Progress Toward Completion of the Mathematics Major
(Computer Science Concentration)

_____   _____   _____
Student's Name   **Net ID**   **Faculty Advisor**

Courses Needed to Complete the Major	**Filled Out By**
_____	Initials _____
_____	Date _____

Students must complete nine courses, as described in items 1– 3 below, under the following constraints:

- At least two of the MATH courses taken must be at the 4000 level (or above).
- A course may be counted toward the major only if it is taken for a letter grade and a grade of C– or better is received for the course.
- No course may be used to satisfy more than one requirement for the major.
- 2-credit courses count as half courses.
- MATH courses numbered between 5000 and 5999 do not count toward the major.

1. Two Courses in Algebra.   Transfer Credit: _____

_____ MATH 3320 Introduction to Number Theory
_____ MATH 3360 Applicable Algebra
_____ MATH 4310 Linear Algebra / _____ 4330 Honors Linear Algebra
_____ MATH 4320 Introduction to Algebra / _____ 4340 Honors Introduction to Algebra
_____ MATH 4370 Computational Algebra
_____ MATH 4500 Matrix Groups

2. Two Courses in Analysis.   Transfer Credit: _____

_____ MATH 3110* Introduction to Analysis
_____ MATH 3210 Manifolds and Differential Forms
_____ MATH 3230* Introduction to Differential Equations
_____ MATH 4130* Honors Introduction to Analysis I
_____ MATH 4140 Honors Introduction to Analysis II
_____ MATH 4180* Introduction to the Theory of Functions of One Complex Variable
_____ MATH 4200 Differential Equations and Dynamical Systems
_____ MATH 4220* Applied Complex Analysis
_____ MATH 4240 Wavelets and Fourier Series
_____ MATH 4250 Numerical Analysis and Differential Equations [also CS 4210]
_____ MATH 4260 Numerical Analysis: Linear and Nonlinear Problems [also CS 4220]
_____ MATH 4280* Introduction to Partial Differential Equations

*Overlapping content: Students will receive credit for only one course in each group: (1) MATH 3110, 4130; (2) MATH 3230, 4280; (3) MATH 4180, 4220; (4) MATH 4310, 4330; (5) MATH 4320, 4340; (6) MATH 4710, ECON 3130 (formerly 3190), BTRY/ILRST/STSCI 3080 (formerly 4080); (7) MATH 4720, ECON 3130 (formerly 3190), BTRY 4090.

3. Concentration in Computer Science.   Transfer Credit: _____

Five courses from (iii) and (iv) below.

(iii) At least one MATH course numbered 3000 or above:

_____ _____

_____ _____

(iv) At least three CS courses with significant mathematical content.

_____ CS 3220 Introduction to Scientific Computation [also ENGRD 3220] — ***course discontinued***
_____ CS 4110 Programming Languages and Logics
_____ CS 4210 Numerical Analysis and Differential Equations [also MATH 4250]
_____ CS 4220 Numerical Analysis: Linear and Nonlinear Problems [also MATH 4260]
_____ CS 4620 Introduction to Computer Graphics [co-meets with CS 5620]
_____ CS 4670 Introduction to Computer Vision
_____ CS 4700 Foundations of Artificial Intelligence
_____ CS 4740 Introduction to Natural Language Processing
               [also COGST 4740, LING 4474; co-meets with CS 5740]
_____ CS 4758 Robot Learning [also ECE 4758, MAE 4758; co-meets with CS 6758]
_____ CS 4780 Machine Learning [co-meets with CS 5780]
_____ CS 4810 Introduction to Theory of Computing
_____ CS 4812 Quantum Information Processing [also PHYS 4481; co-meets with PHYS 7681]
_____ CS 4820 Introduction to Analysis of Algorithms
_____ CS 4830 Introduction to Cryptography
_____ CS 4850 Mathematical Foundations for the Information Age
_____ CS 4860 Applied Logic [also MATH 4860]

_____ _____ (approved by faculty advisor)

Transfer Credit / Study Abroad Courses Applied to the Major		
Course Number &Title	**Institution**	**Requirement**

*__*Overlapping content:__* Students will receive credit for only one course in each group: (1) MATH 3110, 4130; (2) MATH 3230, 4280; (3) MATH 4180, 4220; (4) MATH 4310, 4330; (5) MATH 4320, 4340; (6) MATH 4710, ECON 3130 (formerly 3190), BTRY/ILRST/STSCI 3080 (formerly 4080); (7) MATH 4720, ECON 3130 (formerly 3190), BTRY 4090.