

# Complete Microbiome Analysis

A Repository of Resources for Every Step of Microbiome Research

Alana Schick

2022-06-17



# Contents

<b>Introduction</b>	<b>5</b>
Overview of sections . . . . .	5
 <b>I Part 1: Samples to Sequences</b>	 <b>7</b>
<b>1 Experimental Design Considerations</b>	<b>9</b>
<b>2 Power Analyses</b>	<b>11</b>
<b>3 Sequencing samples</b>	<b>13</b>
 <b>II Working with Sequence Data</b>	 <b>15</b>
<b>4 Filtering and cleaning</b>	<b>17</b>
<b>5 Generating Abundance Tables</b>	<b>19</b>
<b>6 Remove Contaminants</b>	<b>21</b>
 <b>III Working with Abundance Tables</b>	 <b>23</b>
<b>7 Alpha diversity</b>	<b>25</b>
<b>8 Beta Diversity</b>	<b>27</b>
<b>9 Differential Abundance</b>	<b>29</b>
<b>10 Normalization Methods</b>	<b>31</b>
<b>11 Multivariate Analysis</b>	<b>33</b>

<b>IV</b>	<b>Advanced Topics</b>	<b>35</b>
<b>12</b>	<b>Reproducible Workflows</b>	<b>37</b>
12.1	Snakemake . . . . .	37

# Introduction

Here is an overview of what this book contains...

## Overview of sections



## Part I

# Part 1: Samples to Sequences





## Chapter 1

# Experimental Design Considerations



## Chapter 2

# Power Analyses



## Chapter 3

# Sequencing samples



## Part II

# Working with Sequence Data





## Chapter 4

# Filtering and cleaning



## Chapter 5

# Generating Abundance Tables



## Chapter 6

# Remove Contaminants



## Part III

# Working with Abundance Tables





## Chapter 7

# Alpha diversity

And now for some alpha diversity methods



## Chapter 8

# Beta Diversity



## Chapter 9

# Differential Abundance



## Chapter 10

# Normalization Methods





## Chapter 11

# Multivariate Analysis

Lots of variables? Use multivariate methods!



## Part IV

# Advanced Topics



## Chapter 12

# Reproducible Workflows

### 12.1 Snakemake

Snakemake is...

Resources: <https://vincebuffalo.com/blog/2020/03/04/understanding-snakemake.html>