Computer Science Foundations
Fall 2024
Preliminary and Subject to Change

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The goal of this two-quarter program is to lay a firm foundation for more advanced work in computer science. Students in the program will have the opportunity to achieve a deeper understanding of increasingly complex computing systems by acquiring knowledge and skills in mathematical abstraction, problem solving, programming, and the fundamental structures of hardware and software systems. The program covers standard material in a core liberal arts computer science curriculum at an introductory level, such as functional and object oriented programming, discrete mathematics, algorithms, data structures, logic, and computer organization and architecture.

The program content is organized around four interwoven themes. The *Computational organization and architecture* theme covers concepts and structures of computing systems from digital logic to system architecture. The *programming* theme concentrates on learning how to design and code programs to solve problems. The *mathematical* theme will help develop theoretical abstractions and problem solving skills needed for understanding computation. An on-going *seminar* theme will explore social, historical and philosophical topics of science, technology and society. In the winter, some of the seminar time will also be used for workshops on problem solving.

Our preliminary weekly schedule is:

Time	Mon	Tues	Wed	Thurs	Fri
AM	10-12 Systems (lab)	10-12 DMath	10-12 Programming lab	10-12 Dmath	Tutoring 12:00-2:00
PM	1:00 – 3:00 Seminar	1-3 Programming lab		1:00 – 3:00 Programming lab	
				3:00 – 5:00 Systems lab	

Our typical outline of the credit breakdown for the winter and spring quarters is (total 32 credits):
- 12 credits Introductory Computer Science and Computer Programming
- 8 credits Digital Logic, Computer Systems and Architecture
- 8 credits Discrete Mathematics
- 2 credits of Seminar on Technology and Society
- 2 credits Seminar on Ethics and Technology