, 2, 5, 6 and 7.</p> <p>All courses taken to satisfy the graduation requirements are subject to final approval by an undergraduate advisor. At most, 24 credit hours taken for CR/NC may be applied toward the</p>	<p>completing a minor in various fields of study. An interdisciplinary minor of not less than 24 credit hours can be developed to suit the goals of individual students; such a minor must be approved by the Undergraduate Curriculum Committee of the department.</p> <p>The following courses taken from the Department of Electrical and Computer Engineering satisfy this requirement:</p> <p>Minor in Computer Engineering: ECE 203, 206L, 213, 321L, 322L, 338 and 438.</p> <p>Minor in Electrical Engineering: ECE 203, 206L, 213, 314, 321L, 322L, and two of 340, 345, 360, or 371.</p> <p>No course included in the mathematics requirement for CS majors (STAT 345, MATH 314 or 321L, and 375) may be applied toward the mathematics minor.</p> <p>Mathematics minors may not use Department of Mathematics courses for Teachers and Education Students in constructing the minor. MATH 317 and MATH 327 cannot be used in constructing the minor. Statistics minors must substitute 3 credit hours of advance statistics for STAT 145 (not accepted by the department).</p> <p>Students minoring in business cannot minor in Management Information Systems (MIS). In particular, the following courses cannot be used in constructing the minor: STAT 245, MGMT 329, 330, 331, 336, 337 and 437, 449, 450, 459, 461, or any course related to CS or computer applications.</p> <p>Courses taken to satisfy the requirements for a minor may also be used to satisfy the requirements of categories 1, 2, 5, 6 and 7.</p> <p>All courses taken to satisfy the graduation requirements are subject to final approval by an undergraduate advisor. At most, 24 credit hours taken for CR/NC may be applied toward the</p>
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<p>baccalaureate degree. Courses taken for CR/NC may only be used to satisfy graduation requirement 1 (completion of 130 credit hours).</p> <p>No one course may be used to satisfy more than one requirement of categories 3, 4, and 8. Due to the cross listing of various courses within the University and the different requirements for the minor from department to department, this has a number of implications. For example, mathematics minors cannot count the required sequence in mathematics toward the minor in mathematics, and computer engineering minors cannot use ECE 438 as a technical elective in fulfilling requirement</p>	<p>baccalaureate degree. Courses taken for CR/NC may only be used to satisfy graduation requirement 1 (completion of 120 credit hours).</p>
<p>Curriculum in Computer Science</p> <p>The following schedule is intended to be a guide for students when planning their course load for any particular semester. It should be noted that the schedule must normally be adjusted to compensate for any deficiencies or advanced preparation on the part of the student prior to beginning the freshman year. Students must take the ACT or SAT to aid in proper placement in Math and English. Students should not begin any Computer Science courses until they have knowledge of mathematics equivalent to MATH 150 (Pre-Calculus Mathematics). General electives include courses in humanities, social and behavioral sciences, the fine arts and foreign languages. For first degree students general electives includes courses used to satisfy University of New Mexico Core Curriculum requirements. It is recommended that a student not attempt more than 12 credit hours of technical material in one semester.</p>	<p>Curriculum in Computer Science</p> <p>The following schedule is intended to be a guide for students when planning their course load for any particular semester. It should be noted that the schedule must normally be adjusted to compensate for any deficiencies or advanced preparation on the part of the student prior to beginning the freshman year. Students must take the ACT or SAT to aid in proper placement in Math and English. Students should not begin any Computer Science courses until they have knowledge of mathematics equivalent to MATH 150 (Pre-Calculus Mathematics). General electives include courses in humanities, social and behavioral sciences, the fine arts and foreign languages. For first degree students general electives includes courses used to satisfy University of New Mexico Core Curriculum requirements. It is recommended that a student not attempt more than 12 credit hours of technical material in one semester.</p>

		Credit Hours			Credit Hours
First Year	First Semester		First Year	First Semester	
ENGL 110 (or ENGL 112; or ENGL 113)	Accelerated Composition (or Composition II; or Enhanced Composition)	3	ENGL 110 (or ENGL 112; or ENGL 113)	Accelerated Composition (or Composition II; or Enhanced Composition)	3
CS 152L	Computer Programming Fundamentals for Computer Science Majors	3	CS 152L	Computer Programming Fundamentals for Computer Science Majors	3
MATH 162	Calculus I	4	MATH 162	Calculus I	4
	Laboratory Science I	4		Laboratory Science I	4
	Core Requirement	3			
		17			14
First Year	Second Semester		First Year	Second Semester	
ENGL 120	Composition III	3	ENGL 120	Composition III	3
CS 261	Mathematical Foundations of Computer Science	3	CS 261	Mathematical Foundations of Computer Science	3
CS 251L	Intermediate Programming	3	CS 251L	Intermediate Programming	3
MATH 163	Calculus II	4	MATH 163	Calculus II	4
	Laboratory Science II	4		Laboratory Science II	4
		17			17
Second Year	First Semester		Second Year	First Semester	
CS 241L	Data Organization	3	CS 241L	Data Organization	3
CS 293	Social and Ethical Issues in Computing	1	CS 293	Social and Ethical Issues in Computing	1
ECE 238L	Computer Logic Design	4	ECE 238L	Computer Logic Design	4
MATH 314	Linear Algebra with Applications	3	MATH 314 or 321L	Linear Algebra with Applications Linear Algebra	3
	Laboratory Science III	3		Laboratory Science III	3
	Minor/Core/Electives	3		Minor/Core/Electives	3
		17			17

Second Year	Second Semester		Second Year	Second Semester	
CS 351	Design of Large Programs	4	CS 351	Design of Large Programs	4
	English Communications Elective	3		English Communications Elective	3
	Laboratory Science IV	3		Laboratory Science IV	3
	Minor/Core/Electives	6		Minor/Core/Electives	3
		16			13
Third Year	First Semester		Third Year	First Semester	
CS 375	Introduction to Numerical Computing	3	CS 375	Introduction to Numerical Computing	3
CS 361L	Data Structures and Algorithms I	3	CS 361L	Data Structures and Algorithms I	3
STAT 345	Elements of Mathematical Statistics and Probability Theory	3	STAT 345	Elements of Mathematical Statistics and Probability Theory	3
	Minor/Core/Electives	9		Minor/Core/Electives	6
		18			15
Third Year	Second Semester		Third Year	Second Semester	
CS 357L	Declarative Programming	3	CS 357L	Declarative Programming	3
CS 362	Data Structures and Algorithms II	3	CS 362	Data Structures and Algorithms II	3
CS 4xx	Elective	3	CS 4xx	Elective	3
	Minor/Core/Electives	6		Minor/Core/Electives	6
		15			15
Fourth Year	First Semester		Fourth Year	First Semester	
CS 341L	Introduction to Computer Architecture and Organization	3	CS 341L	Introduction to Computer Architecture and Organization	3
CS 4xx	Elective	3	CS 4xx	Elective	3
CS 4xx	Elective	3	CS 4xx	Elective	3
	Minor/Core/Electives	6		Minor/Core/Electives	6
		15			15
Fourth Year	Second Semester		Fourth Year	Second Semester	
CS 460	Software Engineering	3	CS 460	Software Engineering	3
CS 481	Computer Operating Systems	3	CS 481	Computer Operating Systems	3
	Minor/Core/Electives	9		Minor/Core/Electives	8
		15			14

COMPUTER SCIENCE DEPARTMENT

Sample Schedule

FALL

SPRING

First Semester		Second Semester		Freshman
English 101	3	English 102	3	
CS152L	3	CS 251L	3	
Math 162L	4	CS 261	3	
Lab Science I	4	Math 163L	4	
		Lab Science II	4	
Total	14	Total	17	
First Semester		Second Semester		Sophomore
CS 241L	3	CS 351L	4	
E CE 238	4	Lab Science IV	3	
Math 314	3	English Comm Elective	3	
Lab Science III	3	Core Requirement	6	
CS 293	1			
Total	14	Total	16	
First Semester		Second Semester		Junior
CS 361	3	CS 357	3	
CS 375	3	CS 362	3	
Stat 345	3	CS elective	3	
Minor/Core/Electives	6	Minor/Core/Electives	6	
Total	15	Total	15	
First Semester		Second Semester		Senior
CS 341	3	CS 460	3	
CS Elective	3	CS 481	3	
CS Elective	3	Minor/Core/Electives	8	
Minor/Core/Electives	6			
Total	15	Total	14	

Budgetary and Faculty Load Implications

Since there are no changes to BS degree requirements satisfied by computer science courses, impact on budget and faculty load in computer science is zero. Reducing total credit requirement from 130 to 120 will decrease demand for all university courses not explicitly satisfying CS degree requirements.

Permitting State 345, Math 314, Math 317 and Math 375 to satisfy mathematics minor requirement is likely to make the mathematics minor more popular with computer science majors, leading to decreased enrollment in courses satisfying minor requirements in other areas.