

Request for Authorization to Establish a Bachelor of Arts in Computer Science at UNC Chapel Hill

The University of North Carolina at Chapel Hill requests authorization to establish a B.A. in Computer Science degree program (CIP 11.0701).

Program Description

The Department of Computer Science at UNC Chapel Hill is proposing a Bachelor of Arts (B.A.) in Computer Science program to complement the existing Bachelor of Science (B.S.) degree. Computer Science is the only physical and mathematical science program at UNC-CH that does not already have a B.A. degree program in place to complement the B.S. program. The primary purpose of the proposed B.A. program will be to prepare undergraduate students for a career in the computing field, or for a career where computing is a significant supportive technology. The proposed B.A. program will require fewer science and math courses than the B.S. degree; this creates space in the curriculum for a student to pursue a broader liberal arts education in other fields, specifically in areas where computing is having an important impact. Also, the B.A. program encourages cross-disciplinary study by including a cluster of courses from other departments that teach a computing application area. Students who are preparing for graduate study in computer science will continue to be best served by the B.S. in Computer Science degree.

UNC Tomorrow Relevance

This proposed program, by focusing on the applicability of computers and technology to other disciplines and by focusing on students whose interests bridge both computers and other areas, will address several Recommendations within the UNC Tomorrow Report including the components to enhance Our Global Readiness (Recommendation 4.1) and Our Citizens and Their Future: Access to Higher Education (Recommendation 4.2).

Highlights from UNC-GA Data Template

According to the November 2007 publication of the Monthly Labor Review Online by the Bureau of Labor Statistics, “Computer and mathematical science occupations are projected to add 822,000 jobs—at 24.8 percent, the fastest growth among the eight professional subgroups. The demand for computer-related occupations will increase in almost all industries as organizations continue to adopt and integrate increasingly sophisticated and complex technologies.”

Within UNC, only ECU and UNCC offer both the B.A. and B.S. degrees in computer science; thirteen other UNC campuses offer only the B.S. degree. Six private universities within North Carolina have both B.A. and B.S. programs in computer science, including Duke and Wake Forest. The enrollment in both ECU’s and UNCC’s B.A. in Computer Science degree programs has increased by more than 50% in the past three years.

Outcome of Consultation with Disciplinary Panels

The panel included faculty members from ECSU, NCSU, UNCA, UNCW and WSSU in addition to the UNC-CH faculty presenters. There was good discussion on the differences between B.A.

and B.S. programs in the sciences. Overall comments were positive, with consensus agreement on the desirability of making the B.A. option available for UNC-CH students.

Student Demand

UNC Chapel Hill is a liberal arts campus, and for many students the science- and math-oriented B.S. in Computer Science program does not fit their interests or career goals. The proposed B.A. program is designed to offer technical education in the digital foundations of today's information-based society with a career-oriented emphasis on how this knowledge is applied to a variety of disciplines. The department has had feedback from many students who have expressed interest in the computing components of the B.S. program but are not interested in the general science and math emphasis. Rather, these students are interested in applying computer science knowledge to fields such as, for example, arts and entertainment, business and entrepreneurship, genetics and bioinformatics, multimedia communications, and public health. The department expects the proposed B.A. program will mesh with these expressed student interests. The program projects enrollment of the program in its fourth year will be 40 full-time upper division students. It is estimated that approximately 30% of these undergraduates would be students who would not have attended UNC-CH otherwise.

Opportunities for Graduates of the Program

As discussed in the application, the U.S. Bureau of Labor Statistics (BLS) recently released a ten-year forecast report of job growth in which computer science occupations are projected to account for nearly 60% of all job growth among all fields of science and engineering over the next eight years. The report states that computer and mathematical occupations are the fastest growing occupational cluster within the fastest growing major occupational group in the BLS categorization. The campus believes the proposed B.A. program will allow many more UNC Chapel Hill students to participate in these employment opportunities than could or would do so from the B.S. program alone.

Resource Implications

Resource needs: Because of the existence of the B.S. in Computer Science program, no additional faculty or staff positions, courses, library resources, equipment, or physical facilities are needed to implement this new program. Ongoing financial support for the new program will be mainly enrollment growth funding.

Resources allocated: Because the B.A. program will utilize existing courses, the faculty of the B.S. program will be teaching the same courses they are currently teaching, but with somewhat larger class sizes. The department will absorb administrative responsibilities for the program.

Estimated cost to the State: Based on the University funding formula, in the fourth year, UNC Chapel Hill would receive additional state appropriations of approximately \$132,000 if fully funded by the General Assembly.

Recommendation

It is recommended that the Board of Governors approve UNC Chapel Hill's request to establish a B.A. in Computer Science degree program (CIP 11.0701) subject to the availability of funding.

General Information Template for Academic Program Review

Degree Area and Level:

BA in Computer Science at UNC Chapel Hill (CIP 11.0701)

Addressing UNC Tomorrow:

This proposed program would address several Recommendations within the UNC Tomorrow Report including the components to enhance Our Global Readiness (Recommendation 4.1) and Our Citizens and Their Future: Access to Higher Education (Recommendation 4.2).

Role of Program in Relation to State and Regional Needs:

According to the November 2007 publication of the Monthly Labor Review Online by the Bureau of Labor Statistics, “Computer and mathematical science occupations are projected to add 822,000 jobs—at 24.8 percent, the fastest growth among the eight professional subgroups. The demand for computer-related occupations will increase in almost all industries as organizations continue to adopt and integrate increasingly sophisticated and complex technologies. Growth will not be as rapid as during the previous decade, however, as the software industry begins to mature and as routine work is outsourced overseas. About 291,000—or 35 percent—of all new computer and mathematical science jobs are anticipated to be in the computer systems design and related services industry. Source: <http://www.bls.gov/opub/mlr/2007/11/contents.htm>

Availability of Programs Statewide (Enrollment and Degrees Awarded in Last 3 Years):

- *Public universities* – (ASU, ECU, ECSU, FSU, NCA&T, NCCU, NCSU, UNCA, UNC-CH, UNCC, UNCG, UNCP, UNCW, WCU, and WSSU offer the BS in Computer Science.)

Enrollment			Academic Year						
			Fall 06	Spr 07	Fall 07	Spr 08	Fall 08	Spr 09	Fall 09
ECU	Computer Science	BA	5	5	6	4	5	7	14
UNCC	Computer Science	BA	135	142	152	168	175	195	208

Number of Degrees Awarded			Academic Year		
			2006-2007	2007-2008	2008-2009
ECU	Computer Science	BA	2	0	1
UNCC	Computer Science	BA	29	43	46

- *Private universities* – (Saint Augustines College and Shaw University offer the BS in Computer Science.) Source: Occupational Demand Supply System

Number of Degrees Awarded			Academic Year		
			2006-2007	2007-2008	2008-2009
Duke University	Computer Science	BA and BS	23	53	39
Elon University	Computer Science	BA and BS	11	19	24
High Point University	Computer Science	BA and BS	9	6	8
Meredith College	Computer Science	BA and BS	2	1	1
Methodist University	Computer Science	BA and BS	2	2	2
Wake Forest University	Computer Science	BA and BS	10	8	9

APPENDIX S

Available in Online or Distance Format from UNC institutions:

Not available.

Available or not from Academic Common Market:

Not available.

UNC-CH Campus enrollment and degrees awarded by similar programs at the Bachelors level:

(Based on two CIP digits – 11 CIP is the summary group for Computer and Information Sciences and Support Services under which Computer Science is a program.)

Enrollment			Academic Year						
			Fall 06	Spr 07	Fall 07	Spr 08	Fall 08	Spr 09	Fall 09
UNC-CH	Information Science/Studies	BSCpE	30	31	31	39	33	37	24
	Computer Science	BS	31	30	33	36	65	61	62

Number of Degrees Awarded			Academic Year		
			2006-2007	2007-2008	2008-2009
UNC-CH	Information Science/Studies	BSCpE	17	17	17
	Computer Science	BS	23	21	31

Campus Average of enrollment and degrees awarded in this degree area at the Bachelors level:

(Based on two CIP digits – 11 CIP is the summary group for Computer and Information Sciences and Support Services under which Computer Science is a program - over the last 3 Academic Years, Fall 2006-Fall 2009.)

Campus Average			
	Number of Active Programs	Enrollment per Semester	Degrees Awarded per Year
ASU	1	74	26
ECU	2	90	24
ECSU	1	38	15
FSU	1	50	12
NCA&T	1	100	24
NCCU	2	42	10
NCSU	1	330	118
UNCA	2	35	17
UNC-CH	2	39	21
UNCC	1	308	83
UNCG	2	86	27
UNCP	2	22	10
UNCW	1	28	23
WCU	1	24	6
WSSU	3	30	11
Campus Average:		86	28

APPENDIX S

UNC Chapel Hill Degree Programs added in the past three years:

- *Bachelor*
 - BA Archaeology (09/07/2007)
 - BA English – joint with the National University of Singapore (01/11/2008)
 - BA Economics – joint with the National University of Singapore (01/11/2008)
- *Master*
 - MS Neurobiology (11/09/2007)
 - MMDS Molecular Diagnostic Science (06/13/2008)
 - MS Clinical Research (06/13/2008)
 - MA German Studies – joint with Duke University (06/13/2008)
 - MA Technology and Communication (04/09/2010)
 - MRS Radiologic Science (04/09/2010)
- *Doctoral*
 - PhD Bioinformatics and Computational Biology (11/09/2007)
 - PhD German Studies – joint with Duke University (06/13/2008)

UNC Chapel Hill Degree Programs discontinued in past three years:

- *Bachelor*
 - BA Russian & East European Studies (03/20/2009)
- *Master*
 - MA Romance Languages and Literatures (03/20/2009)
 - MA Romance Languages and Literatures, Italian Literature (03/20/2009)
 - MA Romance Languages and Literatures, Spanish Literature (03/20/2009)
 - MA Romance Languages and Literatures, Spanish-American Literature (03/20/2009)
 - MA Geological Sciences (05/09/2008)
 - MS Speech and Hearing Sciences, Speech and Language Pathology (05/09/2008)
- *Doctoral*
 - PhD Romance Languages and Literatures, French Language and Literature (03/20/2009)
 - PhD Romance Languages and Literatures, Italian Language and Literature (03/20/2009)
 - PhD Romance Languages and Literatures, Spanish Language and Literature (03/20/2009)
 - PhD Romance Languages and Literatures, Spanish-American Language and Literature (03/20/2009)
 - PhD Romance Languages and Literatures, Romance Philology (03/20/2009)