# Class Scheduler Program 

Brent \& Deeporn Beardsley<br>Peace Corps Volunteers<br>Moldova 2014-2016 www.BrentInMoldova.Weebly.com

## DB Orar 2016-17




## Opening screens



## File

For basic file handling:

## Opening Screen (cont'd)

- About: Copyright, program version, etc.
- New: Create a new database
- Open: Open an existing database
- Copy Database: Copy an existing DB to a new one
- Rename Database: Change the name of a Database
- Export: Export table in a form that Excel can import
- Exit: "Save" database and exit program


Class Scheduler V2.5, July 4th, 2016, Using Database: /Users/brentbeardsley/Documents/peace corps/Scheduler school/orar 2015-2016 Alexandru


File clear Messages Preffernces Courses
Delete Messages
below
$\vdots$
Courses(Subjects)
Screen to display courses
Teachers
Screen to display teachers
Classes
Screen to display classes

Classrooms
Screen to display classrooms

Preferences
For changing program preferences (fonts, font size, scrolling, whether rooms are scheduled by teacher or by class, etc.)

## Preferences (1/4)

## Set Logging preferences

The program logs what it is doing, so that if the is a problem the developer can see what happened and fix it. Do not change these settings unless asked to.

## Set Column preferences

Each of the main screens are tables. The column sizes on these tables can be adjusted. Clicking on this will cause the current settings for this screen to be remembered and used the next time you use this screen.

## Set how the school assigns rooms

Schools generally assign classrooms in one or two ways:

1. Students move from room to room to get lessons
2. Teachers move from room to room to give lectures


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## Set Active Schedule

This is used to tell the program which schedule to work with when displaying or editing schedules (see scheduling)

## Set Viewing Preferences

This changes font types and sizes as well as what is displayed. (see later slide)

## Set Column preferences to default

This resets the saved column preferences for this table to their default values.

## Set Scroll Preferences

This sets how many scrollable columns to display in the currently visible main screen table. It also sets how many columns to scroll (left or right) when using the multiple scroll buttons ( $\ll \gg$ )

## Set Viewing Preferences (2/4)

## Print Mode

- For eliminating extra spaces in each columns, useful for printing schedule without exporting the schedule first.
- We recommend that you export the schedule and then import to Excel and print from Excel. Therefore, we



## Show DB ID

- For displaying Class Scheduler Program internal identification (ID) number of a field.
- These ID numbers are useful for trouble shooting but meaningless to the user, therefore, we recommend that you not select it.


## Show Course

 DescriptionThis will cause the description to be displayed whenever the course is displayed.

- The course description is useful when working with classes and teachers to differentiate different courses with the same name. This should be turned on when working with classes or teachers.
- The course description is not useful when working with


## What information to display in schedules

See following slide

## Set Viewing Preferences (3/4)

Schedule display Ser Viewing Preferences



## Set Generation Preferences (4/4)

## Last Preferred time/hour to schedule classes

Class Scheduler program tries to schedule all classes in the first part of the day.
This setting tells the software how many hours are in that first part. The default
value is 5 which tells the software to only use the sixth and seventh hours of the
day if it can't fit the schedule in the first 5 hours.


Set to Default
Indicate whether you want rooms assigned when schedules are generated by the program

## "Course" Screen

Add a new course


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# "Teacher" Screen 

## Maximum teaching hours per week



[^1]
## Actual size of class

## "Class" Screen

The actual number of students in this class

Short class Class

## Number of groups

Sometimes a class needs to be subdivided into groups. For example some students are name name


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# ${ }^{\prime \prime}$ ? <br> scrolled right 



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## "Class" screen, scrolling right more




# "Class" Screen, 

## Course description showing groups See next screen for explanation-



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## "Class" Screen <br> Course description showing groups - details

Class 8A has 2 English groups, each 2 lectures a week
This is because 8 A has more than 25 students. Group 1 taught by Budoian and group 2 by Stefanuc.

2:L. eng:Budoian A 11 U 1 11Ar, $12 \mathrm{R}, 6 \mathrm{~B}, 9 \mathrm{~A}, 7 \mathrm{~A}, 11 \mathrm{R}, 11 \mathrm{u} 2,12 \mathrm{U} 1,7 \mathrm{~B}, 8 \mathrm{~A},, 12 \mathrm{R}, \mathrm{i}$ 2:L. eng :Stefanuc, $10 \mathrm{R}, 12 \mathrm{U} 2,11 \mathrm{U} 2,7 \mathrm{~A}, 9 \mathrm{~A}, 8 \mathrm{~A}, 11 \mathrm{U} 1,11 \mathrm{ar}, 12 \mathrm{~A}, 12 \mathrm{~S}, 10 \mathrm{U}: 2$ 2:L. franc:Olaru 11U2, 12R, 10R, 10U, 11R, 12U1, 7C, 8B, :2

Class 8B has 1 English and 1 French section, each 2 lectures a week
Group 1 is English taught by Mindru and group 2 is French taught by Olaru.

The course entry has 4 fields separated by a colon $\neq:$


## "Classroom" Screen

## Special purpose

For example Chemistry or Computer Lab (Room 405 is a computer Lab).

## Room can be shared by many classes during the same lecture period

## School room

= class name (eg 8A) if students stay in this room and teachers move from room to room or


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# Working "Schedules" 

Copy (a schedule)
Make an identical schedule from an existing one, giving the new schedule a new name

Display "Schedules" screen
Change screen to display all of the schedules (and related information) in this database.

Display schedule by class


Display schedule by teacher
Display schedule by room


Display compressed schedule by class

Display compressed schedule by teacher
(Also shows number of hours scheduled)
Display schedule for one teacher

Display schedule for one class

Check schedule
Auto generate schedules

## Active Schedule

Indicates which schedule is to be displayed or edited by other scheduling screens.
v to make active

## "Schedules" Screen

## Score

The program produces a score to determine the relative merits of the different schedules it generates. The lower the score the better the schedule. Note: You can manually create a schedule and let the program check its validity. In this case, no score.


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## Recommended Sequence

1. Set preferences
2. Add courses/subjects
3. Add teachers
4. Add classes (e.g. 7A)
5. Add classrooms
6. Add a starting schedule
7. Run the auto schedule generation (using the starting schedule)
8. Display schedule
9. Rename schedule
10.Export the class schedule to Excel for printing

## 1. Add/Edit a course/subject



## 1. Add/Edit a "Course"/subject



# 1. Add/Edit a "Course"/subject Not using the description 

4 teachers for Limbă Romană - Prof A, 10-25 hours per week

- Prof B, 10-20 hours per week
- Prof C, 12-20 hours per week
- Prof D, 15-28 hours per week
- Create ONE subject (L rom), note "description" not used
- Create the 4 L . rom teachers
- Create the classes and the $L$ rom requirement
- Run generate schedule. The program assigns teachers to classes.
- But teacher A is the least experienced and Teacher C is the most experienced. You really want:
- Teacher A to teach forms 5 \& 6
- Teacher B to teach forms 7, 8 \& 9
- Teacher C to teach the 10U, 11U \& 12U forms



## 1. Add/Edit a "Course"/subject Using the description

- Create FOUR subjects (L rom), use the description to distinguish them.
- Create the 4 teachers
- Create the classes and the L rom requirement
- Run generate schedule. The program assigns teachers to classes.

| Serlojecthe |  |  |
| :--- | :--- | :--- |
| Name | Description | Max size |
| L rom | A 5, 6 | 28 |
| L rom | B 7, 8, 9 | 28 |
| L rom | C 10U, 11U, 12U | 28 |
| L rom | D 10R, 11R, 12R | 28 |


| Teachers |  |  |  |
| :--- | :--- | :--- | :--- |
| Name | Min hour | Max hour | Teaches |
| A | 10 | 25 | L rom: A |
| B | 10 | 20 | L rom: B |
| C | 12 | 20 | L rom: C |
| D | 15 | 28 | L rom: D |


| Clasic\| |  |  |  |
| :--- | :--- | :--- | :--- |
| Name | Subject | hrs/week | Teacher |
| 5 | L rom: A | 6 | $A$ |
| 6 | L rom: A | 6 | $A$ |
| 7 | L rom: B | 5 | $B$ |
| 8 | L rom: B | 5 | $B$ |
| 9 | L rom: B | 5 | $B$ |
| $10 R$ | L rom: D | 4 | D |
| $10 U$ | L rom: C | 5 | $C$ |
| $11 R$ | L rom: D | 4 | D |
| $11 U$ | L rom: C | 5 | $C$ |
| $12 R$ | L rom: D | 4 | D |
| $12 U$ | L rom: C | 5 | $C$ |

- Some adjunct directors like to put the classes a teacher teaches in the description field to help them when they add the subject requirements to the classes


## 1. Add/Edit a "Course"/subject



## 2.Add/Edit a "Teacher"

## Add courses <br> 1 Select course from pulldown list <br> 2 Add <br> 3 Course will display Repeat 1, 2

Minimum hours per week shown on add)
Identification (ID)


Chimia :Gheciu N 10R, 10U, 12R, 11R, 12U1, 11U1, 11

Maximum hours per week

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# 3.Add/Edit a 



## 3.Add/Edit a "Class" (28) Specifying when it does NOT meet



| Steps | Example 1 | Example 2 | Example 3 |
| :---: | :---: | :---: | :---: |
| $\mathbf{1}$ | Monday | All week | Friday |
| $\mathbf{2}$ | Hour 1 | Hour 7 | All day |

## 3.Add/Edit a <br> 6 G ———55

1.Select a course (already defined previously)
2.permit class to combine? No (usually)
3.Number of hours per weeks
4.Group number (1,2 or 3 ) or (normally) entire class
5.Add
6. Repeat 1-5 until all courses for this class have been added


# 3.Add/Edit a <br> ${ }^{4}$ C 

(4/8)

## Groups and aggregating them

1 Select a course Franc:Ana 5, 6,7,8A
2 permit class to combine? No 3 Number of hours per weeks 2 4 Group number (1,2 or 3) or entire class 5 Add

1 Select a course Engl:Ion 8A, 9, 12 2 permit class to combine? No 3 Number of hours per weeks 2
4 Group number (1,2 or 3) or entire class 5 Add

6 Select "Add a new aggregate"
7 Select Franc:Ana 5,6,7,8A:1
8 Select Engl:Ion 8A,9,12:2
9 Save the aggregate


After general information has been entered for class 9A
1 Select a course Franc:Maria-5,6,7,9A,9B
2 permit class to combine? Yes
3 Number of hours per weeks 2
4 Group number (1,2 or 3) or entire class
5 Add

1 Select a course Engl:Elena 5,6,7,9A
2 permit class to combine? No
3 Number of hours per weeks 2
4 Group number (1,2 or 3 ) or entire class
5 Add
6 Select "Add a new aggregate"
7 Select Franc:Maria 5,6,7,9A,9B:1
8 Select Engl:Elena 5,6,7,9A:2
9 Save the aggregate
After general information has been entered for class 9B
1 Select a course Franc:Maria 5,6,7,9A,9B
2 permit class to combine? Yes
3 Number of hours per weeks 2
4 Group number (1,2 or 3) or entire class 5 Add

1 Select a course Vada 8,9B, 10, 11, 12
2 permit class to combine? No
3 Number of hours per weeks 2
4 Group number (1,2 or 3 ) or entire class 5 Add

| Name | Short name | Course name | Course description | Number of students | Section number | (same) <br> Hours |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| IX-A | 9A | Franc | Maria 5,6,7,9A,9B | 4 | $1$ | ?? | ?? |
|  |  | Engl | Elena 5,6,7,9A | 20 | 2 |  |  |
| IX-B | 9B<Franc |  | Maria 5,6,7,9A,9B | 5 | 1 |  |  |
|  |  | Engl | $\begin{aligned} & \text { Vlada 8,9B, } \\ & 10,11,12 \end{aligned}$ | 18 | 2 |  |  |
| $\bullet$ - 10, |  |  |  | Update Class, 1D: 23 |  |  |  |
| $\begin{aligned} & \square \text { deletet } \mathbb{\text { S Save }} \\ & \text { Size } \quad 26 \end{aligned}$ |  |  | - ${ }^{8 \text { f Groups in Class }}$ |  | Short Name <br> Grade |  |  |

Add/Delete Course Requirements
Course Selection
$2 \square$ Allow to be combined with and Sessions/Week $\square$ 3 Entire Class 1. Sessions/Week
5 Add
List of Courses
Select Courses you would like to delete
2:Biologie:Timuta 9A,9B,9C,8A, 8B, 8C, 10U, $\Delta$ 2:Chimie:Ceban 9A,9B,9C, 8A, 8B, 8 C 1:Dirigenția:Tulbu 8A
1:Ed civică:Tihon Ina $8 \mathrm{~A}, 8 \mathrm{~B}, 8 \mathrm{C}, 7 \mathrm{~A}, 7 \mathrm{~B}, 7 \mathrm{C}$, 2:Ed fizică:lasinschi ,5C,6A6B, 6C, 7A, 7B, 1:Ed. muzica:Fintinari $5 \mathrm{~A}, 5 \mathrm{~B}, 5 \mathrm{C}, 6 \mathrm{~A}, 6 \mathrm{~B}, \mathrm{C}$ $4 \longrightarrow$

Specify which courses to schedule at same time
Add / Select an aggregate
Add a new aggregate
Edit the selected aggregate
$\square$ Delete
Add course to aggregate Ed. tehn:Oaserele D 5A, 5B,:1 List of courses in aggregate
Select course you would like to remove from aggregate


## Save aggrega

6 Select "Add a new aggregate"
7 Select Franc:Maria 5,6,7,9A,9B:1
8 Select Vlada 8,9B, 10, 11, 12:2

9 Save the aggregate

# 3.A 

## OPTIONAL:

Fill in (copy) the rest of the information for this class from class

## Information can be edited after the copy

# This allows you to copy most of the information from another class 



# 3.Add <br> "Class" (7/8) 

## Select the class you want to copy from the pull down list...



# 3.Add a "Class" 

(8/8)

## And the data will be copied



# 4.Add/Edit a 

## Set in "Preference": For schools where students move but each teacher has his/her own classroom

1 Classroom name
2 Is it a special classroom (e.g. sport salon, chemistry lab, computer lab) or a regular classroom (room number, etc.)
3 Can many classes share this room? (E.g. the sport salon is big enough accommodate up to a few classes at a time)
4 Select teacher from the list of teachers previously defined
5 Add
Repeat steps 4 \& 5 as necessary. Example below: 3 part-time teachers share a classroom


# 4.Add/Edit a 

Set in "Preference": For schools where teachers move but each class of students has its own classroom
1 Classroom name
2 Is it a special classroom (e.g. sport salon, chemistry lab, computer lab) or a regular classroom (room number, etc.)
3 Can many classes share this room? (E.g. the sport salon is big enough accommodate up to a few classes at a time)
4 Select class from the list of classes previously defined
5 Add


## 4.Add/Edit a " <br> (3/3)

If Special is selected, you add courses to room rather than teachers or classes


You and also add special rooms to courses in the Add/ Edit Course screen


Add or Delete Required Rooms
Select Room
Add
Select rooms you would like to delete

This box is used to select a specific room for this course. This is used when the course requires a special room (e.g. chemistry lab or computer lab).

# 5."Schedule" Screen (1/2) 

## Remember this?

To add a new Schedule
Click add


## 5.Add a "Schedule" (22)

1.Type in the schedule name
2.Type in description (Remember this name!!)
if you have addition information that you wish to record
Add a Schedule
3.Click ok

## 6 ． <br> 9

## 6."Auto Generate Schedules" (1 of 3)

1. Choose a seed schedule (name from 5 .Add "Schedule")
2. Change options you wish
3. Push start


## 6."Auto Generate Schedules" (2 of 3) To halt auto generator, push Stop <br> The program will finish its current schedule attempt, then save the best schedules and stop <br> Status: <br> 1 Running, Fatal Error encountered, Generation stopped by user, or Generation Completed 2 Number of attempts so far 3 Number of successes so far 4 Score of the best successful attempt so far


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## 6."Auto Generate Schedules" (3 of 3)

## Auto Generation has stopped, push close to close the screen

| - Generate a Schedule |  |
| :---: | :---: |
| Maximum number of iterations | 100000 |
| Discontinue generation when this number of valid schedule variants reached | 10000 |
| The number of best valid schedule variants to retain | 5 |
| The seed or template schedule from which to generate the schedules | face |
| The latest preferred time/hour to schedule classes | 5 - |
| Select method | Takes shorter time |
| Show course analysis |  |
| Close |  |
| Status | Generation stopped by user |
| Number of iterations completed | 223 |
| Number of good Schedules generated | 40 |
| Best Score so far, the lower the score the better | 45050.0 |

# Display and edit schedules 

- Display schedule by class/teacher/classroom, etc.
- Auto-generated schedules can be changed manually.
- Can manually enter part of a schedule, then autogenerate the rest.
- Program will check consistency as well.
- Can manually enter the entire schedule.
- Program will check for human errors.


## Remember? Working with "Schedules"

## Can edit a schedule from



# 7a.Display schedule by class 



## 2:L. eng:Mindru: 307

 TeacherCourse Group number

Room

To add a lecture to an empty hour, select it

To modify, add or delete a lecture, select the hour

## Edit a lecture from class schedule screen



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## Notes:

- Drop-down lists only offer valid choices
- Choices for class and time are preselected because of entry clicked


## Display schedule by teacher



## Add/delete lecture from teacher schedule screen



## Notes:

- Drop-down lists only offer valid choices
- Choices for teacher and time are preselected because of entry clicked


# Display Schedule by Classroom 

## Days \& hours Classrooms



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11 U 2 1; L. franc; Olaru
Class
Group number

Teacher

To add a lecture to an empty hour, select it

## To modify, add or delete a lecture, select the hour

## Edit a lecture from classroom schedule screen



## Notes:

- Drop-down lists only offer valid choices
- Choices for classroom and time are preselected because of entry clicked


# Display schedule by teacher - summary 

## Days \& hours <br> (Monday1, Monday2, -.: g, Tuesday6, ...", Friday7)

Hours per week


# Add a lecture to a schedule 



## 8.Rename"Schedule"

## Remember this?

## тo rename a schedule <br> Click on its name

To add a new Schedule
Click add


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# 8. Rename a "Schedule" 

1.Type in the Schedule name
2.Type in description
if you have addition information that you wish to record
Remember Add?

Description
3.Click Finish
1.Change the Schedule name

Now Rename

3.Click Finish

Cancel

## Import-Export-Print

Scheduler Program


# Export schedule to Excel 



# Export schedule to Excel (conto) 




# Import schedule into Excel (24) 



## Import schedule into Excel (3/4)

10.Excel shows the data just imported


## Import schedule into Excel <br> You can adjust columns, edit the cells and print schedule just as you would any other Excel file



[^6]
## DB Orar 2016-17




## Copy a Database

## For next year

1. Duplicate this year's school information already in Class Scheduler Program
2. Make changes

## 1. Select "Copy Database"




# Copy a Database <br> 1. Name of old Database 

Copy Database from
To (Change the name to the one you want)
orar 2015-2016 Alexandru-16-06-2016
Open new database after copy /Users/brentbeardsley/Documents/peace_corps/Scheduler_school/orar 2015-2016 Alexandru

## Copy Database

Copy Database from
/Users/brentbeardsley/Documents/peace_corps/Scheduler_school/orar 2015-2016 Alexandru
To (Change the name to the one you want) orar 2015-2016 Alexandru-16-06-2016 -V
Open new database after copy
Copy Schedules from OLD to NEW database
If you select this, you get
4. Select if you want Class Scheduler to copy all of the OLD schedules from last year (not recommended)



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## Rename a Database

## 1. Select "Rename Database"


2. Select the database you want to rename. Example "orar 2015-2016 Alexandru"

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## Rename a database



## Summary

## The Class Scheduler program:

- Accepts requirements from the adjunct director.
- Displays the schedule in various formats: by teacher, by class.
- Automatically generates schedules, many different workable schedules each time.
- Alternatively allows the user to copy his or her manually generated schedule into the program.
- Checks the schedule for conflicts and verifies that all requirements have been met.
- Exports the schedule to Excel which can then print it.
- and more ...


## Additionally:

- It is absolutely free
- It is available in Romanian, Russian, and English


## Thank You

## Questions?


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