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A USER GUIDE FOR RESEARCHERS:
PROJECT SCHEDULING TEMPLATES

Research Project Management
https://research-tools.mun.ca/rpm

INTRODUCTION

As part of the Project Management services offered at Memorial University of Newfoundland, Project Management resource packages, consisting of tools and templates, have been designed to aid researchers in the management of research project activities.

This user guide focuses on the Project Scheduling Templates. The scheduling templates will aid researchers in identifying, documenting, and monitoring the timelines associated with project work and milestones.

The scheduling templates are of value when planning a project schedule and also when monitoring and controlling its progress.

Note: Project management definitions outlined within this guide are reference from the Project Management Institutes, Project Management Body of Knowledge, Fifth edition.

INTRODUCTION

The project scheduling template package is a Microsoft Office Excel file which consists of 6 tabs:

1. Instructions
2. Sequencing Template
3. Gantt Chart Template
4. Milestone Template
5. Glossary of Terms
6. Settings
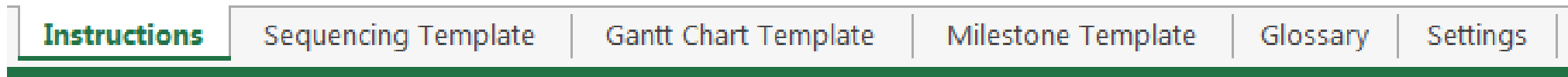
| Instructions | Sequencing Template | Gantt Chart Template | Milestone Template | Glossary | Settings |

INSTRUCTIONS TAB

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| Instructions | Sequencing Template | Gantt Chart Template | Milestone Template | Glossary | Settings |

- Brief instructions are provided in this tab to provide the user a high level overview of the templates.

- For more detailed guidance on the use of these templates, users are encouraged to review the User Guide.

SEQUENCING TEMPLATE
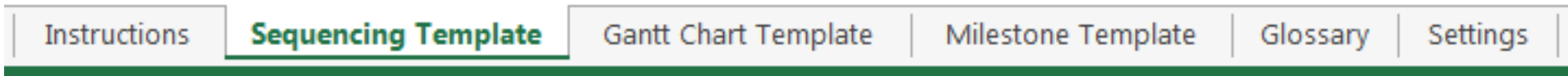
- The purpose of the Project Sequencing Template is to plan the project timeline in regards to the anticipated start and end dates of the project objectives, activities, and tasks.

SEQUENCING TEMPLATE

- The Sequencing Template has an project identifier field which consists of 4 rows.
- Once these identifiers are entered they will automatically populate within the 'Gantt Chart Template' and the 'Milestones Template'

Research Project Name:	
Principal Investigator:	
Project Manager (If Applicable):	
Project Start Date:	
Project End Date:	

SEQUENCING TEMPLATE

- The Sequencing Template consists of the following fields:

  - Objective/Activity/Task #
  - Objective/Activity/Task Title
  - Planned Start Date
  - Planned Completion Date
  - Constraints/Dependencies

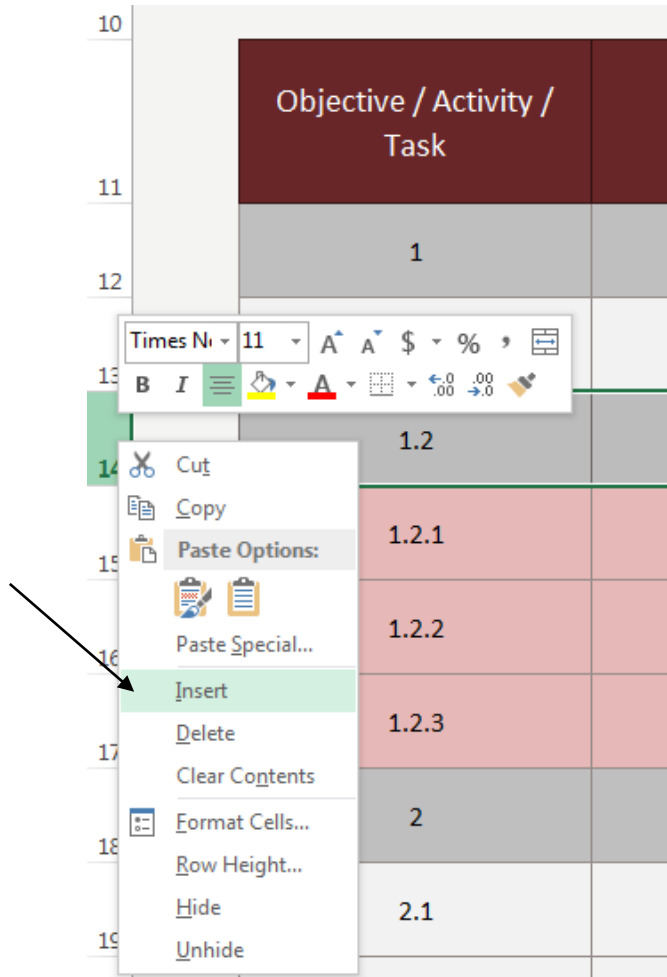| Objective/Activity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned Completion Date	Constraints/Dependencies

SEQUENCING TEMPLATE

Objective/Activity/Task

As used previously in the 'Scope Template', numerical and colour coding is used in sequencing template to identify objectives, activities, and tasks. For example:

1 - Represents an **identified project objective** (displayed in grey)
1.1 - Represents an **activity** associated with that objective (displayed in white)
1.1.1 - Represents a **task** associated with that activity (displayed in red)

- Breaking down the project scope into smaller work packages aids in the scheduling, budgeting, and monitoring of project work.
- Please note that objectives may have many associated project activities, and an activity may have many associated tasks.
- If the 'Scope Template' is completed, Objective/Activity/Task list can be directly copied and pasted into the 'Sequencing Template'.

Objective/Activity/Task #
1
1.1
1.1.1
1.1.2
1.1.3
1.2
1.2.1
1.2.2
1.3
1.3.1
1.3.2
2
2.1
2.2
2.3

Inserting an objective/activity/task

- To insert a new objective/activity/task simply right click on the row that will follow the new objective/activity/task, and select insert.

- A new row will now appear above this row.

- Within the blank row, follow the numerical coding instruction (described earlier) to identify whether it is an objective, activity, or task.

SEQUENCING TEMPLATE

Objective/Activity/Task Title
- The short title of the objective/activity/task.

Planned Start Date
- The date the planned objective/activity/task is expected to begin.
- Dates are required to be entered using the format DD-MMM-YYYY, i.e. 10-Mar-2017.

Planned Completion Date
- The date the planned objective/activity/task is expected to be completed.
- Dates are required to be entered using the format DD-MMM-YYYY, i.e. 10-Mar-2017.

Objective/Activity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned Completion Date
1	Establish Research Lab	01-Mar-16	31-Aug-16
1.1	Lab Space	01-Mar-16	30-Jul-16
1.1.1	Prepare lab specifications requirements	01-Mar-16	31-Mar-16
1.1.2	Release public tender and hire contractor	01-Apr-16	15-May-16
1.1.3	Conduct Lab Renovations	01-Jun-16	30-Jul-16

SEQUENCING TEMPLATE

Constraints/Dependencies

- To aid in sequencing of objectives/activities/tasks researchers should identify all the constraints and dependencies that will impact the flow of each work item. Based on known work item constraints/dependencies, work item planned start and end dates may have to be adjusted to produce an accurate and realistic project schedule.

- A work item *constraint* is any restriction that defines a limitations. For example, certain activities within a research project may be time or season dependent. Thus some project activities may constrained based on the time of year.

- *Dependencies* are the relationships between aspects of the project work, or between aspects of the project work and external project factors. For example, some project activities may be dependent of the receipt of ethics, animal care, or regulatory compliance approval. Also, some project activities may be dependent on the completion of preceding project activities, or the availability of certain equipment of lab personnel.

Objective/Activity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned Completion Date	Constraints/Dependencies
1	Establish Research Lab	01-Mar-16	31-Aug-16	
1.1	Lab Space	01-Mar-16	30-Jul-16	
1.1.1	Prepare lab specifications requirements	01-Mar-16	31-Mar-16	
1.1.2	Release public tender and hire contractor	01-Apr-16	15-May-16	Lab Secifications required to be completed
1.1.3	Conduct Lab Renovations	01-Jun-16	30-Jul-16	Contractor required to be in place

Estimating Objective/Activity/Task Duration

- A key determinant in producing a realistic project schedule is to have accurate estimates on work item durations. Thus, your identified objective/activity/task planned start and completion dates must reflect an accurate estimate of the anticipated duration of that work item.

- Realistic estimates can be gathered based on previous research experience. However if there is a high degree of uncertainty regarding the duration of a work item, an estimation formula can be used to help.

- Researchers should identify what is the:
    - Optimistic duration of the work item – best case scenario
    - Most likely duration
    - Pessimistic duration – worst case scenario

Once these are identified the following formula can be used to identify durations:

> **Work Item Duration = (Optimistic + (4 x Most likely) + Pessimistic)/6.**

SEQUENCING TEMPLATE

Overall, when the researcher has considered all the constraints and dependencies within the project work, and carefully considered realistic work item durations, the objectives/activities/tasks can be sequenced by identifying the planned start and completion dates. In this way a planned order of work can be established. The 'Sequencing Template' is designed to aid researchers with these activities.

Next, the information identified in the 'Sequencing Template' is used to generate a Gantt chart within the 'Gantt Chart Template'.

GANTT CHART TEMPLATE

| Instructions | Sequencing Template | **Gantt Chart Template** | Milestone Template | Glossary | Settings |

- A Gantt Chart is a visual representation of your work items against a timeline. It provides researchers the ability to easily communicate a project schedule, and aids in the monitoring of project progress.

- Upon completion of the 'Sequencing template' a Gantt chart will automatically populate within the 'Gantt Chart Template' Tab.

GANTT CHART TEMPLATE

A Gantt Chart template contains the following fields:

- **Objective/Activity/Task #** - Automatically populated based on completion of the 'Sequencing Template'

- **Objective/Activity/Task Title** -   Automatically populated based on completion of the 'Sequencing Template'

- **Planned Start Date** - Automatically populated based on completion of the 'Sequencing Template'

- **Planned End Date** - Automatically populated based on completion of the 'Sequencing Template'

- **Actual End Date** – Researcher to manually insert the date of when a work item is complete.

- **Work Day Planned** – This automatically displays the duration of a work item (in days) based on the planned start and end dates identified.

- **Work Days Elapsed** – This automatically displays the amount of time (in days) that have elapsed in current work items.

- **Work Days Overrun** – This automatically displays the amount of time (in days) that a work item has gone over its plan end date.

- **Percent Complete** – Research to manually insert the percentage of the work item that is completed.

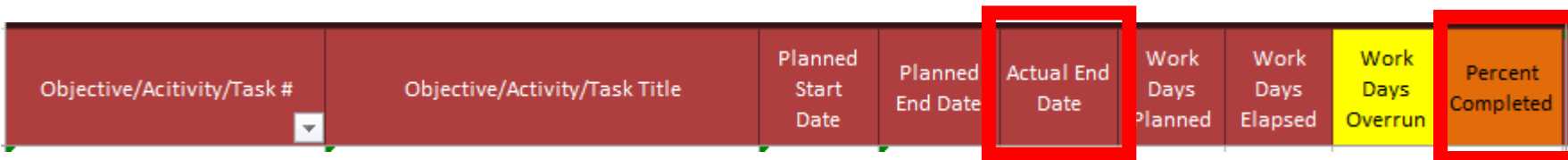| Objective/Acitivity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned End Date	Actual End Date	Work Days Planned	Work Days Elapsed	Work Days Overrun	Percent Completed

It is important to note that population of the 'Gantt Chart Template' is based on the completion on the 'Sequencing Template'. The only fields that are assessable to update are the 'Actual End Date' and the 'Percent Completed'. These two fields are to be updated during the course of the research project to help in the monitoring of the project schedule. If changes are required to be made to the project schedule, updates are to be made within the 'Sequencing Template'.

Actual End Date:
- This is the date that the identified work item was completed.
- Dates are required to be entered using the format DD-MMM-YYYY, i.e. 10-Mar-2017.

Percent Complete:
- This field provides an opportunity for researchers to identify what percentage of the work item has been completed. Percentage complete is to be inserted in increments of 25 (i.e. 0%, 25%, 50%, 75%, 100%).

Objective/Acitivity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned End Date	Actual End Date	Work Days Planned	Work Days Elapsed	Work Days Overrun	Percent Completed

GANTT CHART TEMPLATE

- Upon completion of the 'Sequencing Template' work items will be displayed as a green horizontal rectangle, with its length and position corresponding to the appropriate time frame.

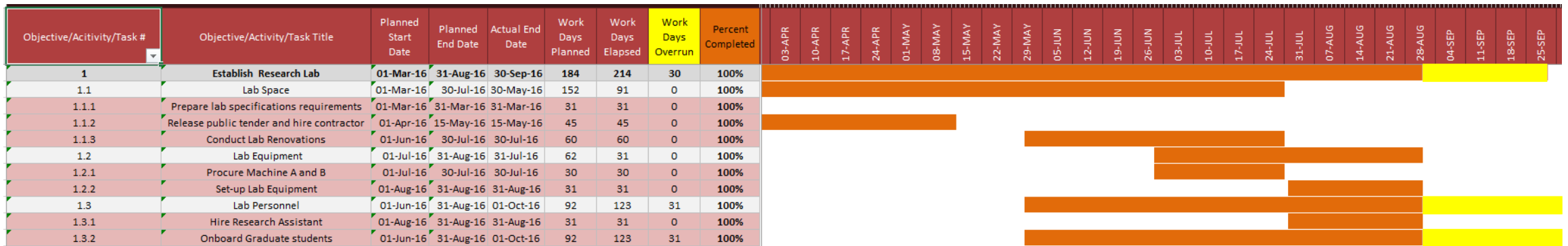| Objective/Acitivity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned End Date	Actual End Date	Work Days Planned	Work Days Elapsed	Work Days Overrun	Percent Completed
4	Conduct Experiment 2	01-Jul-17	31-Dec-17		184	0	0	0%
4.1	Conduct Experiment 2 related research	01-Jul-17	31-Oct-17		123	0	0	0%
4.2	Review Results	01-Oct-17	30-Nov-17		61	0	0	0%
4.3	Disseminate Results	01-Nov-17	31-Dec-17		61	0	0	0%

GANTT CHART TEMPLATE

- For work items that are currently in progress, a 'Red' line represents the current calendar date.

- Percent Complete, should be updated as required (25%, 50%, 75%, 100%) to reflect work item progress.

Objective/Acitivity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned End Date	Actual End Date	Work Days Planned	Work Days Elapsed	Work Days Overrun	Percent Completed
3	**Conduct Experiment 1**	01-Jan-17	30-Jun-17		181	66	0	25%
3.1	Conduct Experiment 1 related research	01-Jan-17	30-Apr-17		120	66	0	50%
3.2	Review Results	01-Mar-17	30-May-17		91	7	0	0%
3.3	Disseminate Results	01-May-17	30-Jun-17		61	0	0	0%

GANTT CHART TEMPLATE

- When a work item goes past the planned completion date, overruns will be displayed in 'Yellow' on the Gantt chart.

- Upon completion of a work item, the 'Actual End Date' is inserted and the 'Percent Complete' is updated to 100%
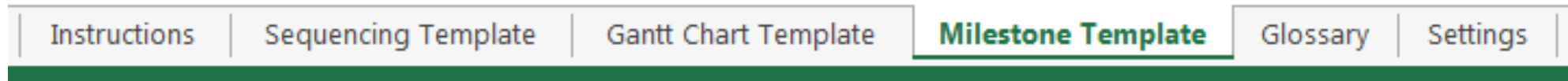
Objective/Acitivity/Task #	Objective/Activity/Task Title	Planned Start Date	Planned End Date	Actual End Date	Work Days Planned	Work Days Elapsed	Work Days Overrun	Percent Completed
1	Establish Research Lab	01-Mar-16	31-Aug-16	30-Sep-16	184	214	30	100%
1.1	Lab Space	01-Mar-16	30-Jul-16	30-May-16	152	91	0	100%
1.1.1	Prepare lab specifications requirements	01-Mar-16	31-Mar-16	31-Mar-16	31	31	0	100%
1.1.2	Release public tender and hire contractor	01-Apr-16	15-May-16	15-May-16	45	45	0	100%
1.1.3	Conduct Lab Renovations	01-Jun-16	30-Jul-16	30-Jul-16	60	60	0	100%
1.2	Lab Equipment	01-Jul-16	31-Aug-16	31-Jul-16	62	31	0	100%
1.2.1	Procure Machine A and B	01-Jul-16	30-Jul-16	30-Jul-16	30	30	0	100%
1.2.2	Set-up Lab Equipment	01-Aug-16	31-Aug-16	31-Aug-16	31	31	0	100%
1.3	Lab Personnel	01-Jun-16	31-Aug-16	01-Oct-16	92	123	31	100%
1.3.1	Hire Research Assistant	01-Aug-16	31-Aug-16	31-Aug-16	31	31	0	100%
1.3.2	Onboard Graduate students	01-Jun-16	31-Aug-16	01-Oct-16	92	123	31	100%

GANTT CHART TEMPLATE

- Thus, the 'Gantt Chart Template' functions to present the project schedule in a visual format that can be used to communicate a planned project schedule, as well as to monitor work item progress during the course of a project lifespan.

MILSTONE TEMPLATE

Instructions	Sequencing Template	Gantt Chart Template	**Milestone Template**	Glossary	Settings

- Milestones are reference points in the project's progress that represent accomplishment. For example, approval from an ethics committee or regulatory body, accomplishment of a deliverable/objective, or indicator for a major reporting requirement.

- The 'Milestone Template' provides a format for the researcher to document anticipated project milestones. The milestones for a project should reflect a clear list of events that incrementally build to the project completion. Having a well-documented milestone list will aid in the communication of the project schedule and in the monitoring of project progress once started.

The Milestone Template has the following fields:

- **Milestone #** - This is the numerical coding of the milestone (i.e. 1,2,3...). Traditionally milestones are numbered based on the order of their planned completion dates, i.e. the first milestone that is planned to be completed is '1'.

- **Milestone Description** – A brief overview of the milestone, i.e. approval from an ethics committee or regulatory body, accomplishment of a deliverable/objective, or indicator or a major reporting requirement.

- **Planned Completion Date** – The date that the milestone is anticipated to be completed.

Milestone #	Milestone Description	Planned Completion Date	Indicator of Achievement/Additional Comments

MILSTONE TEMPLATE

- **Indicator of Achievement/Additional Comments** – Often times completion of a milestone is based on the accomplishment of a task or series of tasks. Also, there may be specifications or requirements related to the milestone, especially if the milestone is related to a project deliverable. This field provides the researcher the opportunity to clearly outline what indicates that a milestone has been completed.

Milestone #	Milestone Description	Planned Completion Date	Indicator of Achievement/Additional Comments
1	Lab Renovations Complete	30-Jul-16	Contractor work/deliverable approved
2	Lab Functional	31-Aug-16	Equipment and personnel in place
3	Journal Publication #1	30-Jun-17	Peered reviewed
4	Journal Publication #2	31-Dec-17	Peered reviewed
5	Final Report Complete	28-Feb-18	Submitted to funding sponsor

GLOSSARY TAB
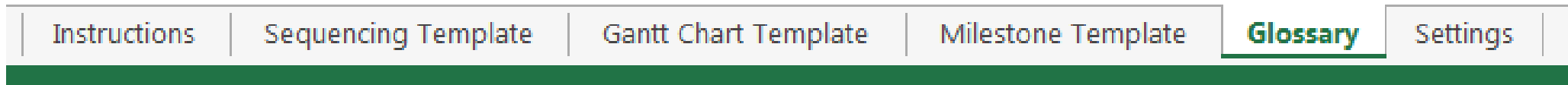
- This tab provides the researcher definitions to terms within the Project Scheduling Templates.

SETTINGS TAB

| Instructions | Sequencing Template | Gantt Chart Template | Milestone Template | Glossary | **Settings** |

- This tab stores settings that are required for functionalities of the Gantt Chart. *Researchers do not need to use this tab.*