

# Applied Math, Life, Germany

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# Introduction

add the reasons you started to write this book:-)

# Unix, Linux, POSIX, and Beyond

Nowadays an applied mathematicians must utilize a computer in order to handle their workflow. Computers must have an operating system(OS) and that is set in the stone. As to what OS is optimal, there are no clear answers obviously. Every OS has its pros and cons. I adopted the Unix-like(Unix, Linux, POSIX) OSs for now as I meticulously observed my mentors during my college years and still continue to do so. This chapter tries to help you determine whether you would benefit from those OSs too and if yes formulate a guideline for its learning process.

## Unix or not to Unix!

For now Unix is only a name and not a verb therefore making the heading a failed attempt at making a witty remark. I however, hope that it someday makes its way to the standard dictionaries as a verb like grep or google. During my BSc, MSc, PhD years I observed my mentors and tried to have the same hardware, OS and softwares as a ay of minimizing the initial overhead of having a working workflow for my computing.

### BSc Years

I would say that in my BSc years there were only a handful of people that used Unix-like systems. My trust in them however were so solid that I decided to follow their footsteps instead of the more popular windows pathway. Here is a list and a short description of the nature of their computing works:

- Mir Abbas Jalali: Mechanical engineer professor but an applied mathematician at heart mostly doing complex physics simulation. Needed fast, high-performance low-level code(C, Fortran) to perform his computer experiments. Joined the CUDA party really fast back in 2010. Had an Apple, MacBook Pro with Darwin on top as the OS. Was willing to do cluster computing and parallelization if deemed worthy monstrous computations done.
- Saeed Rezaei: A linguist professor that needed a lightweight with a lasting battery daily driver to be able always on the move. Being able to edit essays in different file formats like Markdown, T<sub>E</sub>X. He wanted to stuff to work out of the box.

### MSc Years

- Benjamin Berkels: double commander...jupyter notebook...math vs low level code...SSH...seminar...recording lecture videos..
- Paolo Bientinesi: low level programmerr...architecture aware software...SSH only...reallly realllly big computing on monstrous machines...
- Goerg May: mathematician...lectures...integrity of the ipad macos...SSH code...

### PhD Year

add stuffff

## Make a Choice

So look around and see if you make the same choice as I did...

## If not to Unix!

It might happen depending on the nature of your computing...then you can skippp the rest of the chapter and carry one with the rest of the book...

### General/Offline/Classic Style

- LPI Linux Essentials [pdf](#)
- LPI Web Development Essentials [pdf](#)
- LPI LPIC-1 Exam 101 [pdf](#)
- LPI LPIC-1 Exam 101 [pdf](#)
- The LPIC2 Exam Prep [pdf](#)
- Practical LPIC-3 300 [Link](#)

### Details/Online/Wiki Style

- Arch Wiki [Link](#)

**Important Books/Pdfs/Links**

- USB flash installation medium [Link](#)
- SSH Key Generation [Link](#)
- Linux from Scratch [Link](#)
- Filesystem Hierarchy Standard [pdf](#)
- DistroWatch [Link](#)

**Historical/Cultural References**

- Unix: A History and a Memoir by Brian Kernighan [Link](#)
- Just for Fun by Linus Torvalds [Link](#)
- Free Software, Free Society by Richard M. Stallman [pdf](#)
- Open Sources by Legends of Open Source [pdf](#)
- Open Sources 2.0 by Legends of Open Source [Link](#)

**My Horsemen of the Apocalypse**

- Hardware: [Apple](#)
- An Online Linux Terminal Emulator: [JSLinux](#)
- Hypervisor: [VirtualBox](#), [UTM](#)
- OS: [Darwin](#)
- Package Manager: [brew](#)
- Terminal Emulator: [kitty](#) or [Alacritty](#)
- Interactive Shell: [zsh](#) Scripting Shell: [bash](#)
- Zsh Configuration Framework: [ohmyzsh](#)
- Terminal Text Editor: [vim](#) GUI Text Editor: [Visual Studio Code](#)
- Terminal Multiplexer: [tmux](#)
- Modern Linux Tools: [Modern Linux](#)

# Installation

This is the installation chapter.

For further information, check the [Introduction](#) chapter.

For further information, check the [this chapter](#).

For further information, check the [this chapter's subsection](#) section.

## First

This is the first subsection. Please, admire the gloriousnes of [Figure 1](#).



Figure 1: A cool seagull.

## Second

This is the second subsection.

Please, check [First](#) subsection.

Please, check [this](#) subsection.

Please, check [Table 1](#).

Table 1: This is an example table.

Index	Name
0	AAA
1	BBB
...	...

## Third

Formula example:  $\mu = \sum_{i=0}^N \frac{x_i}{N}$

Now, full size:

$$\mu = \sum_{i=0}^N \frac{x_i}{N}$$

And a code sample:

```
def hello_world
  puts "hello world!"
end
```

hello\_world

Check these unicode characters: æßøð€đημ

# Abbreviations and Acronymsi

- ASCII: American Standard Code for Information Interchange
-



# References(Websites)

## Unix, Linux, POSIX

- <https://www.lpi.org/>
- <https://learning.lpi.org/en/learning-materials/learning-materials/>
- <https://wiki.archlinux.org/>
- <https://git-scm.com/>
- <https://about.gitlab.com/>
- <https://github.com/>
- <https://www.linuxfromscratch.org/>
- <https://distrowatch.com/>

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- LPI LPIC-1 Exam 101 [pdf](#)
- The LPIC2 Exam Prep [pdf](#)
- Practical LPIC-3 300 [Link](#)
- Pro GIT [Link](#)

## Calculus

- [Calculus With Applications](#) by Peter D. Lax , Maria Shea Terrell
- [Multivariable Calculus with Applications](#) by Peter D. Lax , Maria Shea Terrell