

Bachelor+Master of Science in Computer Science: Program of Study

October 21, 2004

Motivation and Overview

A Dual-degree program is designed for students wishing to obtain a combined BS and M.S degree in Computer Science. A typical M.S. Degree requires 1-2 years after the BS degree. This program would reduce the time to a M.S degree by at least half a year. The programs would require that the students complete the credit hour requirements for both degrees. However they would take advantage of dove-tailing the courses. The core and course requirements for each of the degrees would remain the same.

Given that incoming students typically have had advanced courses during their high school, a faster and, if preferred, research oriented program can also be opted for. This is especially true for Camras scholars who are typically keen to continue for graduate studies and participate in research. A sample program requiring 4 and half years is provided below. It is proposed that funds be made available for supporting research by students during the summer months. Students can then be inducted into the research projects being carried out in the department, possibly complete CS491 (UG thesis) credits and continue for CS591/CS 597 (Graduate thesis/project). In fact, it may be possible for students acquiring credits in summer to finish earlier by distributing 12 credits in the first 6 semesters and summers. This is contingent on appropriate courses being offered in summer.

Five year combined programs exist at various universities around the world, including MIT, Brown University, University of Chicago, Northwestern University, UCSD, Ohio-State University, NYU, University of Utah etc., where students with good undergraduate GPA's are allowed to enroll in a combined B.S-Master's program. In MIT a GPA of 4/5.00 at the end of the junior year is required to enroll into the program. In UCSD a continued G.P.A. of 3.4 (with 3.4. in a set of required courses) allows the student to apply for a M.S. program. The corresponding requirement is 3.5 in Ohio-State University. No GPA is specified as a requirement at Brown. NYU requires a GPA of 3.5 for continuation into the Master's program. EECE Department at Utah requires a GPA of 3.3. for continuation into the Master's Program.

The advantages of a combined degree program are typically:

- (i) Encourages bright students to enroll into the graduate program.
- (ii) Offer student's the benefit of completing a M.S. Degree faster.
- (iii) Offer an enhanced academic environment with accelerated learning.
- (iv) Simplify the graduate admission procedure.

Admission and Continuation in the program

Every undergraduate student is eligible to apply for the program. Since an accelerated program of study is required, the student must maintain a GPA of 3.5 until the end of his junior year, or the completion of at least 90 credits (including transferred credits). At that stage, the student can apply for the Masters

program (with a GRE score) and complete the requirements. If he is not admitted, any graduate credits he has accrued would count towards his undergraduate degree (if the course is an allowed course). The student must maintain a graduate GPA of 3.00.

The student may also apply to transfer to the M.C.S. program. i.e. the student may apply for a combined B.S./M.C.S degree. The requirements for admission into that will be determined by the admission committee. It is expected that a minimum GPA of 3.00. would be required.

The student will obtain two degrees, one a B.S in Computer Science and the other a M.S/M.C.S in Computer Science. They would be required to complete all the credit requirements of both degrees individually.

Financial Assistance

Students would be allowed to apply for T.A positions once they have completed the requirements of the B.S. Degree. They may be offered Research Assistantships at any time during the program.

Five-Year Dual Degree Program

The course requirements are the combined requirements of the B.S and M.S degree. The student must complete 128 credits (including transferred credits) that count towards his undergraduate degree and 32 that count towards the graduate degree.

A suggested Plan for B.S./M.S (with no assumption of AP credits)

First semester

CS 100	2
CS 201	4
MATH 151	5
HUM 100 level	3
Social science elective	3
	17

Second semester

MATH 152	5
PHYS 123	4
Humanities elective	3
Social science elective	3
CS330	3
	18

Third semester

CS 331	3
MATH 251	4
PHYS 221	4

Humanities elective	3
CS350	3
	17

Fouth semester

CS 430	3
MATH 332/333	3
Science elective	3
Social science elective	3
CS351	3
Hum/Soc Science Elec	3
	18

Fifth semester

CS 440	3
CS Elective	3
COM 421 or COM 428	3
MA474/475	3
I PRO I	3
	15

Sixth semester

CS450	3
CS elective	3
Free Elective	3
I PRO II	3
Math Elective	3
Free Elective	3
	18

Seventh semester

CS 487	3
Free elective	3
Free elective	3
CS elective	3
Science elective	3
CS 485	3
	18

Eighth semester

CS elective	3
CS elective	3
2 Grad Courses	6
	12

Summer

1 grad courses	3
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Ninth Semester

4 grad courses	12
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10th Semester

4 grad courses	12
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Total credit hours: 160 (127 UG + 33 G)

Four-1/2 year Dual Degree Program

For this program we will assume that the student has completed AP credits corresponding to CS100, CS115, CS116, MA 151, PHYS 123. Students who are Camrus scholars typically have completed these courses, or an equivalent number of hours(15).

Suggested Plan:

First semester

CS330	3
CS 331	3
HUM 100 level	3
Social science elective	3
MATH 152	5
	17

Second semester

MATH 251	4
PHYS 221	4

Humanities elective	3
Social science elective	3
CS350	3
	17

Third semester

CS 430	3
MATH 332/333	3
Science elective	3
Humanities elective	3
Social science elective	3
CS351	3
	18

Fourth semester

CS 440	3
CS elective	3
COM 421 or COM 428	3
Free elective	3
Hum/Social Science Elec	3
I PRO I	3
	18

Fifth semester

MA474/475	3
CS450	3
CS elective	3
Math Elective	3
I PRO II	3
	15

Sixth semester

CS 487	3
Science elective	3
Free elective	3
Free elective	3
CS elective	3
CS 485	3
	18

Seventh semester

Free elective	3
CS elective	3
CS elective	3
2 Grad Courses	6
	15 (9+6G)

Eighth semester

4 Grad courses	12
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Summer

1 grad courses	3
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Ninth Semester

4 grad courses	12
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Total credit hours: 145 (112 UG + 33 G)