Estates Services

SPACE MANAGEMENT

UNIVERSITY OF OXFORD

Timetable Modelling Tool
User Guide

Contents

A. Introduction

Timetabling at Oxford is often a manual process involving hours of checking room availability, juggling departmental requirements, and attempting to minimise conflicts while maximising space efficiency. Estates Services' Timetable Modelling Tool automates these processes while maintaining the flexibility and human oversight that differing local Departmental practices may demand.

The system understands the University's termly structure, respects the Monday-to-Friday teaching week, and can handle the complexity of courses that run for only certain weeks of term, or require the use of de-partitionable teaching spaces.

Who This Guide Is For

This guide is written for timetabling administrators, departmental coordinators, and space management professionals who need to create, manage, and analyse academic timetables. No technical knowledge of databases or programming is required. If you can use Excel and understand the basics of timetabling, you may benefit from using this tool.

How to Use This Guide

Users are not required to read this guide before using the tool. The tool is somewhat intuitive but also includes signposting and embedded instructions. The user guide can be referred to provide more detailed step-by-step instructions, should these be required.

- Sections 1-3 cover essential operations that users of the tool should understand.
- Sections 4-6 describe optional but valuable analysis features of the tool.
- Sections 7-8 explain the tool's export options
- Sections 9-10 cover troubleshooting and best practices.

B. Getting Started

Before first opening the timetabling tool, right click the Timetable Modelling Tool .xlsm file and select the “Unblock” tick box and click “Apply”. This will enable the tools macros to run (which are essential for the tool to function).

Once opened, the user will be presented with the tool’s main interface, which serves as the control panel for all timetabling operations. The main interface is organised into sections that roughly follow the expected workflow from data entry through to timetable export and distribution.

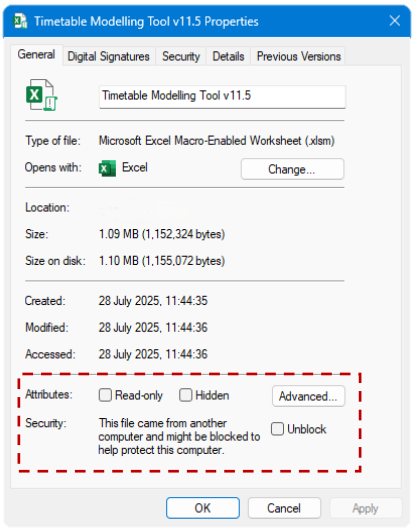


Figure 1. File Properties view

Initial Configuration

Before generating a timetable, configure the tool with the full list of available room names and their respective maximum capacity (i.e. the capacity the room is able to accommodate at its densest layout configuration). It is advised that the standalone maximum capacity of the room is entered in round brackets in the room name itself, e.g. “Board Room A (20)” for tracking and reporting purposes, however, please note that the individual room capacity will need to be entered in the room capacity column. For rooms that can be merged (i.e. de-partitioned) to create larger spaces, add a group tag in square brackets, for example:

"Lecture Room 1 (50) [A]" and "Lecture Room 2 (50) [A]"

--- or ---

"Seminar A (30) [60]" and "Seminar B (30) [60]"

Rooms with the same tag can be combined to accommodate larger bookings when no individual room of the required capacity is available at the specified timeslot.

Ensure that all room names and their respective maximum capacity are populated here before moving on to use other parts of the Timetable Modelling Tool as this will determine the physical spaces against which bookings are assigned.

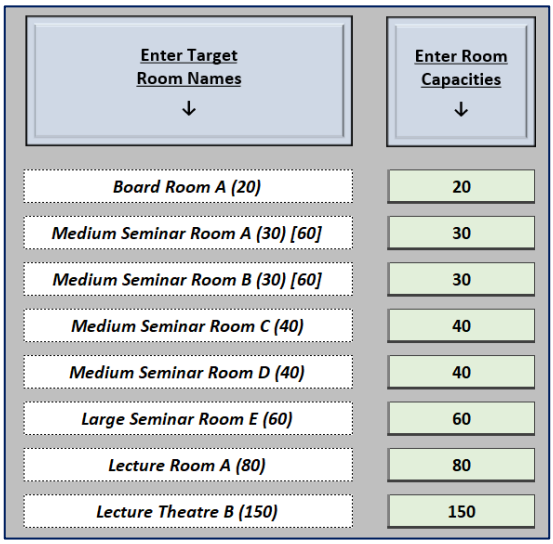


Figure 2. Controls to set room names and capacities: capacity in ( ) and merge tag in [ ], showing de-partitionable group.

Once done, enter the preferred standard teaching day start time and end time (e.g., "09:00" and "18:00") under “Select Day Start and End Times”. This will determine the range of hours in which the model can schedule bookings.

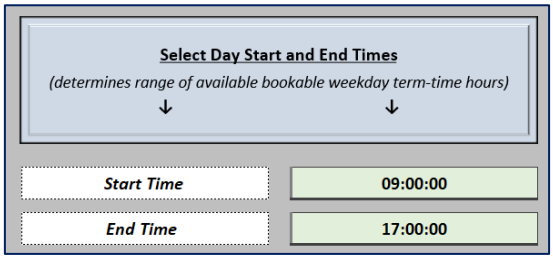


Figure 3. Controls to set standard teaching day start and end times in the main interface.

C. Core Processes

The following sections cover the core functionality that every user should understand.

Section 1. Data Preparation

The timetabling system requires structured data about Departmental teaching requirements. Each booking must include essential information: what is being taught, when it should occur, how many students will attend, the name of the course instructor or tutor, etc. Users can either enter this data using the built-in form or import it from another source, provided it matches the required format.

1.1. Option A: Using the Create Bookings Dataset Form

The built-in data entry form ensures bookings are formatted correctly and include all necessary information. This method is ideal for smaller departments or when entering bookings for the first time.

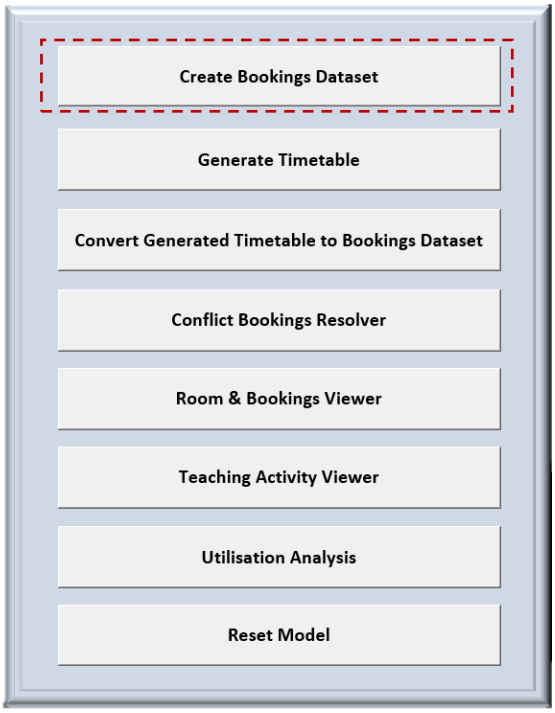


Figure 4. Main interface "Create Bookings Dataset" form button.

1.2. Accessing the Form

- Click the **"Create Bookings Dataset"** button on the main interface
- A new worksheet called "Create Bookings Dataset" will appear
- This worksheet contains a form for entering booking details and creating a structured bookings dataset to map onto the list of available rooms entered on the Timetable Tool main interface.

1.3. Understanding the Form Fields

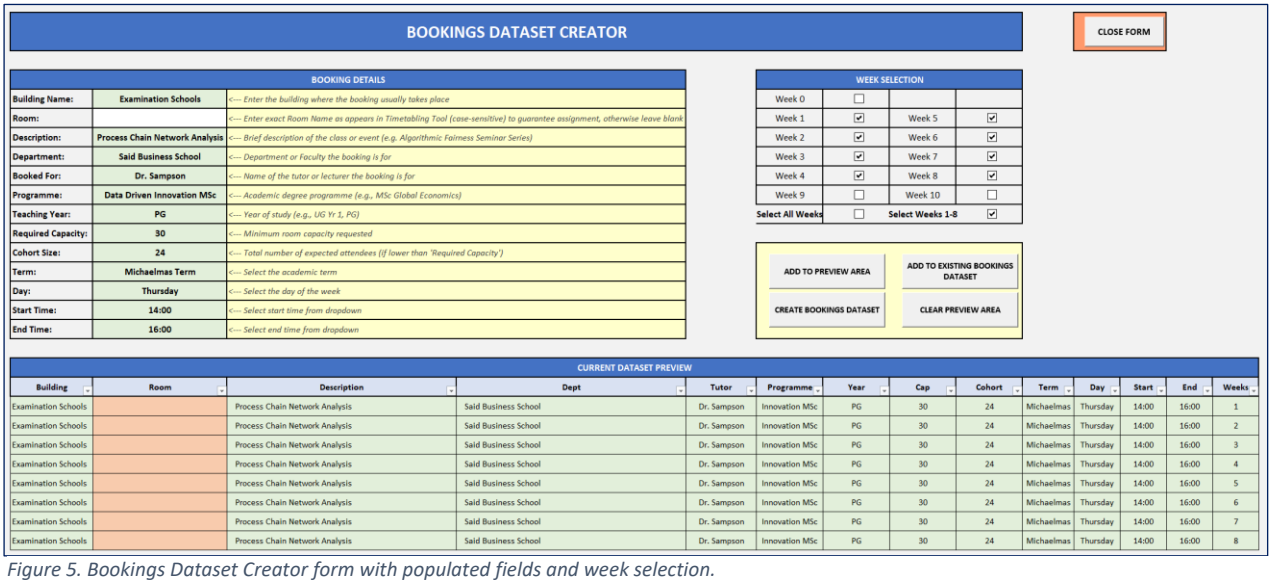


Figure 5. Bookings Dataset Creator form with populated fields and week selection.

Building Name:

- The name of building where teaching occurs
- Reference only - the system will assign rooms

Room:

- Leave this blank for new bookings - the system will assign bookings to the most appropriately sized room automatically
- Only fill this if you have a specific room requirement that *must* be honoured

Description

- A clear name for the class or event (this appears on timetables and exports).
- Ensure consistent naming as this may impact room allocation.

Department

- Department or faculty name (use consistent naming to enable filtering later)

Booked For

- The name of the tutor, lecturer, or coordinator
- This helps with workload analysis and contact information
- Use consistent formatting (e.g., always "Dr. J. Smith" not sometimes "Jane Smith")

Programme

- Name of the degree programme
- Leave blank, or provide a custom name for non-programme specific events

Teaching Year

- Enter consistent teaching years for bookings.
- E.g. always "UG Yr 1"not sometimes "UGYr1".
- This will enable you to export teaching year specific lecture lists and Outlook data

Required Capacity

- The minimum number of seats needed for the class
- Be realistic and do not overestimate capacity requirements "just in case"

Cohort Size

- The expected number of attendees (can be the same as required capacity)

Term

- Select from: "Michaelmas Term", "Hilary Term", or "Trinity Term"

Day

- Monday through Friday only (weekend bookings are not supported)

Start Time

- Selected from dropdown in 15-minute intervals ranging from 09:00 to 19:00

End Time

- Must be after the start time (same 15-minute intervals)
- Allow for setup/cleanup time if needed (*do not enter these as separate bookings*)

1.4. Selecting Weeks

Select from tick boxes for Weeks 0-10 to specify when your bookings occurs within the term:

- Check each week when this class should run
- For a course running all term, check weeks 1-8
- The system creates individual bookings for each selected week

WEEK SELECTION			
Week 0	☐		
Week 1	☐	Week 5	☐
Week 2	☐	Week 6	☐
Week 3	☐	Week 7	☐
Week 4	☐	Week 8	☐
Week 9	☐	Week 10	☐
Select All Weeks	☐	**Select Weeks 1-8**	☐

Figure 6. Week selection tick boxes (Weeks 0–10)

1.5. Adding Bookings to Your Dataset

Once all field have been populated and the week range selected, the user can select from the following options:

- **“ADD TO PREVIEW AREA”** – Adds the bookings to the preview area below the data entry form – this area will expand as additional bookings are added to the preview area.

- **“CREATE BOOKINGS DATASET”** – If a Bookings Dataset does not already exist, this will convert the bookings in the preview area into a new tab titled “Bookings Dataset”.

- **“ADD TO EXISTING BOOKINGS DATASET”** – If a Bookings Dataset already exists, this will append the bookings in the preview area to the pre-existing dataset.

- **“CLEAR PREVIEW AREA” –** This will clear all bookings entered into the preview area.

Please note that bookings in the preview area can be manually edited if required, although manual editing is not advised due to the risk of introducing error or inconsistencies into the dataset. When finished, click the **“CLOSE FORM”** button to close the form and return to the main interface.

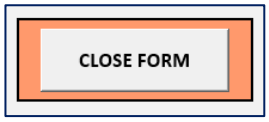


Figure 7. Close Form button

1.6. Option B: Importing Existing Data

If booking data is maintained in another system (e.g. PlanOn), users can import it directly, provided the data matches the format by the Timetable Modelling Tool. This is faster for large datasets but requires careful attention to data structure.

1.7. Required Format for Import

Data must be placed in a worksheet named "**Bookings Dataset**" with specific Column Headings:

1.8. Essential Columns:

- **Column A**: Building Name
- **Column B**: Booking ID (unique numerical id)
- **Column C:** Room Name (leave blank for auto-assignment)
- **Column F**: Capacity (required minimum)
- **Column H**: Start Time (format: "HH:MM:SS")
- **Column I**: End Time (format: "HH:MM:SS")
- **Column J**: Duration ("HH:MM:SS") (optional, the model will calculate duration)
- **Column K**: Number Expected (actual expected attendance)
- **Column P**: Department
- **Column Q**: Booked For (tutor name)
- **Column R**: Booking Description
- **Column U**: Teaching Year
- **Column V**: Week (number 0-10)
- **Column W**: Term Name (exactly: "Michaelmas Term", "Hilary Term", or "Trinity Term")
- **Column X**: Day (exactly: "Monday", "Tuesday", "Wednesday", "Thursday", or "Friday")
- **Column S**: Programme

1.9. Important Format Requirements:

- Headers must be in row 1
- Data starts in row 2
- Times must include seconds (":00")
- Term names must match exactly
- The model will ignore incorrect Term or Day names or weeks outside 0 – 10

Section 2. Timetable Generation

2.1. Understanding the Timetabling Process

With the booking data prepared, the system can now work its magic. The timetabling algorithm considers multiple factors simultaneously: room capacity, time conflicts, the likely desire to keep recurring classes in consistent rooms, and the possibility of merging adjacent spaces for larger events. What might take days of manual work completes in minutes.

2.2. Choosing a Timetabling Method

The tool offers two distinct approaches to timetabling, each with its own strengths. Which method is the most appropriate will depend on Departmental/Faculty priorities: minimising potential conflict bookings or maintaining consistency class-to-room allocations. It is advised that users save a copy of the Timetabling Tool before running either mode, and experiment with both modes to see how bookings are assigned.

2.2.1. Mode 1: Optimised

This mode focuses on minimising conflicts and maximising space utilisation. It treats each booking independently, finding the best available room (i.e. the most appropriately sized at each time slot. This mode then reassesses mapped bookings and attempts to switch bookings (which share the same named description) if it enables them to be more consistently placed in rooms throughout term

When to use the Optimised Timetabling mode:

- When minimising conflicts is critical
- Maximum space efficiency needed

Trade-offs:

- Series may be split across multiple rooms
- Students need to check room assignments more carefully
- Less predictable for regular attendees

2.2.2. Mode 2: Group First

This mode prioritises keeping recurring classes in the same room throughout the term. It's ideal for regular teaching where students need to know where their weekly lecture or seminar will be.

When to use Group First:

- Regular weekly teaching
- When student (and staff) convenience is paramount
- Established courses with set patterns
- When room changes would be disruptive

Trade-offs:

- May result in slightly more conflicts
- Prioritises consistency over efficiency
- Could leave some rooms underutilised

Note: the outcome of both modes will be determined by the bookings dataset, available rooms, and their capacities – it is therefore possible for the Group First mode to result in fewer conflicts that the Optimised mode.

2.3. The Generation Process

Ensure your booking data is ready in the "Bookings Dataset " sheet. Save a copy of the model (important backup step).

Click "**Generate Timetable**" on the main interface. The screen may freeze briefly, and Excel may become unresponsible- this is normal. Timetable generation can take up to 30 seconds per 1,000 bookings.

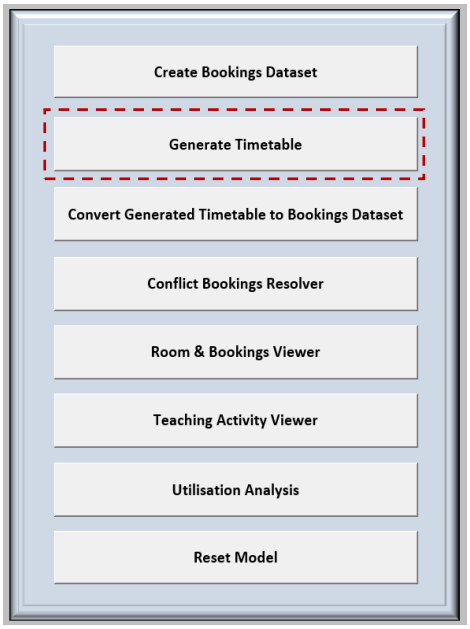


Figure 8. Main interface "Generate Timetable" button

<u>It is advisable to not attempt to use the desktop for any other activities whilst the timetable generation process runs.</u>

The tool then creates two new worksheets:

2.4. Master Timetable

- Contains all successfully scheduled bookings
- Shows room assignments and actual times
- Includes merged room information
- Forms the basis for all further analysis
- Contains all available "gaps" in between bookings ensuring the full academic year's worth of bookable time is represented across all rooms

2.5. Conflicts

If the system was unable to assign bookings to rooms due to no room of sufficient capacity being available at the exact required start time, it will place these in the 'Conflicts' worksheets:

- Lists all bookings that couldn't be placed
- Maintains all original booking information
- Ready for conflict resolution process
- If all bookings are successfully placed, this tab will not generate.

2.6. If Timetable Generation Fails

- Check your room configuration
- Verify teaching hours are set correctly
- Ensure at least one room is defined
- Check Bookings Dataset sheet exists
- Verify data starts in row 2
- Confirm required columns have data

Section 3. Scheduling Conflict Resolution

Conflicts are bookings the system couldn't place during initial generation. They arise from genuine resource constraints: perhaps all suitable rooms are booked at the requested time, or the capacity requirement exceeds available spaces. The Conflict Resolution tool helps you systematically address these issues by finding alternative slots that meet all requirements.

3.1. Starting Conflict Resolution

- Click "Conflict Bookings Resolver"
- This will create the “Conflicts Analysis" tool

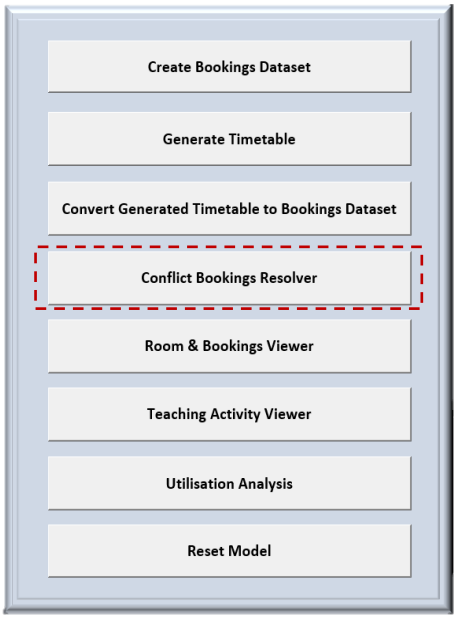


Figure 9. Main interface “Conflict Bookings Resolver” button

3.2. Understanding the Layout

Each row represents one conflicted booking showing:

- Original booking details (time, room requirements, etc.)
- Current selected alternative
- Navigation buttons
    - < to select earlier available timeslot
    - > to select the next available timeslot
- Light Green: Valid alternative selected
- Dark Green: Conflicts occur on the same day, week and term – be cautious of selecting overlapping alternative timeslots
- White: No alternative timeslot found

The Conflicts Analysis worksheet analyses all conflicts and searches for the nearest alternative timeslot. The user will be presented with the following interactive interface:

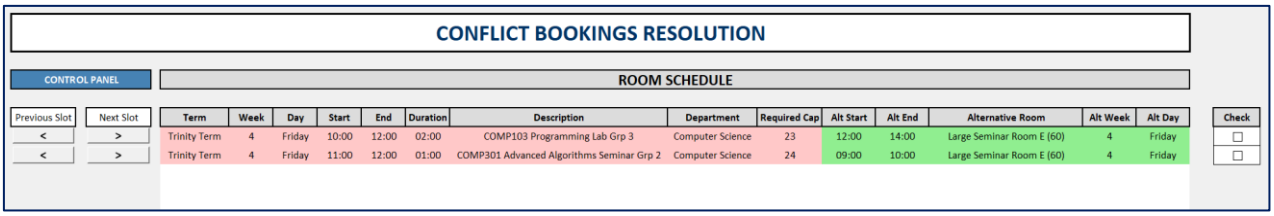


Figure 10. Conflict Bookings Resolver UI with < and > controls to browse alternative timeslots

3.3. Working Through Conflicts

For each conflict, review:

- Course details: What needs to be scheduled
- Capacity required: Minimum seats needed
- Original timing: When it was requested
- Duration: How long the session runs

Each conflict will have multiple alternative timeslots available. The system provides navigation buttons that allow the user to browse through these options. The system calculates 40 timeslots ahead from the requested timeslot/day and 40 timeslots looking back. To view different alternatives, click the ">" button to advance to the next available option, or the "<" button to return to an earlier alternative. As the user navigates through the options, the display area (shown highlighted in green) updates automatically to show the details of each alternative timeslot, including the proposed time and the available room or rooms.

When the user identifies a suitable alternative, the system automatically highlights it in light green to indicate a valid selection. The user should make note of each selection before proceeding to the next conflict, as this helps maintain an overview of all changes being made to the timetable.

After reviewing each conflict booking and selecting a suitable alternative, click the tick box next to each booking and click the '**Confirm and Update Master Timetable**' button to apply the selected alternatives to the master timetable. A summary will display the total number of alternatives selected. Click OK to apply the changes.

Figure 11. Alternative bookings selection tick boxes and confirmation button

The system will automatically update the Master Timetable with all valid alternative selections, incorporating them into the generated timetable. The system will remove all successfully resolved conflicts from the Conflicts sheet, leaving only outstanding, unresolved conflict bookings remaining in the interface. In cases where all conflicts have been successfully resolved, the Conflict Bookings Resolver will automatically close itself, returning the user to the main interface.

3.4. Alternative Timeslot Considerations

To ensure the best use of the teaching spaces, the user should verify that the proposed alternative room offers an appropriate capacity for the expected number of attendees, contains appropriate facilities for the type of teaching planned, and is located conveniently relative to other classes that students or staff might need to attend.

For courses that form part of a series, the user should consider the broader impact of accepting an alternative. The system may split a recurring series across multiple rooms, which could create confusion for students and staff who expect consistency in their weekly schedules. The user should therefore weigh the convenience of maintaining room consistency against the necessity of finding any viable timeslot.

D. Analysis and Review

The following sections cover optional tools for reviewing and understanding the generated timetable. These tools are not essential but can provide a convenient way to review generated timetable activity.

Section 4: Room & Bookings Viewer

The Room & Bookings Viewer provides a focused view of individual room schedules to understand how the Timetabling Tool has assigned activity across available space, identify remaining available timeslots, as well as verify that bookings make sense.

4.1. Accessing the Room & Bookings Viewer

To access the viewer, ensure that a Master Timetable has been generated and click the "Room & Bookings Viewer" button on the main interface. The system will create a new worksheet titled "Room Activity Viewer".

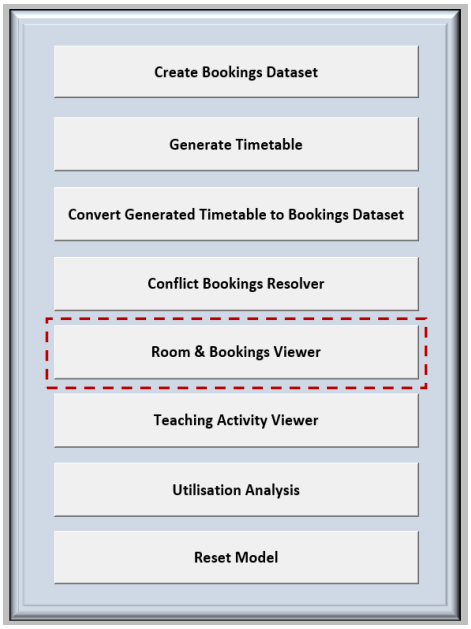


Figure 12. Main interface "Room & Bookings Viewer" button

4.2. Understanding the Room & Bookings Interface

Within the viewer, the user will find a control panel, statistics and the bookings activity viewer itself. The control panel provides filtering options that enable the user to filter the viewer to show activity for specific rooms. The Term, Week and Day filters offer the options to view either the entire academic year, term or week by selecting "All", or to focus on specific periods by selecting individual terms, weeks or days.

After making any filter selections, the user must click the Update Viewer button to refresh the display with the new criteria applied.

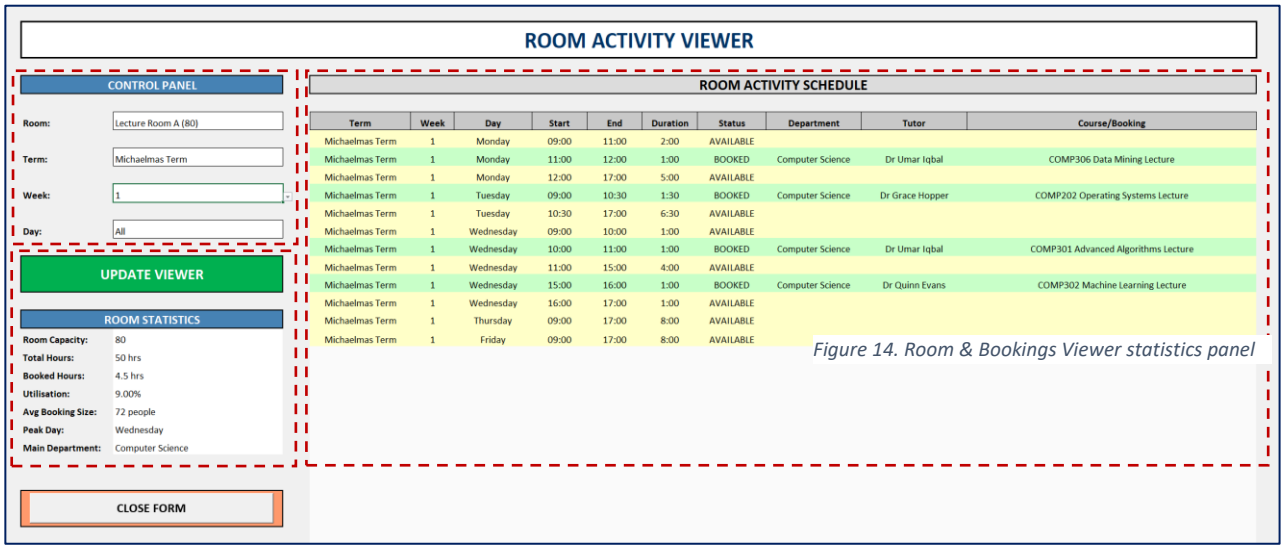


Figure 13. Room & Bookings Viewer interface

Figure 14. Room & Bookings Viewer statistics panel

Section 5: Teaching Activity Viewer

While the Room Viewer focuses on spaces, the Teaching Activity Viewer allows the user to view scheduled activity from the viewpoint of departments, individual tutors, specific programmes, or courses.

5.1. Accessing the Teaching Activity Viewer

To access the viewer, ensure that a Master Timetable has been generated and click the "Teaching Activity Viewer" button on the main interface. The system will create a new worksheet titled " Teaching Activity Viewer ".

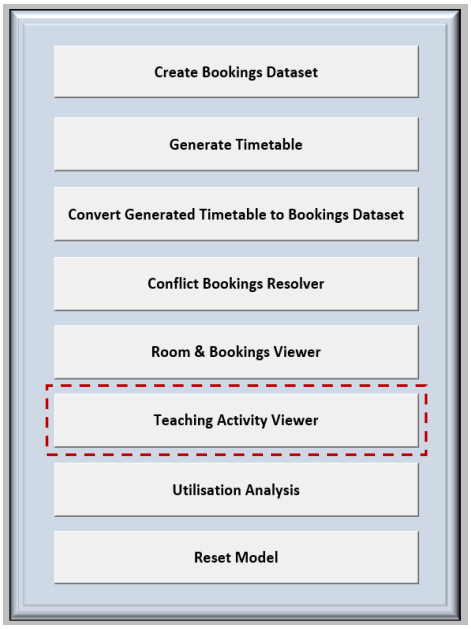


Figure 15. Main interface "Teaching Activity Viewer" button

5.2. Understanding the Teaching Activity Viewer

Similarly to the Room & Bookings Viewer, the user will find a control panel, statistics and the Teaching Activity Viewer itself. The control panel provides filtering options that enable the user to filter the scheduled activity by Department, tutor, teaching year, term, degree programme and course description.

Users may find the Tutor filter particularly helpful as this provides a convenient way to quickly undertake workload analysis and confirm individual schedules. The Teaching Year filter offers options including UG Yr 1 through UG Yr 4 and PG, helping users focus on specific cohorts or view cross-year teaching patterns when "All" is selected. The Degree Programme filter lists all programmes in the system, and, the Course Description filter allows selection of individual courses or modules, with an "All" option for complete views.

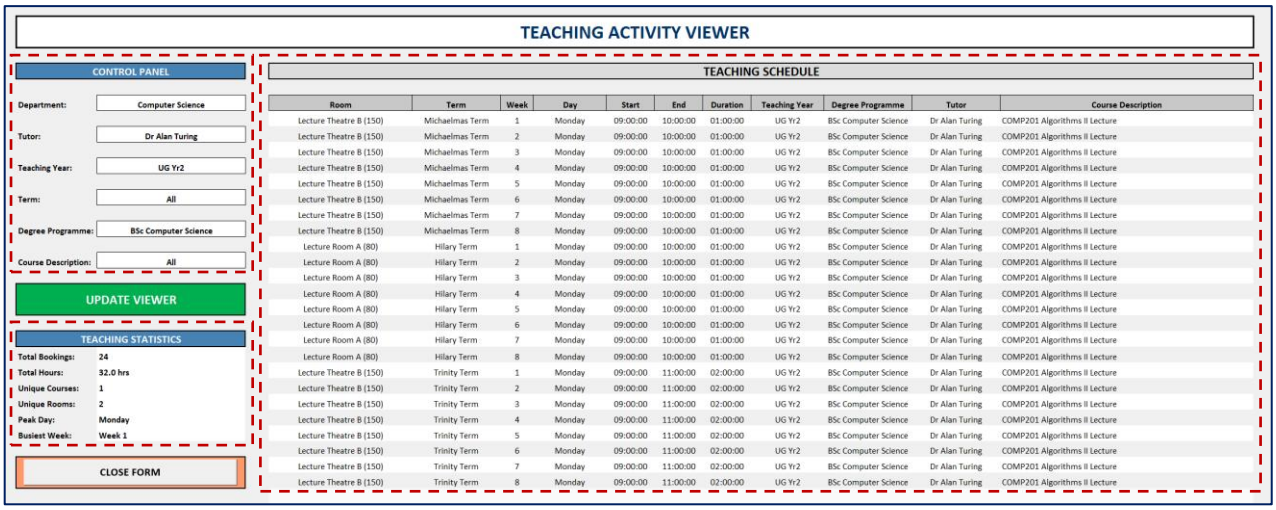


Figure 16. Room & Bookings Viewer interface

When finished with either viewer, click the **"CLOSE FORM"** button to return to the main interface.

Figure 17. Close form button

Section 6: Utilisation Analysis

6.1. Understanding Space Utilisation

The Utilisation Analysis dashboard provides a comprehensive view of how efficiently the timetabling tool has mapped teaching activity across the bookable hours within the available rooms. This analysis presents departmental or building-wide patterns and metrics that can inform both operational decision-making and strategic planning. The dashboard presents critical information about space efficiency, helping to identify underutilised rooms and reveal peak demand periods.

6.2. Generating the Analysis

To generate the utilisation analysis dashboard, the user must first ensure the Master Timetable has been generated, and any resolvable conflict bookings have been resolved. Upon clicking the "Utilisation Analysis" button on the main interface, the system generates a new worksheet titled "Utilisation Analysis". The generation process may take a few moments for large timetables due to the number of background calculations required.

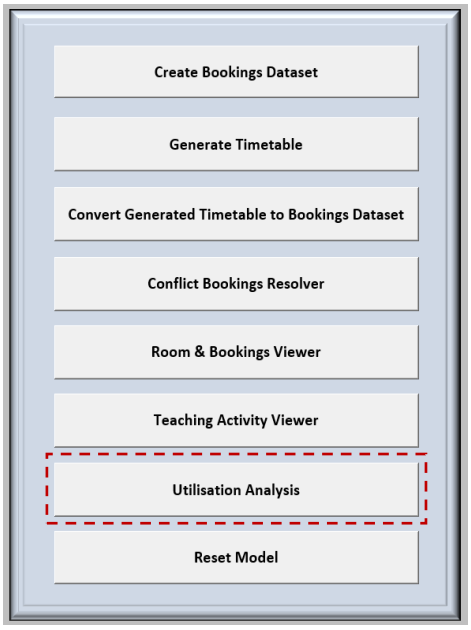


Figure 19. Main interface "Utilisation Analysis" button

6.3. Report Structure Overview

The analysis creates a detailed multi-section report containing data for each term plus overall summaries that provide both granular and strategic insights The report structure enables comparisons across academic terms, enabling year-on-year trend analysis and help predict future requirements.

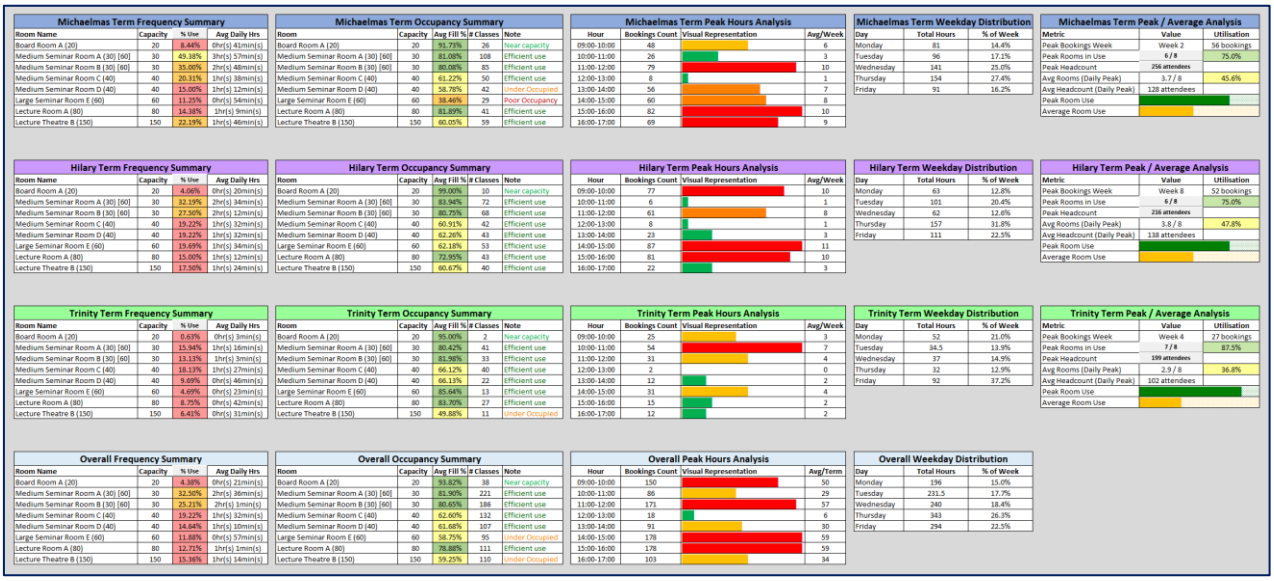


Figure 18. Utilisation Analysis dashboard view

6.4. Understanding Each Analysis Section

6.4.1. Frequency Summary

The Frequency Summary reveals what percentage of available time each room is booked throughout the analysis period. The display shows percentage frequency calculated as hours booked out of total available

bookable hours, along with average hours per day calculations. The user can toggle between viewing booked time percentages and available capacity percentages using the "% Use" and "% Free" buttons. Both views present the same underlying data with the % Use view focusing on space efficiency and the % Free view focusing on remaining availability.

Michaelmas Term Frequency Summary			
Room Name	Capacity	% Use	Avg Daily Hrs
Board Room A (20)	20	8.44%	0hr(s) 41min(s)
Medium Seminar Room A (30) [60]	30	49.38%	3hr(s) 57min(s)
Medium Seminar Room B (30) [60]	30	35.00%	2hr(s) 48min(s)
Medium Seminar Room C (40)	40	20.31%	1hr(s) 38min(s)
Medium Seminar Room D (40)	40	15.00%	1hr(s) 12min(s)
Large Seminar Room E (60)	60	11.25%	0hr(s) 54min(s)
Lecture Room A (80)	80	14.38%	1hr(s) 9min(s)
Lecture Theatre B (150)	150	22.19%	1hr(s) 46min(s)

Figure 20. Room Bookings Frequency % Used Summary Table

Michaelmas Term Frequency Summary			
Room Name	Capacity	% Free	Avg Daily Hrs
Board Room A (20)	20	91.56%	7hr(s) 20min(s)
Medium Seminar Room A (30) [60]	30	50.63%	4hr(s) 3min(s)
Medium Seminar Room B (30) [60]	30	65.00%	5hr(s) 12min(s)
Medium Seminar Room C (40)	40	79.69%	6hr(s) 22min(s)
Medium Seminar Room D (40)	40	85.00%	6hr(s) 48min(s)
Large Seminar Room E (60)	60	88.75%	7hr(s) 6min(s)
Lecture Room A (80)	80	85.63%	6hr(s) 51min(s)
Lecture Theatre B (150)	150	77.81%	6hr(s) 13min(s)

Figure 21. Room Bookings Frequency % Available Summary Table

6.4.2. Occupancy Summary

The Occupancy Summary tables display how well filled each room is during use. The metrics displayed include average fill percentage comparing actual attendance (as informed by the "Cohort Size" field for each booking) to room capacity, the count of classes booked in each room per term, and a high-level qualitative efficiency assessment.

The system categorises efficiency into five levels:

Michaelmas Term Occupancy Summary				
Room	Capacity	Avg Fill %	# Classes	Note
Board Room A (20)	20	91.73%	26	Near capacity
Medium Seminar Room A (30) [60]	30	81.08%	108	Efficient use
Medium Seminar Room B (30) [60]	30	80.08%	85	Efficient use
Medium Seminar Room C (40)	40	61.22%	50	Efficient use
Medium Seminar Room D (40)	40	58.78%	42	Under Occupied
Large Seminar Room E (60)	60	38.46%	29	Poor Occupancy
Lecture Room A (80)	80	81.89%	41	Efficient use
Lecture Theatre B (150)	150	60.05%	59	Efficient use

Figure 22. Room Bookings Occupancy Analysis Table Summary Table

- **Not used**: 0% occupancy with no bookings
- **Poor Occupancy**: less than 40% when used
- **Under Occupied**: 40-60% filled
- **Efficient use:** 60-90% range (ideal)
- **Near capacity**: over 90% full when in use

These category ranges should not be interpreted as overly prescriptive (teaching space use will vary depending on local departmental arrangement or discipline) but can be used to provide a quick space efficiency assessment. Low occupancy typically indicates oversized rooms for the activities scheduled, while near capacity suggests well-matched or potentially constrained space.

The user should note that the timetabling tool will seek to match bookings to the most appropriately sized room (i.e. minimising capacity waste), therefore, if a high number of classes show low occupancy, this may point to a systemic room sizing issue within the building/department.

6.5. Peak Hours Analysis

Michaelmas Term Peak Hours Analysis			
Hour	Bookings Count	Visual Representation	Avg/Week
09:00-10:00	48		6
10:00-11:00	26		3
11:00-12:00	79		10
12:00-13:00	8		1
13:00-14:00	56		7
14:00-15:00	60		8
15:00-16:00	82		10
16:00-17:00	69		9

Figure 23. Room Bookings Peak Hour Timeslot Analysis Summary Table

Understanding when demand peaks can help with both immediate scheduling decisions, resource planning (e.g. cleaning) and long-term capacity planning.

This analysis provides an hour-by-hour breakdown across the bookable hours range established in the main interface settings.

Booking counts for each time slot appear both numerically and as a visual bar chart, with an average column providing reference context for identifying true peaks versus normal variation.

6.6. Weekday Distribution

The Weekday Distribution analysis shows total hours per weekday with percentage distribution, enabling visual comparison and balance assessment. From a space efficiency perspective, an ideal distribution would show roughly 20% of activity per day.

Michaelmas Term Weekday Distribution		
Day	Total Hours	% of Week
Monday	81	14.4%
Tuesday	96	17.1%
Wednesday	141	25.0%
Thursday	154	27.4%
Friday	91	16.2%

Figure 24. Bookings Weekday Distribution Summary Table

6.7. Peak/Average Analysis Summary

This section provides high-level metrics to assist with capacity and resource planning.

Key metrics include identification of the peak week by number (indicating the week containing the highest number of bookings that term), maximum simultaneous rooms in use during peak periods, maximum total headcount at any point, and daily averages showing typical demand levels.

The analysis includes buttons that display the specific bookings contributing to peaks.

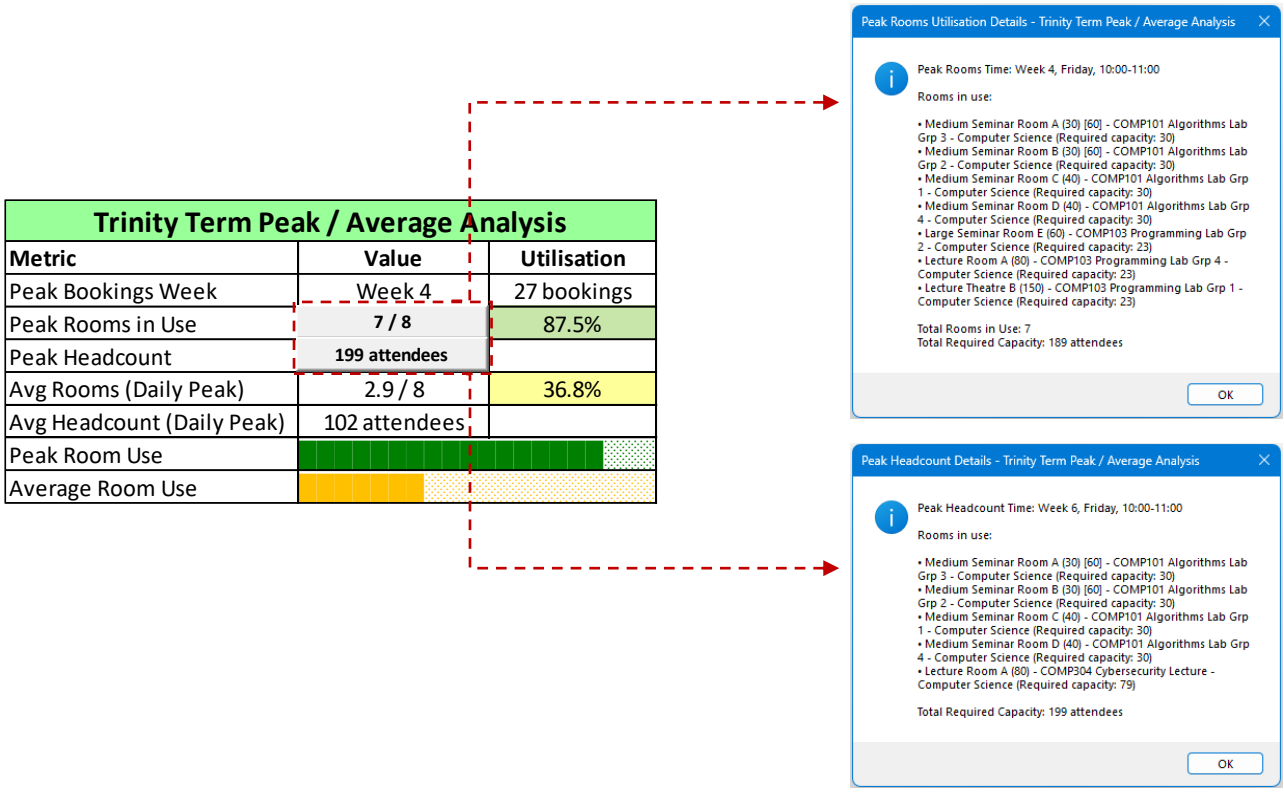


Figure 25. Peak/Average Analysis Summary Table: Displaying peak week, max rooms in use, peak headcount and daily peak averages

Each button produces a popup displaying all bookings contributing towards the peak for both Peak Rooms in Use (point at which the most rooms are in simultaneous use) and Peak Headcount (the point at which the highest number of individuals are scheduled to be in attendance). This information may help Departments understand demand drivers, identify scheduling clusters, find opportunities for spreading peak loads, or support decision making or resource planning.

The user can further explore contributing factors using either the Room & Bookings Viewer or the Teaching Activity Viewer.

E. Export and Distribution

The following sections cover the timetabling tools Calendar and Lecture List export options, enabling generated timetables to be distributed to staff, students and building managers in an appropriate and familiar format.

Section 7: Outlook Calendar Exports

7.1 Exporting to Outlook

Once a Master Timetable has been generated and resolvable conflict bookings have been resolved by assigning them to alternative available timeslots, the generated timetable data can be exported and saved to an iCalendar file (ICS), enabling bookings activity to be imported into Outlook or Google Calendar.

7.2. Understanding Filter Options

First, select the Department, Room, Teaching Year and Degree Programme from the drop-down menus to filter the timetable activity for export. Any filter left unselected will default to selecting all variable for that category (e.g. leaving Teaching Year blank will result in bookings activity for all Teaching Years to be exported).

Unless mass exports of all activity are required, it is advised that users export activity on a room-by-room or teaching year-by-teaching year basis, in order to create room or teaching year-specific timetables.

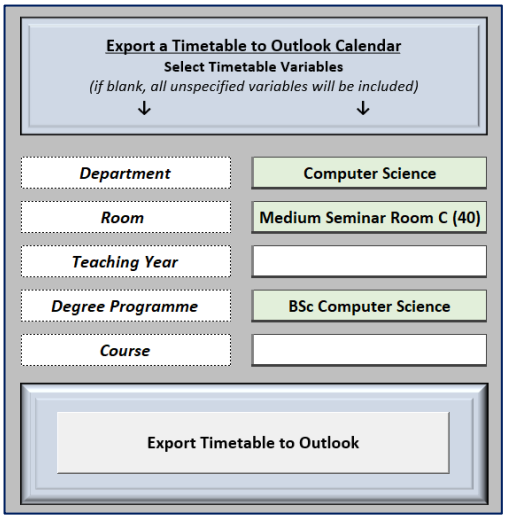


Figure 26. Controls to set Outlook Calendar export filters

7.3. The Generated Timetable

After selecting the required filters, click the "Export Timetable to Outlook" button. Before exporting the bookings to Outlook, the tool will first generate a new worksheet (titled according to the filters selected, e.g. Lecture Room A, UG Yr2) containing a visual timetable representation for each academic term:

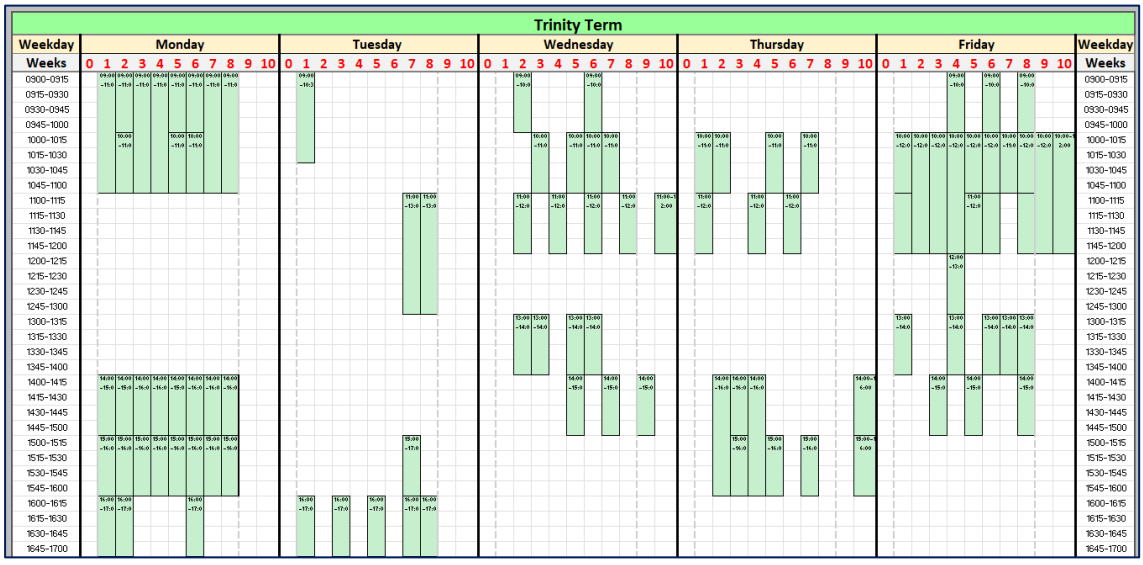


Figure 27. Generated timetable calendar grid preview

Each booking appears as a coloured block within the grid structure. When selected, these blocks display the time and duration of the bookings mapped to that timeslot (showing multiple, if the Room filter is left unselected on the main interface) booking name, teaching year and room assignment.

7.4. Outlook Export Options

Once the visual timetables have been generated, the scheduled activity can be exported to Outlook by selecting the "Export to Outlook Calendar" button to the top right-hand corner of each termly grid.

Figure 28. Export to Outlook button

This will present the user with two export options:

Option 1: Direct Calendar Integration (Beta)

This experimental direct calendar integration option attempts to synchronise bookings data directly with shared Outlook calendars (e.g. those integrated with Planon). This approach requires specific permissions and may not function correctly in all environments. This feature is currently in testing and is not currently advised for use.

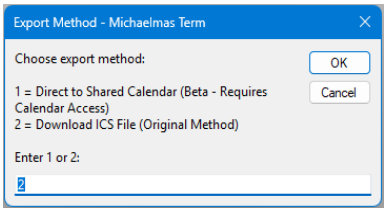


Figure 29. Export method selection pop up

Option 2: ICS File Export (Recommended)

The ICS (iCalendar) format works reliably with Outlook, Google Calendar, Apple Calendar, and other calendar applications. The process creates a file that users can import into their preferred calendar system.

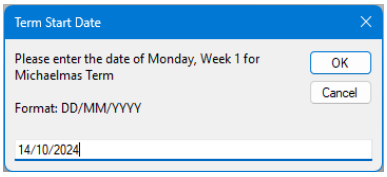


Figure 30. Term start date entry pop up

Selecting Option 2 will present the user with an input pop up box requesting confirmation of the date of Monday of Week 1 of the selected term, with all subsequent dates that term calculated from this point (incorrect dates will be rejected). After selecting OK, the user will be presented with a preview of the calendar events as they will appear in Outlook (or preferred calendar app).

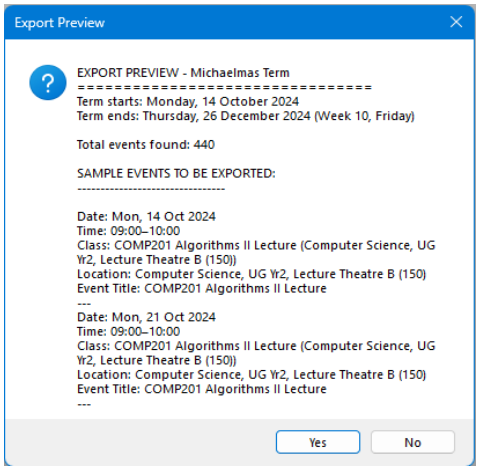


Figure 31. Calendar export preview pop up

Selecting "Yes" will enable the user to save the .ics file to a specified location, after which a popup message will display, providing instructions for importing the bookings events into Outlook.

Prior to exporting, the user should verify that all conflicts have been resolved, room assignments have been checked and confirmed, times have been double-checked for accuracy, and any manual adjustments have been properly documented for future reference. Before distributing calendar exports, it is advised that validation is undertaken. The user should test the import process, verify a handful of events for accuracy, check that times appear correctly, confirm locations match expectations, and review descriptions for completeness and clarity.

Section 8: Lecture List Exports (Word)

8.1. The Lecture List Export

While digital calendars suit many users, printed timetables may prove useful for notice boards, handbooks, and general distribution. The “Export Lecture List to Word” feature creates consistently formatted Word documents ready for printing, e-mail distribution or further customisation.

8.2. Understanding the Filter Options

Just as with the Export to Outlook filter options, the Export Lecture List to Word feature asks that users select various filters to customise the generated lecture list. The user is asked to specify the Term, Department, Room, Teaching Year and Degree Programme from the drop-down menus to filter the timetable activity for export. Any filter left unselected will default to selecting all variable for that category (e.g. leaving Teaching Year blank will result in bookings activity for all Teaching Years to be exported).

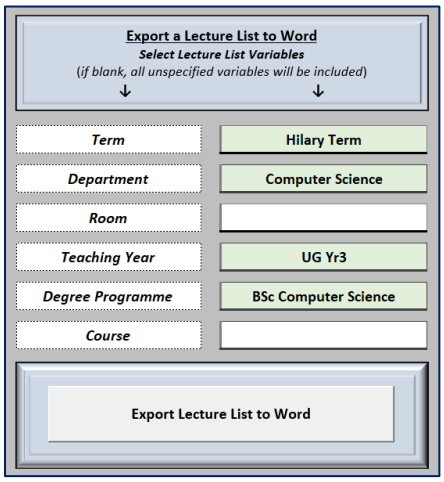


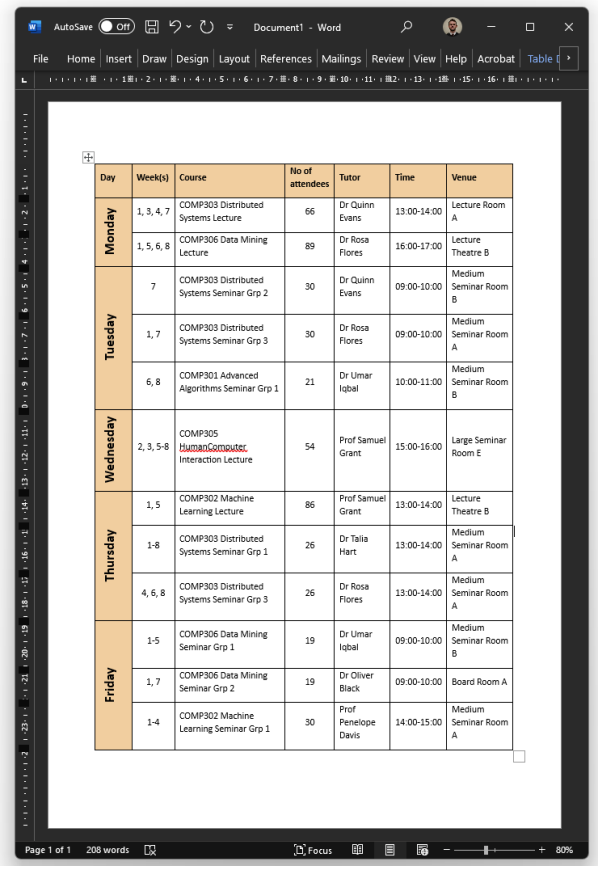
Figure 32. Controls to set Word Lecture List export filters

8.3: Generate the Lecture List

Once the required filters have been set, click the “Export Lecture List to Word” button. The system will automatically launch Microsoft Word, open a blank document, and generate a structured table containing all filtered bookings organised by day of week, and sorted by time within each day.

8.4. Table Structure

The generated document contains a structured seven-column table which display the day of week, consolidated week numbers, (e.g., "1-8" rather than "1,2,3,4,5,6,7,8"), course descriptions and names as they appear in the Master Timetable, expected attendance figures (defined by the “Cohort Size” data field), the course instructor or tutor, start and end times, and importantly, the room the booking has been assigned to.



Day	Week(s)	Course	No of attendees	Tutor	Time	Venue
Monday	1, 3, 4, 7	COMP303 Distributed Systems Lecture	66	Dr Quinn Evans	13:00-14:00	Lecture Room A
	1, 5, 6, 8	COMP306 Data Mining Lecture	89	Dr Rosa Flores	16:00-17:00	Lecture Theatre B
Tuesday	7	COMP303 Distributed Systems Seminar Grp 2	30	Dr Quinn Evans	09:00-10:00	Medium Seminar Room B
	1, 7	COMP303 Distributed Systems Seminar Grp 3	30	Dr Rosa Flores	09:00-10:00	Medium Seminar Room A
	6, 8	COMP301 Advanced Algorithms Seminar Grp 1	21	Dr Umar Iqbal	10:00-11:00	Medium Seminar Room B
Wednesday	2, 3, 5-8	COMP305 Human Computer Interaction Lecture	54	Prof Samuel Grant	15:00-16:00	Large Seminar Room E
Thursday	1, 5	COMP302 Machine Learning Lecture	86	Prof Samuel Grant	13:00-14:00	Lecture Theatre B
	1-8	COMP303 Distributed Systems Seminar Grp 1	26	Dr Talia Hart	13:00-14:00	Medium Seminar Room A
	4, 6, 8	COMP303 Distributed Systems Seminar Grp 3	26	Dr Rosa Flores	13:00-14:00	Medium Seminar Room A
Friday	1-5	COMP306 Data Mining Seminar Grp 1	19	Dr Umar Iqbal	09:00-10:00	Medium Seminar Room B
	1, 7	COMP306 Data Mining Seminar Grp 2	19	Dr Oliver Black	09:00-10:00	Board Room A
	1-4	COMP302 Machine Learning Seminar Grp 1	30	Prof Penelope Davis	14:00-15:00	Medium Seminar Room A

Figure 33. Example Word Lecture List

F. Tips and Troubleshooting

This section addresses some of the challenges users may encounter whilst using the timetabling tool. From resolving technical difficulties and system errors to implementing best practices that prevent problems before they occur, this section may help users navigate common pitfalls and optimise their use of the tool.

Section 9: Troubleshooting

9.1. Common Issues and Solutions

9.1.1. Performance Degradation

When the timetabling tool begins to run slowly or becomes unresponsive, several factors may be responsible. The accumulation of multiple worksheets from repeated timetable generations often causes the most significant performance impact. The user should review all worksheets and remove those no longer needed, particularly old conflict analyses and superseded timetable versions. Any worksheet containing the option to “CLOSE FORM” should always be closed once the user is finished using it.

Large datasets can also impact performance. If the system struggles with processing, the user might consider splitting the timetabling process by department or term, then consolidating results. This approach reduces memory requirements and can significantly improve processing speed.

9.1.2. Data Integrity Problems

Data integrity issues manifest in various ways, from incorrect timeslot assignments to missing bookings. When encountering such problems, the user should verify that all source data in the Transformed Data sheet maintains the correct format and contains no blank rows or corrupted entries.

Time format inconsistencies represent a particularly common issue. The system expects times in HH:MM:SS format, and variations like "09:10:00" instead of "09:00:00" can cause processing errors (though this should not be possible if using the Bookings Dataset Creator tool). The user should standardise all time entries before attempting to generate timetables.

9.1.3. Conflict Resolution Difficulties

When the Conflicts Resolver tool fails to find suitable alternatives, the underlying issue usually involves insufficient room capacity or overly concentrated demand. The user should analyse the pattern of conflicts to identify systemic issues. If all conflicts occur at similar times, implementing policy changes to spread demand may prove more effective than repeatedly attempting to resolve individual conflicts.

9.1.4. Recovery Procedures

The user should maintain regular backups throughout the timetabling process, not just at completion. If corruption occurs, reverting to the most recent stable version and re-applying changes proves faster than attempting repairs or starting from scratch.

Section 10: Tips

10.1. Standardisation Strategies

Developing and enforcing naming conventions transforms timetabling from a potentially haphazard to smooth process. The user should create department codes that are short, memorable, and consistent—for example, ECON for Economics, HIST for History, and MATH for Mathematics. These codes should be documented and shared with all data contributors.

Room names require particular attention to standardisation. Variations like "Lecture Theatre 1", "LT1", and "Lecture Rm 1" referring to the same space create confusion and potential booking conflicts. The user should establish a single, official name for each space and ensure all departments use these standardised names. Programme titles benefit from similar standardisation. Rather than allowing variations like "MSc CompSci", "Masters Computer Science", and "MSc in Computer Science", establishing consistent formats such as "MSc Computer Science" ensures accurate filtering and reporting.

10.2. Data Management

Maintaining central reference lists ensures consistency across all timetabling activities. The user should establish and maintain an official room registry with capacities and features, an approved programme list updated annually, a staff directory with consistent name formats, standardised department codes, and defined standard time slots aligned with institutional policies.

Version control for these reference lists proves essential. Dating all lists, tracking changes made, communicating updates to stakeholders, archiving old versions, and maintaining a single source of truth prevents confusion and ensures all users work from current information.

10.3. Strategic Planning Approaches

Beyond basic timetabling, several advanced techniques can significantly improve outcomes. The user should consider demand spreading strategies that incentivise off-peak scheduling, room sharing agreements between departments to maximise utilisation, and flexible timing policies that allow slight adjustments for better fit.

10.4. Performance Monitoring

Regular monitoring of key metrics drives improvement. The user should track utilisation rates to identify inefficiencies and opportunities, monitor user satisfaction through surveys and feedback, and analyse patterns to predict future challenges.

Estates Services

SPACE MANAGEMENT

T: 01865 280806
E: space.management@admin.ox.ac.uk
www.admin.ox.ac.uk/estates