ISC4223 Computational Methods for Discrete Problems

Fall Semester 2011

Day / Time: Monday, Wednesday and Friday 10:10 – 11:00 AM (class)

Monday 3:30-6:00 PM (lab)

Location: Dirac Science Library Room DSL 0152

Instructor: Dr. Anke Meyer-Baese
Email: ameyerbaese@fsu.edu
Office: Room 476 DSL Dirac Science Library
Office Hours: 02:00 – 04:00 PM W or by appointment
Phone: 644-3494

Textbook: **Introduction to Stochastic Search and Optimization: Estimation, Simulation, and Control**, by J. C. Spall, Wiley, 2003.

Course Web Page: A course web page is being developed and will have a hyperlink on http://campus.fsu.edu/. An announcement will be made in class when the web page is completed.

Catalog Description: Topics include a description of several discrete problems arising in science applications, a survey of methods and tools for solving the problems on computers, and a detailed study of a few of the methods in science and engineering. The laboratory component illustrates the concepts learned in the context of several science problems.

Prerequisites: None.

Course Goals: At the completion of this course the student should know:

1. Comparison of discrete and continuous methods.
2. Graph theory (review).
3. Combinatorial optimization methods and linear programming.
4. Support vector machines.
5. Energy functions and annealing methods.
6. Genetic algorithms.
7. Fuzzy logic and cellular automata.
7. Applications: anomaly detection, bioinformatics and medical imaging.

Class Policies:

Exams/Tests:
- Test dates announced at least 1 week in advance.
- Quizzes will be given without notice.
- No make-ups will be granted unless **prior** approval has been obtained from the instructor.

Homework:
- Assignments are due at the *BEGINNING* of class on the due date.
- Late assignments will be assessed a *50% penalty* for the *first 24 hours*.
- Assignments will *NOT BE ACCEPTED MORE THAN 24 HOURS LATE*.

Attendance: - **Class attendance is required for all students.** College and University rules allow only 3 unexcused absences for this course. A student **Exceeding 3 unexcused absences** will be **dropped from the course and assigned a grade of "F".**
- In-class assignments will be the primary method for taking attendance.

Ethics/Honor Code: - All students are bound by the honor code of their university. Violations of the honor code will be reported. Penalties include but are not limited to 1) failing grade on the assignment and 2) failing grade for the course.
- All assignments are considered *individual* efforts. Students are encouraged to discuss topics and homework, but the work itself is to be performed on an individual basis.

Grading Policy: **ISC5935 (Section 03):**

Mid-term test	20%
Laboratory report	40%
In-class assignments	20%
Homework Assignments	20%

Questions, problems and errors involving the grading of any assignment or test must be brought to the attention of the instructor **within 1 week** of the graded work's return to the *class*. A student's absence from class does not extend the time limit. After 1 week the grade is final and will not be reviewed at the student's request.

Students with Disabilities: Students with disabilities needing academic accommodations should: (1) Register with and provide documentation to the Student Disability Resource Center (SDRC); and (2) Bring a letter to the instructor indicating the need for accommodations and what type. This should be done within the first week of class. *This syllabus and other class materials are available in alternative format upon request*.

Free Tutoring from FSU*:* For tutoring and writing help in any course at Florida State University, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of tutoring options - see http://ace.fsu.edu/tutoring or contact Services' comprehensive list of tutoring options - see http://ace.fsu.edu/tutoring or contact tutor@fsu.edu for more information. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

Syllabus Change Policy: Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.