

## Fall 2008 Colloquium Series

### A Tiling approach to initial neighborhood construction within timetabling and scheduling problems

**Speaker: Mr. Doug Moody**

**Date: October 23, 2008**

**Time: 1 pm – 2 pm**

**Venue: Adams Hall, room 017**

**Abstract:** Timetabling and scheduling problems have received more attention as technological tools to aid in their solution have advanced. Constraint programming packages, simulated annealing algorithmic packages are but two of a growing number of tools available to the community. Some of the key timetabling and scheduling problems being addressed are those related to academic course and exam scheduling, sports scheduling and a variety of rostering challenges.

Recent competitions in these problem areas have seen solution approaches which construct an initial solution quickly, and then employ a local search to improve the solution. With the use of different seeds, this process is repeated, searching for the best solution. However, these solutions are resource intensive, and make little use of institutional knowledge.

The approach of “tiling” approach seeks to construct several high quality initial solutions and facilitate the second phase of local search by enabling backtracking and other techniques, along with standard local search approaches. Tiling solutions can be generated for large instances and use fewer resources. At the moment, the tiling solutions do not provide higher quality solutions than other methods, but the solutions compare favorably. The talk will define tiling more fully, and then compare and contrast this approach across a range of problems.

**Biosketch:** Mr. Moody has been a full-time professor at the City University of New York’s College of Technology in Brooklyn for 6 years. Mr. Moody also is an adjunct professor at Hofstra University and Farmingdale State College. This position follows over 30 years experience in the industry, performing various roles on large scale application development projects. The majority of these projects have concerned operational research challenges within the public sector. Examples include meter reader routing, determination of pupil eligibility for busing (based upon walking distance), deterioration rates of bridges, and numerous staff and event scheduling problems.

Mr. Moody has taken this experience in industry to the academic area, through his research in timetabling and scheduling problems. Here, he has addressed this community standard’s topics of classroom scheduling and various sports scheduling problems. He has introduced a new technique, tiling, into this arena, that seeks to address more real world problems. His work has been widely received as original and will help him complete his Ph.D, in the Spring of 2009.