

S5-Volunteer Scheduler Instructions

for 5 Shifts and 25 Volunteers

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Office 2007/Excel 2007 Note:

This Excel workbook was created with Excel 2003 and if used in Excel 2007 it needs to be saved as an Excel 97/2003 workbook with macros. Excel 2007 will warn you that some information may be lost, but since this workbook does not use any unique Excel 2007 features, none will be lost.

Navigation Note:

This spreadsheet has several sheets and there is room for only a limited number of sheet tabs at the bottom of the screen. You can display additional sheet tabs by clicking on the directional arrows on the left of the sheet tabs. Another way to display additional tabs is to hold the mouse cursor over the directional arrows and click the right mouse button. You can now select the sheet of interest from the table of sheet names. You can also go from one sheet to the next by holding down the control key and pressing the Page Down or Page Up key on the keyboard.

If you find that you do not need all of the sheets, you can hide the unwanted ones. Do not delete them, for it might corrupt the spreadsheet logic. To hide a sheet, go to the sheet, select **F**ormat, **S**heet, **H**ide. To unhide a sheet, select **F**ormat, **S**heet, **U**nhide, and then select the sheet from the menu.

Excel Note:

This spreadsheet requires the Excel Analysis ToolPak Add-In. To check for this Add-In, go to Tools, Add-Ins on the Excel toolbar and be sure that "Analysis ToolPak" is checked. If this Add-In has not been installed on your computer, and if Excel asks if you would like to install it, you will need to have your MS Excel (or Office) CD available during the installation process.

I. INTRODUCTION

This spreadsheet automatically assigns daily shifts to volunteers based on their availability, qualifications and previous assignments for up to 1 month. The spreadsheet keeps track of 80 different volunteer "pools", one for each of the 10 shifts for 8 days (7 days of the week plus holidays). Volunteers are initially put in the "pools" based on their qualifications and once someone is selected for an assignment, he or she is removed from the "pool" until everyone in the "pool" has been assigned to that shift or task. Then everyone is back in the "pool" and the process starts over.

Each pool will empty at a different rate. For example, if there are 100 volunteers and all are qualified for "shift #1", the Monday/shift #1 "pool" will empty every 100 Mondays so each person can expect a Monday/shift #1 about every 100 weeks. Likewise, if only 25 people are qualified for shift #2, the Monday/shift #2 "pool" will empty every 25 weeks and each person can expect a Monday/shift #2 every 25 weeks. Of course, it is possible (but not likely) that someone may be the last one selected from a "pool" in one cycle and the first one selected from the "pool" on the next cycle.

There is logic that prevents someone from being assigned to more than one shift per day or being selected from any of the "pools" more often than required. For example, if there are 60 qualified (and available) people and 8 shifts per day, the scheduling logic will look back 7 days and exclude anyone with any shift assignment during those 7 days from consideration for another shift. The 7 day look-back period in this example is equal to $60/8$ rounded down to a whole number. Without this look-back exclusion logic, a person may be selected for several different shifts on consecutive days.

The schedules are created on the "Scheduling" sheet and then moved to the "Assignments" sheet where they can be edited if you need to change some of the assignments. After that, they are copied to the "Saved Assignments" sheet. The various output calendars, etc. are created using the assignments on the "Saved Assignments" sheet. In addition, you can pre-schedule someone to a specific call before the automatic scheduling is activated to automatically fill your schedules.

II. VOLUNTEERS SHEET

This sheet has a table where up to 25 people can be listed. Next to the person's name is an area where you can specify if the person is available each day of the week and is qualified (or to be considered) for each of the shifts. The shift ID number is shown on this sheet and corresponds to the shifts that you specified on the Input sheet. There is also a place next to each person where up to ten vacation periods can be specified. There is also a place next to each person where up to ten vacation periods can be specified. These should be used to indicate a person's non-availability for a shift. It can be a vacation, sick leave, travel, jury duty or whatever reason someone will not be available for a shift. The 10 vacation blocks can contain past and future vacation periods and do not need to be filled successively. For example, you can fill the first block (Start and Stop times) and then skip the second block and fill the third block if you want to.

At the top of the sheet are two macro buttons. One is to sort the volunteers' names and the other is to add a new volunteer. When you want to add a new person after you have scheduled one or more months, you should place the person's name in the light green cell and then click the "Add New Volunteer" macro button. This approach to adding a new person assures that the new person is properly placed in the 80 shift assignment "pools". If you simply type a new name in the Volunteer Name column, the new person will not be properly placed in the various "pools" and will be chosen for an abnormally large number of shift assignments until he or she has caught up with everyone else in the "pool".

The "Sort Volunteers" macro sorts the information on this sheet and it also sorts the e-mail addresses on the E-Mail sheet. You should not attempt to manually sort the information on this sheet because some information in hidden columns will not be sorted and the e-mail addresses will not be sorted.

If you want to remove someone from the list of volunteers, you can simply delete the name and sort the list to remove the blank row. Or, you can leave the row blank.

To the right of the "Vacation Table" is a table that shows the number of shifts assigned to each person. This table can be populated with historical shift statistics before you begin using the spreadsheet to create the new shift assignment calendars. Once it has been populated it should be hidden to prevent anyone from changing the assignment history. A macro button has been provided to hide history columns. The "Assignment History" table is updated every time the spreadsheet completes a one month shift assignment cycle and will continue to update for as long as you create schedules.

[Click Here to Unhide Employee Shift Assignment History Table](#)

Two macro buttons are provided to the right of this paragraph. One can be used to delete the shift assignment history and the other can be used to unhide the shift assignment history on the Volunteers sheet. You should delete the shift assignment history that you may have created during your free trial use of the spreadsheet before starting to create real schedules.

[Click Here to Delete All Shift Assignment History](#)

III. INPUT Sheet

On the left side of this sheet is a place to put up to 40 dates that will be included in the "Holidays" shift count. There is plenty of room in case you include days before and after holidays in this count.

On the right side is a table where you can define up to 5 daily shifts or tasks. You can assign any name that you want to each one. Place a number between 1 and 5 in the day columns to the right of the shift/task name to indicate the number of people that should be assigned to the shift on that day. You should not skip lines between specifying shifts for it will confuse the program logic and will provide faulty scheduling results. You will be notified if you skip rows or if you forget to specify that at least one person is required for a shift.

You have the option of having the program automatically schedule a shift, or not. If you want the shift automatically scheduled, check the box to the left of the shift name. If the shift is not automatically scheduled, it will be available for you to manually schedule it on the "Pre-Schedule" sheet. You can use the "unscheduled shift" feature to assign certain types of days off to someone so he or she will not be assigned to another shift on that day. For example, you can easily assign miscellaneous types of days off and other reasons why someone should not receive a random shift assignment on a certain day.

Below the Shift Requirements Table are macro buttons that allow you to save or recall the shift assignment history. Since the program updates the shift history every time a shift assignment is made, the program allows you to "go back" to an earlier date and start over with the shift assignments. This might be the case if someone adds a new block of vacation dates and you need to recreate the schedule while considering the updated person's non-availability.

VI. EXPECTED Sheet

The table on this sheet displays the expected number of assignments each person will receive in a 30 day period based on your staffing needs and employee qualifications. Vacations are not included in the calculation and in general, if someone is on vacation he will receive fewer assignments in 30 days while the other people will receive more. Since the assignments are random, the short-term actual assignment count may not agree with the long-term expected count.

V. PRE-SCHEDULE SHEET

If certain people need to work specific shifts, you can manually assign them on this sheet. These assignments will be used on the "Scheduling" sheet instead of the random name selected by the scheduling logic. Be sure to delete these assignments before you move on to scheduling another month.

You have the option of having the menus provide a full list of qualified people or a single randomly selected person (the person the scheduling logic would assign on the Scheduling sheet). A check box is provided at the top of the sheet for use in switching back and forth between the menu options. This feature is useful if you have rules about shift sequencing or use team scheduling. If, for example, one team member is randomly pre-scheduled, the other team member can be selected from the drop-down menu.

VI. SCHEDULING SHEET

At the top of the sheet is a box where you specify the schedule start date. The start date should be input in m/d/y format (such as 4/1/05 for April 1, 2005). It will be displayed in the dddd, mmm dd, yyyy format (such as Friday, April 1, 2005).

Below the schedule start date is a light green box where you can indicate the number of days between 1 and 31 you want to schedule. If the schedule start date is the first day of the month, and if you leave the number of days blank, the full month will be scheduled. If the schedule start date is not the first day of the month and the number of days is left blank, a full 31 days will be scheduled.

Also at the top of the sheet are 2 boxes "**Use All History**" and "**Use Just Recent History**". If these boxes are unchecked, no assignment history will be used in an attempt to even-out the assignment distribution between your people. All assignments will be completely random. If you check the "Use Just Recent History" box, the scheduling logic will not assign anyone to more than 1 shift every 4 days unless the assignment is necessary to avoid a shift going unfilled. If you check the "Use All History" box, everyone's assignment history will be used to even-out the assignment distribution between your people and the 4 day rule will not be applied.

If you choose to not use any assignment history in selecting people for daily shift assignments, they will be completely random and while there may be some short-term and medium-term clumping of assignments, they will be evenly distributed over the long term. The shift scheduling has built-in logic to remove the short-term and medium-term clumping of assignments for an individual. If you choose to use this feature by selecting "Use All History", the program may assign people returning from a vacation to a large number of shifts in attempt to prevent a medium-term clump and create a short-term clump of assignments for that person. The problem is most noticeable in situations where you have only a few people and a large number of shifts. The short-term clumping is prevented if you select "Use Just Recent History" and unselect (uncheck) the "Use All History".

Each scheduling situation is different which is why we enable you to turn some of the scheduling features on and off to best fit your combination of people and shift coverage needs. You should start out by selecting "Use All History", and if short-term clumping after people return from a vacation, is a problem, you should switch to "Use Just Recent History".

The cells in the scheduling table are color-coded with weekdays colored turquoise, weekends colored yellow and holidays colored aqua.

You may want to save the shift assignment history before you run the scheduling macro in case you decide that you want to recall the history and re-run the schedule at a later date. The "Save shift Assignment History" macro is located on the Input sheet.

When you click the "Create Monthly Schedule" macro button the spreadsheet will cycle through all of the days and randomly assign someone to each shift or task that day. The monthly shift assignments may take a few minutes depending on the speed of your computer and the number of shifts and people you need to schedule.

After you have run the scheduling macro, you should review the results to see if you would like to change any of the assignments. If you would like to change an assignment, simply select the name provided in the drop-down menu. The name that appears in the drop-down menu is the next person that has been selected by the scheduling logic based on availability and previous assignment history. **Be sure to let the spreadsheet recalculate between the manual assignments** to allow the appropriate person to be displayed in the drop-down menu. If the spreadsheet does not recalculate, you may be able to assign the same person to two or more shifts.

If the scheduling logic is unable to fill a shift, the cell with the missing assignment will turn red and a notice to look for red cells will appear at the top of the sheet. You may be able to use the drop-down menu in the red cell to manually fill the assignment. If the menu is blank, you can wait and fill the shift on the "Assignments" sheet after you have moved the names from the "Scheduling" sheet to the "Assignments" sheet.

The manual assignments menu serves up only qualified employees, but does not check for availability so it is possible to assign someone who is on vacation to a shift. If you happen to do this, the **cell will turn pink** to alert you that you need to assign someone else.

After you have finished creating the monthly schedule, you should click the "Save Monthly Schedule" macro button to save the scheduling results to the "Assignments" sheet where you can further edit it if required.

If you find that you want to reschedule a month and you have not saved the results from the "Assignments" sheet to the "Saved Assignments" sheet, you can simply click the **"Create Monthly Schedule" macro** and do it over. If you have already saved the monthly scheduling results but have saved a copy of the shift assignment history, you can restore the shift assignment history and then re-schedule the month. If you have saved the monthly scheduling results and do not have a copy of the shift assignments history for the period immediately preceding the month, you should not reschedule the month because it will lead to a faulty assignments history. That is because the shifts on both (or all) of the times you schedule and save that month will be saved while actual shift assignments will be only the last ones you generated.

You should schedule the months in chronological order in order for the "look-back" feature to work properly when avoiding assignments any more frequently than required.

VII. ASSIGNMENTS SHEET

The Assignments sheet contains the last-saved scheduling results and looks much like the Scheduling sheet, but is more printer-friendly. You may print the table on this sheet if you would like the schedule displayed in this fashion.

The statistics displayed on the "Month Shift Count" sheet are a summary of the scheduling results found on this sheet. **If you find that you would like to change any of the assignments**, you can select a new name from the drop-down menus in the various cells or you can copy a name from one cell to another cell. Any schedule changes that you make on this sheet will be reflected in the lifetime assignment history that is updated when you save this sheet to the "Saved Assignments" sheet.

The manual assignments menu serves up only qualified employees, but does not check for availability so it is possible to assign someone who is on vacation to a shift. If you happen to do this, the **cell will turn pink** to alert you that you need to assign someone else.

VIII. SAVED ASSIGNMENTS SHEET

The scheduling results saved to this sheet are used to create the Calendar and the outputs on the "Shift Schedules" sheet and on the "vCalendar" sheet.

If you want to delete all assignments saved on this sheet, you can click on the macro button at the top of the sheet. You will want to do this when you first start using the spreadsheet in order to erase the example schedule. Normally, the data on this sheet should be preserved because it is used to create the various schedule outputs and to preserve continuity from one month to the next when creating daily assignments.

If you find that you need to change a few shift assignments, you can do that by selecting a name from the drop-down menu at the top of the column and then copy and paste/special/values the name to replace the previously scheduled person. The menus at the top of the columns show only qualified people for the shift/task in that column and should not be copied to another column. The assignments thus-made will not appear on the shift history that is saved on the "Volunteers" sheet. You should therefore correct the shift history by changing the shift assignment counts in the shift history table. The table can be unhidden by use of the macro on the "Instructions" sheet.

The manual assignments menu serves up only qualified employees, but does not check for availability so it is possible to assign someone who is on vacation to a shift. You need to check personnel availability before assigning them to a shift on this sheet.

IX. CALENDAR SHEET

The Calendar sheet displays all of the monthly results in a calendar-like format that can display up to 5 people per shift each day. Click on the macro button at the top of the sheet to have the calendar display the correct number of rows and columns.

When you click the macro button at the top of this sheet, the ECalendar sheet will be sent via e-mail to your employees. Insert your employees e-mail address next to their name on the E-Mail sheet if you want them to be eligible to receive the calendar. You may also insert other recipient e-mail addresses in the table if there is room. Be sure to select employees to receive the calendar by clicking on the individual check boxes, or you can choose the "Send to Everyone" option.

Your e-mail client will probably alert you that a program is attempting to send a message and you will need to click "Yes" in order to send each message. This is okay for a few messages, but if you are sending schedules to all of your people, this can become bothersome and time-consuming. You can change the security settings for your e-mail client to allow a program to send e-mail messages without asking your permission. The down-side of changing the security settings is that some not-so-friendly program can flood the world with spam from your computer. You need to decide if the reward is worth the risk. Instructions on how to adjust the Windows security settings for Outlook Express, Outlook and Windows Mail can be found at:

<http://www.rondebruin.nl/mail/prevent.htm>

The ECalendar sheet contains the scheduling information on the Calendar sheet and will be sent to your recipients as a single sheet Excel workbook. If any of your recipients do not have the Excel software, they can download a free Excel viewer from Microsoft at:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=c8378bf4-996c-4569-b547-75edbd03aaf0&displaylang=EN>

The Calendar 2 sheet looks like a conventional wall calendar and displays just one person per shift each day and may be preferred in situations where you need just one person per day.

X. SHIFT SCHEDULES SHEET

The scheduling results that are stored on the "Saved Assignments" sheet are presented in the table on this sheet. Each row of the table shows a person's name, the day of the week, the date and the shift assignment. The 1550 rows of information can be filtered to display only the entries you want to see. Each column has a small down arrow that you can click and select the information you would like to be displayed. The filters hide the unwanted rows so just the requested records are displayed. For example if you want to see all of the shift assignments for a single volunteer, you can select the person's name from the list in the volunteer column drop down menu and only that person's shifts will be displayed. You can filter the data on more than 1 column by selecting an item from a second column. For example, you can filter the one person's shifts to display only those on a Sunday, or only a specified shift type.

After you are through viewing the filtered data, you should select "all" from the drop-down menu to display all of the data in that column. The little down arrow will be blue if a filter has been selected and black if a filter has not been selected for the column.

The print range has been set to print the displayed list on as many sheets of paper as necessary. The entire list of 1,550 rows will require about 32 sheets of paper while a schedule for a single volunteer will probably fit on one sheet.

XI. SHIFT COUNT SHEETS

The table on the "Month Shift Count" sheet shows how many times each person has been assigned to a shift or task during the current scheduling period reported on the "Assignments" sheet. The table on the "Lifetime Shift Count" sheet shows how many times each person has been assigned to a shift or task since the last time you reset the count using the macro on the Instructions Sheet (not including the unsaved shifts on the "Scheduling" or the "Assignments" sheet).

XII. VCALENDAR SHEET

The scheduling information can be saved as a file using the vCalendar data format that can be imported into MS Outlook or other software that can read vCalendar files. Click the "Create the vCalendar Now" macro button to create the file. The macro will save scheduling spreadsheet under its current name and then save the vCalendar file in your scheduling directory with the name shown in the cell below the macro button. After the vCalendar file is created, the spreadsheet will close. The vCalendar file includes all shift assignments for each month that you have saved on the "Saved Assignments" sheet. The hidden vCal Out sheet is used in the creation of the vCalendar files and should not be deleted.

If there is already a file in your scheduling directory with the same name as the vCalendar file being created by the macro, Excel will ask if you want to replace the old file with the new one. If you select "No" the macro will display an error message. Simply select "End" and the macro will stop. Also, after the vCalendar file is saved, Excel will ask you if you want to save the changes in the ????????.vcs file. You can select either "Yes" or "No" since the old file is the same as the new file.

XIII. IMPORTING THE .vcs FILE INTO MS OUTLOOK

In MS Outlook select File, Import and Export. Then choose "Import an iCalendar or vCalendar file (.vcs) and browse to your scheduling directory or other folder where you have stored the vCalendar file. Select file type = vCalendar and all of the .vcs files will be displayed. Click on the one you want to import and then click "Ok". The procedure to import a file into a PDA or other device is probably similar, but you may need to check your operating manual.

Warning: If you import a file into Outlook more than once, the Outlook Calendar will display the shifts more than once each day. So, if you import a file with January shifts and then later import a file with January and February shifts, the Outlook Calendar will display each January shift twice.

If you receive an error when importing the .vcs file into MS outlook, it is probably due to miscellaneous punctuation marks in the "SUMMARY" and/or "LOCATION" lines in the .vcs file. When Excel saves a worksheet as a text file, it puts quotation marks (" ") around lines containing certain punctuation marks such as a comma (,). MS Outlook can't import the lines with the quotes and will give you an error message. You can open the .vcs file with Notepad or other text editor and search for the lines containing quotation marks to locate the miscellaneous punctuation marks causing the problem.

It is okay to enter names in the last name first, first name last format on the "Volunteers" sheet because the program will remove the comma and show the names in the first name first format in the various outputs.

XIV. PASSWORD PROTECTED SHEETS

All of the sheets have protected cells (cells that you may not use to input data). All of the unprotected cells for data input are light green in color. Each worksheet is protected to prevent you from overwriting the information in the protected cells. We advise that you leave the worksheets protected unless you want to make changes on a worksheet that can not be made if the sheet is protected. For example, if you want to hide or unhide rows and columns or change cell colors you will need to unprotect the sheet (Tools, Protection, Unprotect Sheet). Be sure that you do not change the contents of the protected (non-light green) cells. You can, however, change the color, formatting, etc of the protected cells. After you have made the changes, be sure to protect the sheet (Tools, Protection, Protect Sheet). No password has been assigned to the sheet protection. You may wish to add a password (part of the Tools, Protection, Protect Sheet series).

XV. CAUTIONS

Do not add or delete rows or columns on any of the worksheets, for it may corrupt the spreadsheet logic. Rows and columns may be hidden if you do not need them or do not want to see them.

If cells with input data are hidden (the light green cells), any data contained in those cells will still be used by the spreadsheet.

XVI. TECHNICAL SUPPORT

Technical Support is available by phone, fax or e-mail during normal business hours (Mountain Time).

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