# OOI Data Lab Manual Template

## Outline of a typical lab chapter

### Lab title

* Descriptive title with fundamental principle, subtitle with a driving question

### Introduction

* Hook, relevant societal questions, why should we care?

### Learning outcomes

* 3-5 major learning outcomes (may include content knowledge and data skills)

### Background information

* Keep concise – remember that students will also have readings and instruction. Background will typically include:
  + Key terms (these will have pop-up definitions
  + OOI arrays and instrumentation/sensors used in this activity
  + Research case study (e.g., scientist bio, stories from the field, cool science stories)
  + Other need-to-know scientific background

### Activity 1

* Title with fundamental principle
* Estimated time to complete
* Materials needed
* Additional background/instructions if needed
* Scaffolded narrative activity organized by:
  + Orientation – become familiar with the data visualization
  + Interpretation – identify trends, features, correlations
  + Application – connect with content knowledge, extend to new data (may not be included in Activity 1, only in subsequent activities)
  + Reflection (may be embedded at the end of each activity or only at the end of the chapter)
* Include Quick Check questions (H5P with immediate feedback), especially for critical orientation points that students need to move on in the activity

### Activity 2, 3 (and more if needed)

* Same sections as above
* Scaffolded or sequenced from previous activity, unless otherwise noted in the instructor guide)
* Last activity should include questions for reflection, real world applications

## Outline of instructor guide

### Description of activities

* Brief overview, including context for use of the lab in an oceanography or related course

### Approximate time involved

* Break down by activity, including background explanation and discussion time

### Optional 5-minute video

* Brief video of the lab author explaining the activity context, goals, and teaching tips

### Learning outcomes

* List 3-5 learning outcomes and fill in the matrix below with *introduced*, *guided practice*, or *applied* to map learning outcomes to the lab activities

| Learning Outcome | Activity 1 | Activity 2 | Activity 3 |
| --- | --- | --- | --- |
| Outcome 1 |  |  |  |
| Outcome 2 |  |  |  |
| Outcome 3 |  |  |  |

### Materials needed

* List any expected tools, such as a calculator, graph paper, etc.

### Student answer form

* Link to Word document with questions and answer boxes from each activity (to be created after finalizing the lab)

### What students should know before this activity

* Anticipated content knowledge and data skills

### What instructors should know before this activity

* Additional scientific background and context, geared toward instructors that are teaching a topic outside of their expertise

### Pre/post-lab assessment examples

* See Lab 2.6 and Lab 7 instructor guide examples

### Teaching notes

* Recommended procedure for use in the classroom (considering different class modalities)
* Commonly encountered issues/questions/misconceptions
* Adaptations for different course levels and duration (e.g., lab vs. lecture period)
* Suggestions for pre-lab activities
* Any other helpful tips

### Extensions

* Recommended hands-on or video demos, ideas for extended activities or advanced versions for upper-level courses

### Resources

* Related scientific references
* Helpful or interesting related videos
* Sample materials: PowerPoint slides with background information, handouts/worksheets, tutorials for using the lab widgets (especially for online courses)

## Answer key

In a separate document, provided to verified instructors upon request (to be created after finalizing the lab)