UNC
COLLEGE OF
ARTS & SCIENCES

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

DEPARTMENT OF COMPUTER SCIENCE
116 FREDERICK P. BROOKS, JR. BUILDING
CAMPUS BOX 3175
CHAPEL HILL, NC 27599-3175

T 919.590.6238
F 919.590.6238
http://jeffay.web.unc.edu
jeffay@cs.unc.edu

KEVIN JEFFAY
Gillian Cell Distinguished Professor and Chair

October 13, 2017

Nick Siedentop
Curriculum Director for Undergraduate Curricula
Office of Undergraduate Education
3010 Steele, CB #3504,
Carolina Campus

Dear Nick,

With this letter, the Department of Computer Science requests approval of a set of revisions to its current degree requirements for the Bachelor of Arts in Computer Science and the Bachelor of Science in Computer Science. The changes make some minor enhancements in options to students, but more importantly better line up the requirements for the two degrees and better distinguish between the core and additional requirements.

Specifically, the key changes requested are:

BS Changes

Realignment of the core and additional requirements for the BS. The current BS has

> Core courses: COMP 455 and 550, MATH 547 or 577, STOR 435 and 5 electives
>
> Additional courses: COMP 401, 410 and 411, MATH 231, 232, and 233, COMP 283 or MATH 381, PHYS 116 or 118, additional science

Given that 401, 410 and 411 are the basis of our major, we believe that moving them into the core requirements and moving the MATH and STOR courses into the additional requirements is a better description of the core.

We also believe that COMP 283, which is our alternative for MATH 381 is better defined as a core course.

As we looked at the requirements, we also believe that moving the 5 electives to the additional requirements is an appropriate move. This limits the core requirements to those computer science courses that every student must take.

The proposed changes would therefore make the BS requirements

> Core courses: COMP 401. 410, 411, 455 and 550 and COMP 283 or MATH 381
>
> Additional courses: 5 computer science electives, MATH 231, 232, and 233, MATH 547 or 577, STOR 435, PHYS 116 or 118, additional science

In addition, we propose adding PHYS 115 as an acceptable second science course. A letter of support from the Physics Department is attached.

We are also eliminating the limitation of only a single COMP 590 being allowed. Based on our current process of assigning course numbers, all COMP 590 courses will be acceptable for the BS.

In order to better align the BS and the BA, we are making similar realignments to the BA.

BA Changes

The current BA requirements are

> Core courses: COMP 401, 410, 411 and 6 computer science electives
>
> Additional courses: MATH 231, COMP 283 or MATH 381, STOR 155 or 435

We propose that we change these requirements to

> Core courses: COMP 401, 410, 411, COMP 283 or MATH 381 and 2 computer science electives
>
> Additional courses: 4 computer science electives, MATH 231, and STOR 155 or 435

The piece of this alignment that looks unusual is splitting the electives between the core and additional courses. The reason for this split is to assure that there are a minimum of 18 credits in the core and to parallel the two specific courses required in the BS.

The two degrees now line up as

	BS	BA
Core	COMP 401, 410, 411 COMP 283 or MATH 381 COMP 455 and 550	COMP 401, 410, 411 COMP 283 or MATH 381 2 COMP electives
Additional	5 COMP electives MATH 231, 232, 233, 547 STOR 435 PHYS 118 and 1 additional	4 COMP electives MATH 231 STOR 155 or 435

	science	

The new degree program definitions are therefore:

BS in Computer Science

Core Requirements		
COMP 401	Foundation of Programming [H]	4
COMP 410	Data Structures	3
COMP 411	Computer Organization	4
COMP 283	Discrete Structures	3
or MATH 381	Discrete Mathematics	
COMP 455	Models of Languages and Computation	3
COMP 550	Algorithms and Analysis	3
Additional Requirements [2]		
Five additional three-or-more credit hour COMP courses numbered 426 or higher (excluding courses for honors thesis, internships, independent study, and COMP 690).[1]		15
MATH 231	Calculus of Functions of One Variable I	4
MATH 232	Calculus of Functions of One Variable II	4
MATH 233	Calculus of Functions of Several Variables [H]	4
MATH 547	Linear Algebra for Applications	3
or MATH 577	Linear Algebra	
STOR 435	Introduction to Probability	3
PHYS 116 or PHYS 118	Mechanics [H] Introductory Calculus-based Mechanics and Relativity	4
A second science course chosen from:		4
ASTR 101 & 101L	Introduction to Astronomy: The Solar System and Introduction to Astronomy Laboratory: Our Place in Space [H]	
BIOL 101 & 101L	Principles of Biology and Introductory Biology Laboratory [H]	

BIOL 202	Molecular Biology and Genetics [H]	
BIOL 205	Cellular and Developmental Biology [H]	
CHEM 101 & 101L	General Descriptive Chemistry I and Quantitative Chemistry Laboratory I	
CHEM 102 & 102L	General Descriptive Chemistry II and Quantitative Chemistry Laboratory II [H]	
GEOL 101 & 101L	Planet Earth and Planet Earth Laboratory	
PHYS 115	General Physics II – For Students of the Life Sciences	
PHYS 117	Electromagnetism and Optics [H]	
PHYS 119	Introductory Calculus-based Electromagnetism and Quanta	
PHYS 351	Electronics I	
PHYS 352	Electronics II	
B.S. majors in computer science must fulfill all Foundations, Approaches, and Connections requirements.		
Total Hours		**61**

H Honors version available. An honors course fulfills the same requirements as the non-honors version of that course. Enrollment and GPA restrictions may apply.

[1]Graduate level courses (600 or higher) other than COMP 790 may be counted towards this requirement. COMP 790 courses are generally seminar courses that are not appropriate for this requirement and may only be counted with the approval of the director of undergraduate studies.

[2]A grade of C or better is required in each of COMP 283 (or MATH 381), COMP 401, COMP 410, COMP 411; MATH 231, MATH 232, MATH 233; PHYS 116 or PHYS 118; and the second science course.

BA in Computer Science

Core Requirements		
COMP 401	Foundation of Programming [H]	4
COMP 410	Data Structures	3
COMP 411	Computer Organization	4

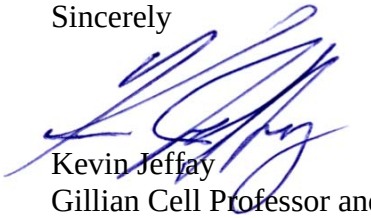
Two additional three-or-more credit hour COMP courses numbered 426 or higher (excluding courses for honors thesis, internships, independent study, and COMP 690).[1]		6
Additional Requirements		
Four additional elective courses chosen from the following, with no more than two courses from other departments:		12
COMP courses numbered 426 - 599 (excluding courses for honors thesis, internships, and independent study)		
Graduate level courses (600 or higher) other than COMP 790 [2]		
BIOL 525	Analysis and Interpretation of Sequence-Based Functional Genomics Experiments	
INLS 318	Human Computer Interaction	
INLS 609	Experimental Information Retrieval	
INLS 613	Text Mining	
LING 540	Mathematical Linguistics	
MATH 566	Introduction to Numerical Analysis	
MATH/ENVR 661	Scientific Computation I	
PHYS 231	Physical Computing	
PHYS 331	Introduction to Numerical Techniques in Physics	
Other courses must be approved by the director of undergraduate studies and must have a significant computer or computing technology component.		
COMP 283	Discrete Structures	3
or MATH 381	Discrete Mathematics	
MATH 231	Calculus of Functions of One Variable I	4
STOR 155	Introduction to Data Models and Inference	3
or STOR 435	Introduction to Probability	
B.A. majors in computer science must fulfill all Foundations, Approaches, Connections, and Supplemental General Education requirements.		
Total Hours		**39**

H Honors version available. An honors course fulfills the same requirements as the non-honors version of that course. Enrollment and GPA restrictions may apply.

[2] COMP 790 courses are general seminar courses that are not appropriate for this requirement.

Please let me know if you or the Admin Board have any questions concerning this proposal.

Sincerely



Kevin Jeffay
Gillian Cell Professor and Chair

UNC COLLEGE OF ARTS & SCIENCES

Department of PHYSICS and ASTRONOMY

272 PHILLIPS HALL
CAMPUS BOX 3255
CHAPEL HILL, NC 27599

T 919.962.2079
F 919.962.0480
iliadis@unc.edu

CHRISTIAN ILIADIS
Department Chair

October 9, 2017

Dr. Diane Pozefsky
Department of Computer Science
University of North Carolina at Chapel Hill
CB# 3175

Dear Dr. Pozefsky:

In regard to your proposed addition of PHYS 115 as a second science course option for the BS major in Computer Science, we support this addition and expect that it will have minimal impact on the enrollments of the course.

Sincerely,

Christian Iliadis, PhD
Professor and Chair, UNC-CH Physics & Astronomy