

**CS495-1 Evolutionary Computation  
SYLLABUS  
August 27, 2002**

Instructor: Jeffrey Horn, email: [jhorn@nmu.edu](mailto:jhorn@nmu.edu)  
office: New Science Building 1119  
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Office Hours:

Textbook (required): *Genetic Algorithms in Search, Optimization, and Machine Learning*, by David E. Goldberg

**Classroom:** New Science Building, Room 1209

**Meeting Times:** 3:00 - 4:40 pm Tu,Th

**Prerequisites:** CS 122 or equivalent (one year) of programming experience, and MA 240, or permission of instructor.

**Our web page:** <http://cs.nmu.edu/~jeffuorn/Classes/EC/Fa112002>

(I will use the web page EXTENSIVELY, posting everything I can up there as soon as possible. This includes all electronic forms of handouts, assignments, solutions, sample tests, etc. Also I will post announcements, links to interesting, topic-related sites, etc. So please check our page regularly! At the very least, twice a week. We will also have a WebCT page for posting grades, etc.)

TOPICS: (tentative)

OVERVIEW

- **BLACK-BOX OPTIMIZATION**
  - Hill-Climber
  - The Simple Genetic Algorithm
- **THEORY OF COMPUTATION**
  - Abstract Models of Computation (Turing Machines. RAM model. etc.)
  - Complexity Hierarchy
  - Undecidability
  - NP-Hardness, NP-Completeness
- **ADVANCED DATA STRUCTURES AND ALGORITHMS**
  - Heaps and Priority Queues
  - Advanced Sorting
  - Advanced Trees

**GRADING:**

50% Written Homeworks and Programs

20% Quizzes

10% Exams in-class and take-home

10% Final exam, comprehensive.

10% Instructor's discretion

**Late Policy:** For programs and homework, 5% off for each day late (counting only days that the university is open; e.g., **not** weekends or snow days). But of course I cannot accept them after

solutions are handed out! As for exams, those cannot be made up except under the most severe and extenuating emergencies! *Don't* take a chance if you don't have to! (If we have "enough" assignments and/or quizzes, I will drop the lowest grade in that category.)

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**COMPUTING FACILITIES:**

Your NMU ThinkPad. And perhaps, optionally, the Parallel Computing Lab and the Linux Lab.

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**NOTE:** If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office at 1104 University Center (227-1737; TTY 227-1543) Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.