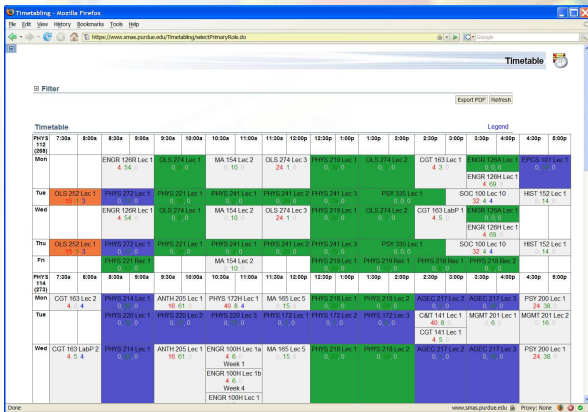


Solver

- Constraint Solver Library
 - Local search based framework using constraint programming primitives
 - Publicly available (GNU LGPL)
 - Winner of two tracks of International Timetabling Competition 2007 (finalist in all three tracks)
 - Applicable to a variety of constraint satisfaction and optimization problems
 - Identifies any inconsistencies and potential problems in input data



Timetabling solver can provide a fully automated solution.

Score	Class	Date	Time	Room	Students
+15.2	POL 101 Lec 3	Full Term	TTh 12:00p → TTh 7:30a	BRNG 2280	+11
+31.7	POL 101 Lec 3	Full Term	TTh 12:00p → TTh 10:30a	BRNG 2280	+36 (n+3)
	HIST 342 Lec 1	Full Term	TTh 10:30a → TTh 1:30p	BRNG 2280 → BRNG 2290	
+36.6	POL 101 Lec 3	Full Term	TTh 12:00p → TTh 10:30a	BRNG 2280	+36 (n+4)
	HIST 342 Lec 1	Full Term	TTh 10:30a → TTh 7:30a	BRNG 2280	
+44.1	POL 101 Lec 3	Full Term	TTh 12:00p → TTh 10:30a	BRNG 2280	+34 (n+2)
	HIST 342 Lec 1	Full Term	TTh 10:30a → TTh 3:00p	BRNG 2280 → BRNG 2290	
	OBHR 330 Lec 4	Full Term	TTh 3:00p	BRNG 2290 → LWSN B155	

(all 1571 possibilities up to 3 changes were considered, top 4 of 17 suggestions displayed) Search Deeper

It also allows for interactive changes while providing suggestions.

Student Sectioning

Primary Course Requests

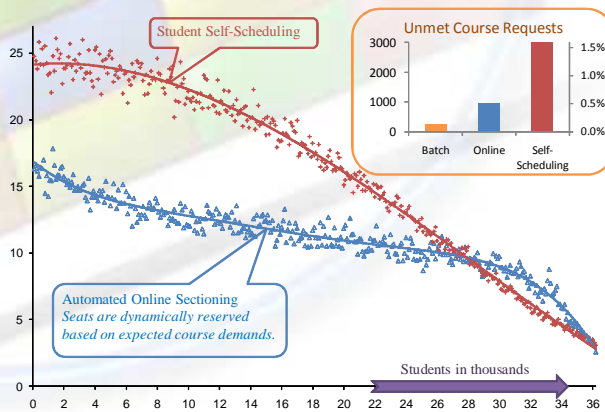
Type	Course / Free Time	Waitlist	1st Alternative Course	2nd Alternative Course
1. Course	ENGL 106	<input checked="" type="checkbox"/>		
2. Course	BIOL 110	<input type="checkbox"/>	BIOL 111	BIOL 112
3. Free Time	3 x 50 MWF 7:30a - 8:20a	<input type="checkbox"/>		
4. Course	COM 114	<input type="checkbox"/>		
5. Course	MA 152	<input type="checkbox"/>	MA 159	

Alternative Course Requests

A1. Course	A&AE 203	<input type="checkbox"/>		
A2. Course	A&D 114	<input type="checkbox"/>	A&D 117	

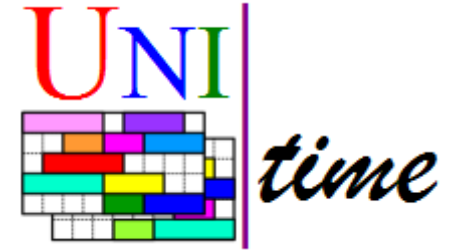
Students request courses. Class assignments are optimized respecting course structure, reservations, and student preferences.

- Batch Sectioning
 - Once a timetable is created, pre-registered students are immediately enrolled to the most suitable classes
- Online Sectioning
 - Additional student registrations and change requests are made online with schedules available immediately

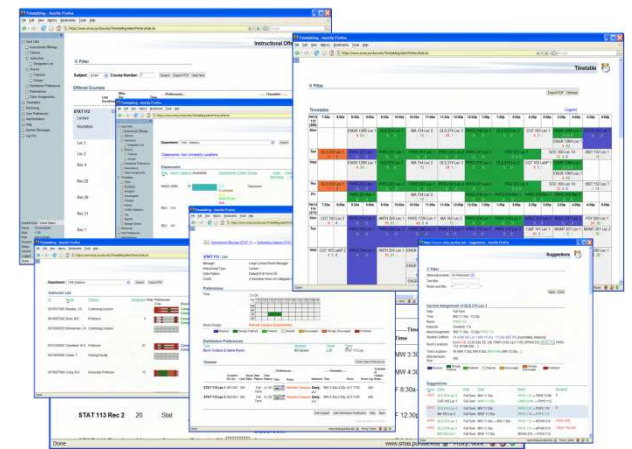


Sample comparison: Average number of choices available per course request during sectioning (online v. student self-schedule).

- Dynamic reservations protect course availability, allowing slightly fewer choices, but resulting in considerably less unmet course demand



Comprehensive University Timetabling System

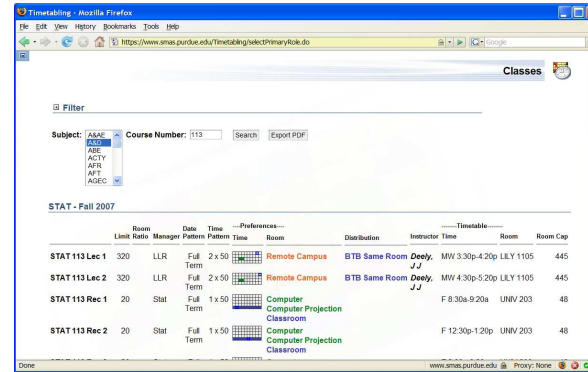


<http://www.unitime.org>

System Highlights

- Publicly available
 - Open source (GNU GPL)
 - Server-client application with web-based interface
 - Platform independent (implemented using Java J2EE, and SQL database)
- Covers all university timetabling needs
 - Course timetabling, student sectioning, examination timetabling, and event management
- Distributed
 - Allows decomposition into several timetabling problems if desired
 - Provides distributed management and coordination across multiple organizational units
 - Accommodates competitive behavior
- Applications
 - Timetabling system successfully applied in practice at Purdue University
 - Large university-wide problem
 - 9,000 classes, 570 rooms
 - 2,400 examinations
 - 39,000 students
 - 190,000 course requests
 - 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 timetabling problems

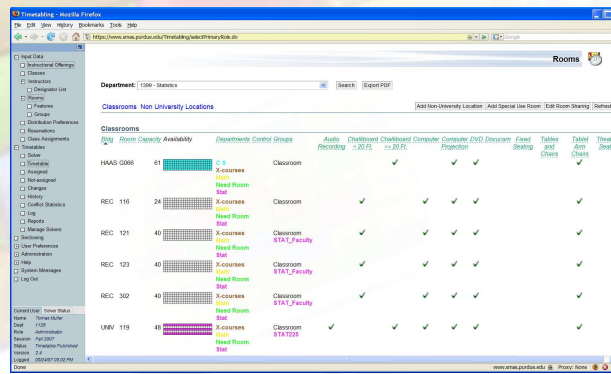
Data Entry



User interface provides an easy and intuitive means of data entry.

		Demand		Mins	Per Week	Limit	Time Pattern	Time	Room	Distribution	Instructor
MA 170		62				40					
STAT 170											
Lecture				50	40		1 x 50		Classroom		
Laboratory				150	40		3 x 50		ENAD Dell 2.8 machines	BTB	
Lec 1				50	40		1 x 50		Classroom		S. Bell
Lab 1				150	20		3 x 50		ENAD Dell 2.8 machines	BTB	J. Beckley
Lab 2				150	20		3 x 50		ENAD Dell 2.8 machines	BTB	J. Beckley

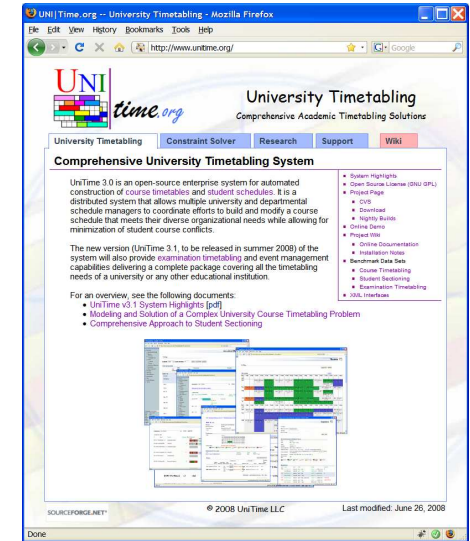
Classes are organized in a visual representation of the course structure. Preferences and requirements can be set at multiple levels.



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
 - University Timetabling Application
 - Constraint Solver Library
- Online documentation
- Application demo
- Ongoing research
 - Publications & presentations
 - Benchmark real-life data sets
- Application support
 - Both free (via email) or commercial support is available
 - Installation, configuration, maintenance, customization, training, etc.
 - Collaboration on interesting timetabling problems