

Biol. 445

Cancer Biology

Spring Semester 2019

Wilson Hall 128: T, Th 2-3:15 PM

Instructors:

Professor Bob Duronio (3350 Genome Sciences Building)
duronio@med.unc.edu

Professor Mark Peifer (521 Fordham Hall) peifer@unc.edu

TA Hannah Wiedner hwiedner@email.unc.edu

Office hours: See course front page for times and days.

<http://courses.bio.unc.edu/2019Spring/Biol445/>

Required text:

*The Biology of Cancer. Robert Weinberg **Second Edition Paperback version***

It is available for purchase in the Student Stores or from many online sources--**Used texts are often available at a reduced price. We will not use any accessory materials from the publisher so a rental online version will also work.**

The required reading is indicated below. For each class period complete the Required Reading along with the Lecture Guide BEFORE class, and complete the accompanying online quiz on this material in Sakai. The Lecture Guide and the Powerpoints are found on the "Lecture guides/Powerpoints" section of the main course website

**CHECK BACK AS ASSIGNMENTS MAY CHANGE
AS SEMESTER PROCEEDS**

.....
Powerpoints and Links to other readings are on course website

Online Lecture and reading to complete BEFORE the first day of class:

Basic properties of cancer cells/multigenic nature of cancer/basic genetics

Online lecture: <https://unc.voicethread.com/share/6417683/>

Plus Weinberg Chapt. 1, pp12-13, Chapt 2.1-2.5 (pp. 31-41), Chapt. 5.1 (pp. 131-135), Chapt. 11.1-11.5 (pp. 439-458)

Thursday January 10

Viral oncogenes—the story of src (MP)

Weinberg Chapt. 3.1-3.3 (pp. 71-79), 3.5-3.13 (pp 82-102), Chapt. 5.2 (pp, 135-138), 5.9 (pp. 161-165)

Tuesday January 15

Current thoughts about src function (MP)

Weinberg Chapt. 6.3 (pp. 182-188)

Thursday January 17

The discovery of cellular oncogenes—the story of ras (MP)

Weinberg Chapt. 4.1-4.4 (pp. 103-110; 112-117), Chapt. 5.10 (pp. 165-169).

Tuesday January 22

How did model organisms inform our understanding of ras function (MP)

Weinberg Chapt. 6.2 (pp. 180-182), 6.4-6.5 (pp. 188-192)

Thursday January 24

Course Exercise 1-TBA

Tuesday January 29

The EGF-receptor pathway and Herceptin therapy (MP)

Weinberg Chapt. 4.3 (pp. 110-111), Chapt 5.3-5.6 (138-153), Chapt. 16.1-16.5 (797-824), 16.13 (pp. 844-850)

Thursday January 31

The EGF-receptor pathway and Herceptin therapy (continued)

PaperDiscussion

Tuesday February 5

EXAM 1

Thursday February 7

Cell Cycle I: Concepts of control

Weinberg Chapter 8.1-8.4, pages 275-294.

Tuesday February 12

Cell Cycle II: Cyclin/Cdk regulation
Weinberg Chapter 8.1-8.4, pages 275-294.

Thursday February 14
Course exercise on the cell cycle

Tuesday February 19
Tumor Suppressors
Weinberg Chapter 7.1-7.7, pages 231-249.

Thursday February 21
Retinoblastoma: mechanism of action
Weinberg Chapter 8.5-8.13, pages 294-329.

Tuesday February 26
p53 and Cell Cycle Checkpoints
Weinberg Chapter 9.1-9.12, pages 331-361; Ch. 16.3-16.4 pages 813-818

Thursday February 28
Course exercise 3 on tumor suppressors

Tuesday March 5
Course Exercise 4

Thursday March 7
EXAM 2

March 9-17 Spring Break

Tuesday March 19
CLASS PRESENTATIONS 1

Thursday March 21
CLASS PRESENTATIONS 2

Tuesday March 26
Cancer Genomics I

Thursday March 28

Special Guest—Dr. Katherine Hoadley, *Assistant Professor of Cancer Genetics, UNC School of Medicine*

<https://unclineberger.org/people/profiles/katherine-hoadley>

Tuesday April 2

Cancer Genomics II

Thursday April 4

CLASS PRESENTATIONS 3

Tuesday April 9

Chromatin and Cancer

Weinberg Chapter 1.8, pages 21-24; Ch 10.1 sidebar, pages 402-403

Thursday April 11

CLASS PRESENTATIONS 4

Tuesday April 16

CLASS PRESENTATIONS 5

Thursday April 18

Chromosomal rearrangements—abl and oncogenesis (MP)

Weinberg Chapt 4.6 9 (pp. 124-126), Chapt. 16.6-16.12 (pp. 822-844)

Tuesday April 23

Abl and the dawn of personalized therapy (MP)

Thursday April 25

Course Exercise 5

FINAL EXAM [We do not choose date or time!]