

Course Summary

DATE: 1 SEPT. — 10 DEC., 1992

This is a slightly accurate schedule of *The Theory of Computability and Complexity — Math 688*. The course was given at IBM, Boca Raton, as part of an on-site Master's program. The main text was *A Programming Approach to Computability* by A. J. Kfoury, Robert Moll and Michael Arbib. We used Garey and Johnson's *Computers and Intractability* of the last two sessions of the course. There were eight problem sets, a midterm and a final. The course met once weekly for a three hour session.

9/1: Chapter 1. Introduction.

9/8: Sections 2.1 and 2.2. Syntax of While-programs.

9/15: Sections 2.3 and 3.1. Computable functions and enumerability.

9/22: Sections 3.2 and 3.3. Universal functions.

9/29: Sections 3.4 and 4.1. Universal functions completed. Basic undecidability results.

10/13: Sections 4.2 and 4.3.

10/20: Midterm.

10/22: Section 5.2. Recursive programs are while-program computable.

11/3: Sections 6.1 and 9.1. Recursion Theorem and Turing Machines.

11/10: Sections 6.3 and 9.2. Finish Turing Machines, Roger's Isomorphism Theorem, Primitive Recursive Functions.

11/17: Sections 9.2 and 9.3. Partial recursive functions, Thue systems and undecidability of certain context-free grammar problems.

11/24: NP-completeness.

12/1: NP-completeness, continued.

12/10: Final.