# Keeping a lab notebook

**Research Methodology**

**Lecture 1:**

**Practical guidelines and examples for keeping trace of lab activities in engineering or industrial research and development projects**

# Outline

- ➔What is a lab notebook
- ➔Why to keep a lab notebook
- ➔Medium
- ➔Guidelines and examples
  - ✓Format
  - ✓Content

# What is a Lab Notebook?

Cannot be altered

In detail/ exhaustively:
- every day
- 'everything'

dated

Diary/journal

A permanent, complete, chronological record of what is related to a research project.

Experiments:
- performed and
- programmed

Research protocols

Objectives / goals

Ideas:
- yours,
- from discussions
- from work from others

Thoughts / hypotheses

Data – Analyses - Results

# Why to keep a lab notebook

- To remember what you have done
- To allow a third person to verify or reproduce the procedures
- To support your work of publication
- To prove you have adhered to good practice
- For security reason (when dealing with dangerous products)
- For legal reasons (US patent office, legal disputes)

# Medium

- ➔ Paper
  - ✓Bound notebook
  - ✓Pre-numbered pages (if not you have to number the pages yourself)
  - ✓Place for date and signatures on each page
  - ✓Use ball point or gel pen
- ➔ Electronic
  - ✓Not considered here
  - ✓E-labjournal (https://www.elabjournal.com/)

# Guidelines: structure

- ➔ Cover and front page
- ➔ General table of content
- ➔ Table of content for protocols
- ➔ Glossary
- ➔ Chronological record of research/lab activities
- ➔ Do and don't

# Guidelines: formatting a lab notebook
# Cover and title page

Cover:

- Project title
- Your name
- Course number

Front page:

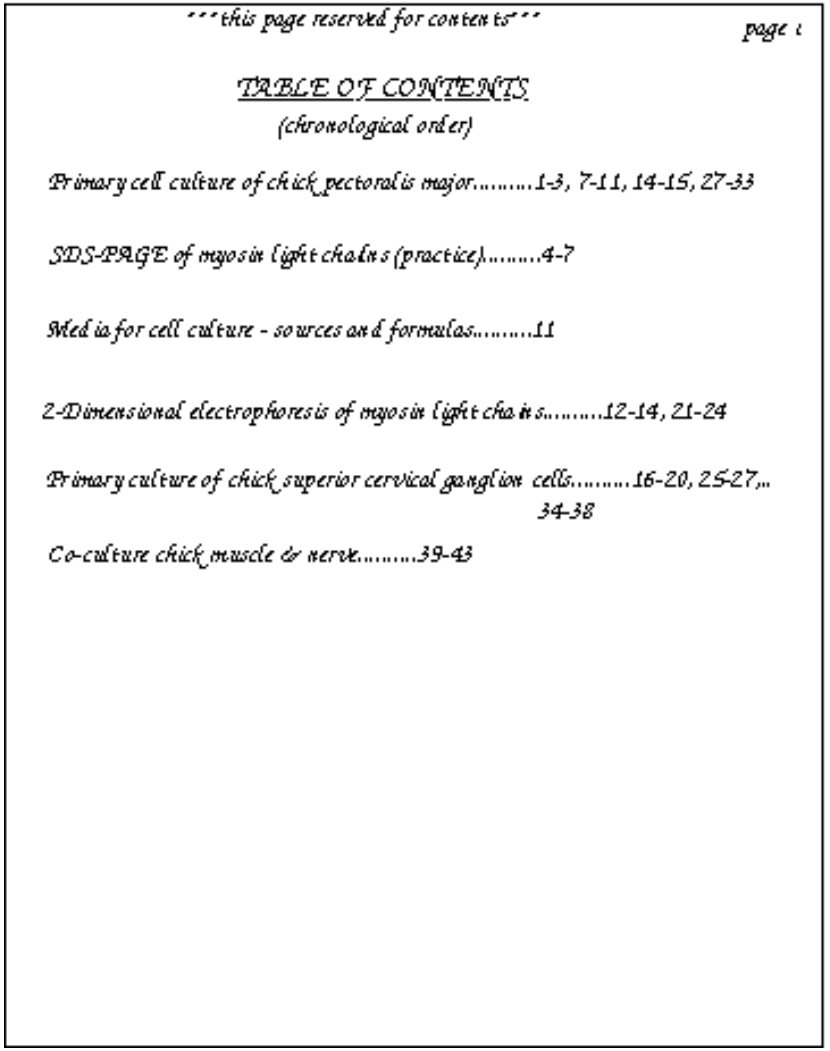
Same as cover

Address

Phone number

# Guidelines: formatting a lab notebook Table of content

- Reserve 2 to 3 pages
- For every entry:
  - Title of experiment
  - Date of experiment begin
  - Page number
  - Instructor signature
- Table format



*"'this page reserved for contents"'* page i

TABLE OF CONTENTS

(chronological order)

# Guidelines: formatting a lab notebook
# Table of content for protocols

- Reserve 2-3 pages
- For every entry
  - Name of the protocol
  - Date it has been entered in the notebook
  - Page numbers
  - Instructor's signature
- Table format

# Guidelines: formatting a lab notebook Glossary

- Reserve 2-3 pages
- For every entry
  - Term/abbreviation explained
  - Definition – Notes
  - Instructor's signature
- Table format

# Guidelines: formatting a lab notebook
# **Experiment records**

Title

Date

Notes, thoughts, literature references

Objectives

Hypotheses (opt)

Protocols (detailed flowchart)

Results (data, observations, …)

Discussion, interpretation, conclusion, next step

Complete tables of content

Signature

# Guidelines: formatting a lab notebook **transcription, data from others**

Date (when you write it)

Title

Protocol (precise enough)

Name of the experimenter

Date experimentation

Info like for example records

Complete tables of content

Signature

# Guidelines: formatting a lab notebook **other type of entry**

Date

Participant (if discussion)

References (if applicable)

Ideas/thought developed

Complete table of content

Signature

## Do

- ➔ Cross out mistakes lightly
- ➔ Record all info as accurately as possible
- ➔ Stable attachment
- ➔ Use past tense
- ➔ When correcting mistake, indicate date correction

## Don't

Leave empty spaces to complete later

(Leave a blank space (cross the space)

Finish up your notes after leaving the lab

Add loose pages

Remove pages