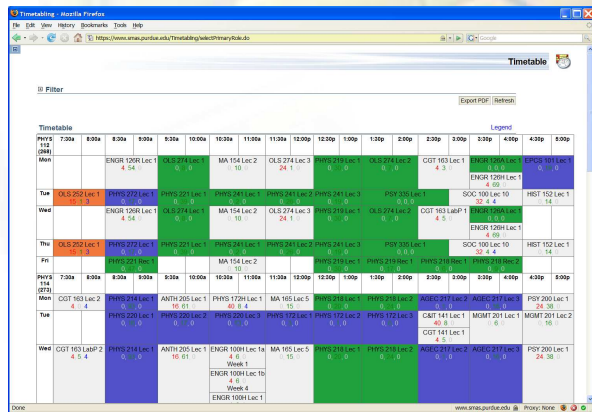# Solver

- Based on Iterative Forward Search algorithm
  - Gradually extends (partial) feasible assignment
  - Applicable to various constraint satisfaction and optimization problems
  - Able to identify and present to the user any inconsistencies and potential problems in the input data

Timetabling solver can provide a fully automated solution.

However, it also allows for interactive changes while it provides suggestions.

Student Sectioning

Students request courses, system determines classes (sections), respecting course structure, reservations, and student preferences.

- Batch Sectioning
  - Once a timetable is created, pre-registered students are sectioned and enrolled into classes, wait-lists, etc.
- Online Sectioning
  - Afterwards, all students register for courses online, receiving a new schedule immediately

1. ENGL 106
   - Lec T 1:30p - 2:20p Full Term HEAV 105
     - Lec (a) F 1:30p - 2:20p Full Term HEAV 105
       - Lec (b) Th 1:30p - 2:20p Full Term WTHR 214
         - Rec W 1:30p - 2:20p Full Term HEAV 223
2. BIOL 110
   - Lec TTh 8:30a - 9:20a Full Term LILY 1105 K. Mason

Sel	Que	Time	Date	Instructor
●	☐	TTh 8:30a - 9:20a	Full Term	K. Mason
○	☐	TTh 12:30p - 1:20p	Full Term	K. Mason
○	☐	TTh 2:30p - 3:20p	Full Term	K. Mason

   - Rec T 9:30a - 10:20a Full Term WTHR 360
   - Lab T 11:30a - 1:20p Full Term WTHR 316
   - Pso Arr Hrs K. Mason
3. Free Time   MWF 7:30a - 8:20a
4. COM 114

UNItime.org

University Course Timetabling & Student Scheduling System
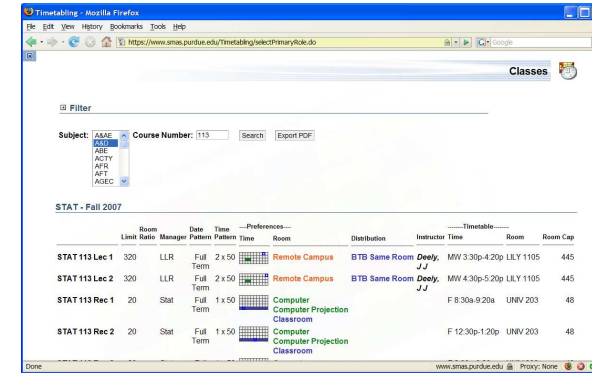

http://www.unitime.org
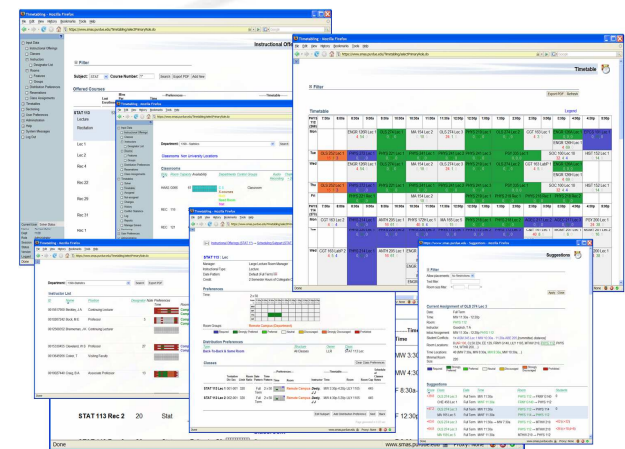
System Highlights

- Publicly available
  - Open source (GNU GPL)
  - Server-client application with web-based interface
  - Platform independent (implemented using Java J2EE)
- Distributed
  - Allows decomposition to several problems if desired
  - Provides coordination among solutions and allows distributed responsibilities
  - Deals with competitive behavior
- Applications
  - The system is being used in practice at Purdue University
    - Large-scale university-wide problem (9 000 classes, 570 rooms, 39 000 students)
  - Allows interactive changes
  - Can be used in modes ranging from manual data entry to fully automated timetabling
- Extensible & Customizable
  - Applicable to a variety of university course timetabling problems
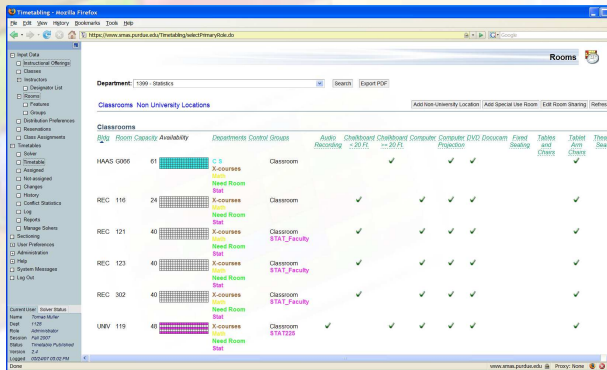
Data Entry

User interface provides an easy and intuitive way for various data entry.

Classes are organized in a visual representation of the course structure, preferences and requirements can be set at multiple levels.

Problem model and constraints consider complexity of all university courses.

For more information…

- Visit our website at

  http://www.unitime.org

- Software available for download
  - Course Timetabling & Student Sectioning application
  - Constraint Solver library
- Online documentation
- Application demo
- Ongoing research
  - Publications & presentations
- Benchmark data sets
  - Real-life data for course timetabling and student sectioning problems

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