October, 1972

AN UNDERGRADUATE COMPUTER SCIENCE MAJOR

Attached is a proposed set of requirements for an undergraduate major in Computer Science. A list of Computer Science courses offered and a list of Faculty that participate actively in the Computer Sciences Department are also attached.

Several objectives were considered when drawing up this set of requirements for a major. One obvious aim is to prepare students to do graduate work in Computer Science. The Association for Computing Machinery (ACM, the professional society for computer scientists) in "Curriculum 68" makes recommendations as to what background an applicant for a master's degree program should have. These requirements appear to be adequately satisfied by a student's taking CPS 51, 150, 152, and 221 and having a good background in Mathematics. These requirements are also in line with what we expect of our incoming graduate students.

Although adequate preparation for a computer related job is obviously very dependent on the nature of the job, we feel that our requirements would leave the student well prepared for almost any computer related job.

A less obvious problem that seems to be connected with computers is that some students seem to be bitten by the "computer bug." These students seem to lose interest in everything else. This program attempts to insure that students develop an alternate area of expertise. We feel that this other concentration of courses will serve the student well. It should help the student get started in another area if he decides later that Computer Science isn't the "thing" after all. It is also felt that some of the most fruitful areas for research and computer applications lie waiting to be discovered in areas where Computer Science overlaps with other fields. In fact, we hope that these requirements will encourage double majors so that a student will have some real choices when he goes to the job market or looks toward future graduate work.

Dietolf Ramm
Director of Undergraduate Studies,
Department of Computer Science

Proposed Major in Computer Science

List of requirements for the Bulletin.

DEPARTMENTAL MAJOR

The B.S. degree

Prerequisites. Computer Science 51; Mathematics 31, 32, 73, 74.

Major Requirements. Computer Science 150, 152, three of the following: 157, 163, 221, 231, 232, 241; and one course in Mathematics above the 100 level. The student must take enough additional courses so that he has completed at least five courses above the 100 level in one department other than computer science.

Students planning to do graduate work will probably find a reading knowledge of at least one foreign language useful. Students that expect to do their graduate work in computer science should try to include Computer Science 221 and Modern Algebra in their course of study.

TITLES OF COMPUTER SCIENCE COURSES
OPEN TO UNDERGRADUATES

For Undergraduates

42. Introduction to Digital Systems.
51. Introduction to Digital Computation.
150. Computers and Programming.
150P. Preceptorial.
152. List Processing and Data Structures.
152P. Preceptorial.
157. Introduction to Switching Theory.
161. Numerical Solution of Ordinary Differential Equations.
163. Data Analysis.
191, 192. Independent Study.
193, 194. Independent Study.

For Seniors and Graduates

203. Random Signals and Noise.
205. Signal Detection and Extraction Theory.
208. Digital Computer Design.
210. Image Processing.
211. Control Programs in Operating Systems.
212. Advanced Topics in Control Programs.
215. Artificial Intelligence.
221. Numerical Analysis I.
222. Numerical Analysis II.
223. Numerical Analysis III.
231. Introduction to Operating Systems.
232. Metaprograms.
241, 242. Information Organization and Retrieval.
244. Econometrics II.
250. Clustering and Classification.
265. Advanced Topics in Computer Science.

Courses 42, 51, 150, 150P, 152, 152P, and 221 are offered each semester. Others are offered annually.

Course 215 will be offered for the first time in the Spring of 1973.

FACULTY ACTIVELY ENGAGED
IN THE WORK OF THE COMPUTER SCIENCE DEPARTMENT

Merrell L. Patrick, Ph.D. (Carnegie Mellon), Associate Professor of Computer Science. Acting Chairman

Thomas M. Gallie, Ph.D. (Rice), Professor of Computer Science. Director of Graduate Studies

Thomas H. Naylor, Ph.D. (Tulane), Professor of Economics and Computer Science

Max A. Woodbury, Ph.D. (Michigan), Professor of Biomathematics-Community Health Sciences and Computer Science

William E. Hammond, Ph.D. (Duke), Associate Professor of Community Health Science and Biomedical Engineering

Peter N. Marinos, Ph.D. (North Carolina State), Associate Professor of Electrical Engineering

C. Franklin Starmer, Ph.D. (North Carolina), Associate Professor of Computer Science and Assistant Professor of Medicine - Computer Science

Dietolf Ramm, Ph.D. (Duke), Assistant Professor of Computer Science and Information Sciences, Psychiatry. Director of Undergraduate Studies

Joseph Austin, (completing Ph.D. Dissertation at University of North Carolina), Instructor of Computer Science

Michael A. McAnulty, (completing Ph.D. Dissertation at University of North Carolina), Instructor of Computer Science