

NOTE:

Reading any of these indicated chapters/sections should be second priority, while content within lecture notes and associated concepts/problems should be of primary focus to the course students. Hope you enjoy reading.

For Part I of the course:

1. "Introduction to Bioorganic Chemistry & Chemical Biology" by David van Vranken & Gregory Weiss; Garland Science.
2. "Cell signaling: principles & mechanisms" by Wendell Lim, Bruce Mayer, Tony Pawson; Garland Science.

Note: Book 1 is written more from organic chemists' perspectives so a little bit narrow overall and lack the big picture at times. Book 2 is written by a leading bioengineer (inventor of CAR-T cell therapies), with a more holistic view on organismal decision making. Very good biochemical concepts and tools are also discussed but not unexpectedly, there is no organic chemistry-based discussions in this book.

From Book 1

| Chapters / topics | Comments (in relation to CH-313) |
|---|---|
| Chapter 1: section 1.1 to 1.4 | Covers fundamentals underpinning the central dogma: good to read |
| Chapter 3: section 3.1, 3.2, 3.3, 3.5 | Good-to-know basis and relevant to week 5 |
| Chapter 4: section 4.1, 4.2, 4.3, 4.4, 4.6 | Good-to-know basis and relevant to week 7,8 |
| Chapter 5: section 5.1; Chapter 6: section 6.1, 6.2, 6.3, 6.4 | Fundamentals linked to week 1 to 4, on protein-level interrogations |
| Chapter 9: all sections | Good to know / fun to read – linked to all basic aspects of cell signaling touched in CH-313 Part I |

From Book 2

| Chapters / topics | Comments (in relation to CH-313) |
|---|--|
| Chapter 1 | Very good background to cell signaling and decision making |
| Chapter 2 | Enhance several concepts covered during week 1,2,3,4 |
| Chapter 3: the 1 st three subtopics; Chapter 4: the 1 st three subtopics | Aid week 1 and week 2 concepts |
| Chapter 12: the 3 rd subtopic | Enhance concepts discussed in week 5 |
| Chapter 13: methods and tools | Here you can go through some of the technology-driven topics like mass spectrometry, flow cytometry, imaging/microscopy, enzyme kinetic analytical tools etc. that we cover in class throughout Part I |

For Part II of the course: (note: some chapters in this book below also relate to Part I of the course)
 "Biochemistry" by Berg & Stryer. W.H. Freeman & Company (not mandatory).

Note: chapters below are for the 9th edition of this book

| Chapters / topics | Comments (in relation to CH-313) |
|--|--|
| Chapter 3: section 3.3 | Fundamentals on MS and proteomics |
| Chapter 4: section 4.6, 4.7 | Linked to basic concepts in week 7-8 (genetic code / translation) |
| Chapter 31: section 31.1 to .4 | |
| Chapter 8: section 8.4, 8.5 | Useful basics for week 1 (and week 2): enzyme inhibition / kinetics |
| Chapter 12: section 12.6 | Basic aspects of eukaryotic cell architecture (throughout the course) |
| Chapter 15: all sections | Cover several conceptual aspects discussed during Part II of the course – week 9 to 16 (but not the modern techniques however, as they're not quite yet written into text-books, although being actively deployed in the latest literature and drug discovery / mode-of-action studies...) |
| Chapter 16*: section 16.1, 16.2 | |
| Chapter 17* and 18*: all sections | |
| (*but only those aspects that are covered in lecture slides) | |