

# PMM Template Slides: Title of submodule

Author

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## Credit statement and licence

Possible roles using the CRediT contribution system:

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*Speaker Notes* These are the **speaker notes**. You will a script for the presenter for every slide. In presentation mode, your audience will not be able to see these speaker notes, they are only visible to the presenter.

*Instructor Notes* There are also **instructor notes**. For some slides, there will be pedagogical tips, suggestions for activities and troubleshooting tips for issues your audience might run into. You can find these notes underneath the speaker notes.

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## Prerequisites

! Important

Before completing this submodule, please carefully read about the necessary prerequisites.

Prerequisite	Description	Link/Where to find it
Topic Name	Basic intro to X	Module + Submodule
Software Name	Configuring the environment	<a href="#">Download Link</a>

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### **Questions from previous submodule**

- **Aim:** This first slide is dedicated to clarifying questions from the previous submodule and/or to discuss assignments.
- Additional slides may need to be added depending on the nature of the homework assignments.
- Critical for the learning process to ensure that students are on the same page and have been able to achieve the learning goals of the previous workshop.
- Not applicable if this set of slides corresponds to the first submodule of a new module.

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### **Before we start: Survey time!**

- **Aim:** The pre-submodule survey serves to examine students' prior knowledge about the submodule's topic.
- Use free survey software such as or other survey software (particify, formR) to establish the following questions (shown on separate slides).

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**What is your level of familiarity with [Topic] (e.g., basic concepts, terminology, or tools)?**

- a. I have never heard of it before.
  - b. I have heard of it but have never worked with it.
  - c. I have basic understanding and experience with it.
  - d. I am very familiar and have worked with it extensively.
- 

**Which of the following concepts or skills do you feel most confident about in relation to [Topic]? (Select all that apply)**

- a. Concept 1
  - b. Concept 2
  - c. Concept 3
  - d. Concept 4
  - e. I am not sure about any of these concepts.
- 

**On a scale of 1 to 5, how comfortable are you with using [specific tool/technology] related to [Topic]? (1 = Not comfortable at all, 5 = Very comfortable)**

- a. 1
  - b. 2
  - c. 3
  - d. 4
  - e. 5
- 

### **Discussion of survey results**

- **Aim”:** Briefly examine the answers given to each question interactively with the group.
- Use visuals from the survey to highlight specific answers.

*Speaker Notes* Make it clear to the group that there will be a similar post-submodule survey to examine understanding and learning progress.

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### **Where are we at?**

- **Aim:** Place the topic of the current submodule within a broader context.
- Remind students what you are working towards and what the bigger picture is.

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## Learning goals

- **Aim:** Formulate specific, action-oriented goals learning goals which are measurable and observable in line with Bloom's taxonomy (Anderson et al., 2001; Bloom et al., 1956)
- Place an emphasis on the **verbs** of the learning goals and choose verbs that align with the skills you want to develop or assess.
- Examples:
  - Students will **describe** the process of photosynthesis or
  - Students will **construct** a diagram illustrating the process of photosynthesis

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## Covered in in this session

- **Aim:** This slides serves as an overview of the topics that are discussed, presented as bullet point:
  - Topic 1
  - Topic 2
  - Topic 3

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## Key terms and definitions

- **Aim:** Introduce key terms and definitions that students will come across throughout the session.
- **Key Term 1:** Definition
- **Key Term 2:** Definition
- **Key Term 3:** Definition

*Speaker notes* Base yourself on conceptual change theory and examine existing concepts in relation to some key terms. Re-examine formation of new concepts at the end of the lesson.

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## Introduction of submodule topic

- **Aim:** Core theoretical introduction of submodule topic.
- Pair theoretical aspects with practical exercises and group discussions according to the Think-Pair-Share style and according to Cognitive Load Theory (Sweller, 1980).
- Use multiple slides for this part.

*Speaker notes* For a 90-minute lesson, the instructor should try to “lecture” for only 20 minutes, students should work in groups/pairs/on their own for at least 55 minutes of the lesson (+ a 15 minute break).

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## Submodule content slide

- **Aim:** Present relevant content
- Highlight particularly important aspects with Quarto call-out boxes, for example:

### ! Important with Title

This is an example of a callout box to highlight particularly important information.

### 💡 Tip with Title

This is an example of a callout box to give important tips.

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## Practical exercise 1

- **Aim:** Design more practical exercises for students to apply the new skills in practise.
- Depending on the topic, the exercises should be in accordance with the learning objective(s).
- Add a description of the task, as well as a checklist as an overview of that your students need to be doing.

Step 1

Step 2

Step 3

*Speaker Notes* Script for the presentation here.

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### **Pre-break survey**

- **Aim:** This pre-break survey serves to examine students' current understanding of key concepts of the submodule
- Use free survey software such as or other survey software (particify, formR) to establish the following questions (shown on separate slides):

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### **Which species is the largest type of penguin?**

- a. Chinstrap Penguin
  - b. Emperor Penguin
  - c. Adélie Penguin
  - d. King Penguin
- 

### **What is the key biological feature that helps penguins swim efficiently?**

- a. Hollow bones for buoyancy
  - b. Webbed feet for paddling
  - c. Waterproof feathers and flipper-like wings
  - d. Gills to breathe underwater
- 

### **Break! 15 minutes**

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## **Post-break survey discussion**

- **Aim:** To clarify concepts and aspects that are not yet understood
- Highlight specific answers given during the survey

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## **Practical exercise 2**

- **Aim:** Design more practical exercises for students to apply the new skills in practise.
- Depending on the topic, the exercises should be in accordance with the learning objective(s).
- Add a description of the task, as well as a checklist as an overview of what your students need to be doing.

- Step 1  
 Step 2  
 Step 3

*Speaker notes* For students who advance faster: Prepare extra exercises.

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## **Relevance and implications**

- **Aim:** To work out the relevance of the topic to your students.
- In an interactive setting, discuss how the new skills could be applied in practise with specific examples.
- Examine downfalls and practical obstacles.

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## **Take-home message**

**Aim:** End lesson on clear take-home message that are interactively compiled by students.

### Tip with Title

Add one practical tips or take-home message.

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## Assignment

- **Aim:** Explain the homework assignment and the rationale behind the homework.
- Examine whether/how it will be assessed
- Mention scoring rubrics, if applicable
- Design a peer-review system for assignments to place students in role of reviewer and author

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## To conclude: Survey time!

- **Aim:** This post-submodule survey serves to examine students' current knowledge about the submodule's topic.
- Use free survey software such as or other survey software (particify, formR) to establish the following questions (shown on separate slides):

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**What is your level of familiarity with [Topic] (e.g., basic concepts, terminology, or tools)?**

- a. I have never heard of it before.
  - b. I have heard of it but have never worked with it.
  - c. I have basic understanding and experience with it.
  - d. I am very familiar and have worked with it extensively.
-

**Which of the following concepts or skills do you feel most confident about in relation to [Topic]? (Select all that apply)**

- a. Concept 1
  - b. Concept 2
  - c. Concept 3
  - d. Concept 4
  - e. I am not sure about any of these concepts.
- 

**On a scale of 1 to 5, how comfortable are you with using [specific tool/technology] related to [Topic]? (1 = Not comfortable at all, 5 = Very comfortable)**

- a. 1
  - b. 2
  - c. 3
  - d. 4
  - e. 5
- 

## **Discussion of survey results**

- **Aim:** Briefly examine the answers given to each question interactively with the group.
- Compare and highlight specific differences in answers between pre- and post-survey answers

*Speaker Notes* Script for the presentation here.

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## **References**

- Provide literature you refer to throughout this lesson.

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## **Thanks!**

See you next class :)

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### **Pedagogical add-on tools for instructors**

- This section is dedicated to ideas on how to incorporate pedagogical tools into teaching for this specific submodule topic. This could mean:
    - Information about the scientific evidence on the theory of the pedagogical add-on tool and the evidence for its efficacy.
    - Discussion/reflection on how tools can be incorporated into the teaching for this particular content.
    - Extra exercises for faster students.
- 

### **Additional literature for instructors**

- References for content
  - References for pedagogical add-on tools
  - Other resources (videos etc.)
- 

### **Formatting elements for instructors**

- **Aim:** This section contains templates for different formatting elements, which can be modified and adapted for the instructor's individual purposes.
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## Text with example links

- [Quarto Documentation](#)
  - [Reveal.js Documentation](#)
  - [Markdown Guide](#)
  - [GitHub](#)
- 

## Basic text formatting

- **Bold:** `**bold**` → bold
  - *Italic:* `*italic*` → italic
  - Strikethrough: `~~text~~` → text
  - **Inline code:** ``code`` → code
  - **Blockquote:** > `Quote` →  
“This is a quote”
- 

## Figure with caption

- Centered image and caption below in italics

This is a Penguin.

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## Figure with bullet points

- First bullet point
  - Second bullet point
  - Third bullet point
- 

## Side-by-side figures

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## **Stacked figures with text**

- First bullet point
  - Second bullet point
  - Third bullet point
- 

## **Two-column text slide**

### **Column 1**

  Lorem ipsum dolor sit amet, consectetur adipiscing elit.  
  Vivamus lacinia odio vitae vestibulum vestibulum.  
  Cras venenatis euismod malesuada.

### **Column 2**

  Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.  
  Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris.

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## **Three-column text slide**

### **Column 1**

  Lorem ipsum dolor sit amet, consectetur adipiscing elit.  
  Vivamus lacinia odio vitae vestibulum vestibulum.

### **Column 2**

  Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.  
  Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris.

### **Column 3**

  Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

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## **Simple table**

Column 1	Column 2	Column 3
Row 1 Cell	Row 1 Cell	Row 1 Cell
Row 2 Cell	Row 2 Cell	Row 2 Cell
Row 3 Cell	Row 3 Cell	Row 3 Cell
Row 4 Cell	Row 4 Cell	Row 4 Cell

---

## Complex table

Column 1	Column 2	Column 3
Row 1 Cell	Row 1 Cell	Row 1 Cell
Row 2 Cell	Row 2 Cell	Row 2 Cell
Row 3 Cell	Row 3 Cell	Row 3 Cell
Row 4 Cell	Row 4 Cell	Row 4 Cell

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## Task list

- Done
  - To do
- 

## Embedding videos

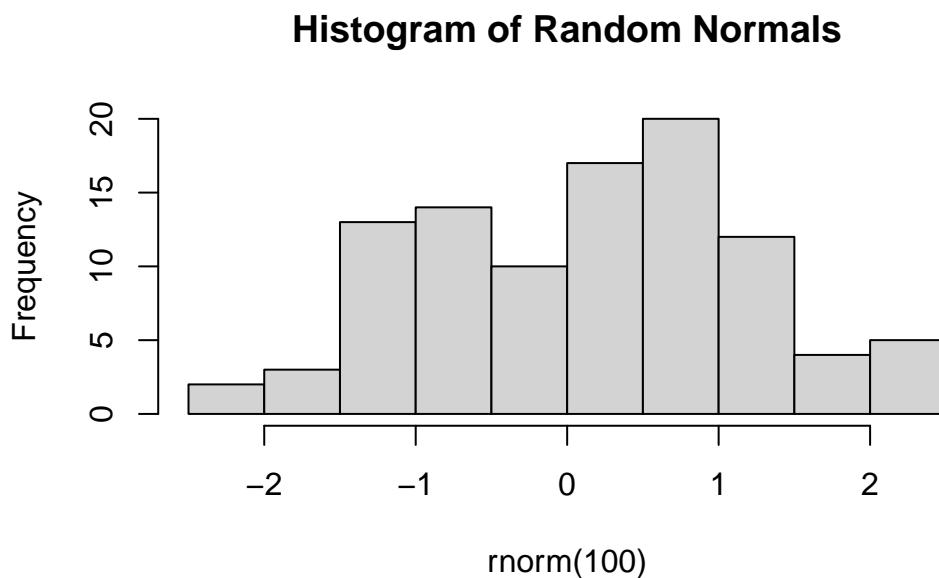
---

## Code blocks

```
# A basic R code chunk
x <- 1:10
mean(x)
```

[1] 5.5

```
# A simple plot  
hist(rnorm(100), main = "Histogram of Random Normals")
```



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### **Example attribution (for previous slide)**

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