1. **Number and title of course:** CS 3S, Self-Paced Introduction to Symbolic Programming

2. **Course objectives:** We intend in this course for students to learn to program in a dialect of the Lisp programming language—specifically, to become comfortable with recursion and applicative operators—and to gain in addition some appreciation of the algorithms underlying modern tools like databases, spreadsheets, and expert systems. As their final project requires a fair bit of software engineering, they will also be making design decisions (algorithm, data structure, time-vs-space, etc) and considering various implementation trade-offs.

3. **Topics covered:**
   - The Scheme evaluator: atoms and use of built-in Scheme functions
   - Definition of functions, scope of variables
   - Predicates and conditional evaluation
   - Lists
   - Linear recursion
   - Planning and debugging
   - Tree recursion
   - Advanced data structures
   - Functional operators

4. **Relationship of course to program objectives:** This course provides a basic understanding of the conceptual foundations of computer programming. Students learn to apply modern skills and techniques to create a basic computer program.

5. **Updated by:** Dan Garcia (3/4/06)