

**BIOLOGY 118: HUMAN BIOLOGY**  
**Homework Questions**  
***THE EMPEROR OF ALL MALADIES***

Siddhartha Mukherjee

Instructions

*(Note: this is a General Education class with no pre-requisites. It is a hybrid online class. After an initial meeting at the beginning of the semester, the class will be given weekly homework assignments (10 points each) as well as weekly quizzes (10 points each) which they will submit online. The questions here will be included as a portion of the weekly homework assignment—thus, some weeks have more reading and questions from the book than others. The remaining questions will be taken from the lecture materials that are delivered via audio podcast. Four exams will be given in the classroom during the course of the semester.)*

- I. General Instructions: Your assignment this semester will be to read select portions of the book, “Emperor of all Maladies” by Siddhartha Mukherjee. This book has been adopted by Grossmont College as an interdisciplinary reading assignment for this school year. You will be given sections of the book to read beginning with the third week, and ending with the fourteenth week of the semester. Assigned questions from the reading will be answered and turned in as part of your weekly homework assignment. Some questions may involve outside research.

If you are asked to “briefly discuss” a given topic, please keep your response to no more than one - two paragraphs in length.

- II. Grading: Your grade for each assignment will be based upon:
  - A. Correctly answering questions posed.
  - B. Your presentation: including following directions, use of complete sentences, appropriate spelling and appropriate grammar. **Do not use quotations.**

*Note: Your homework must be turned in through Blackboard. Blackboard utilizes the SafeAssign feature, which assures that work turned in is original, and not copied from another source.*

**“Emperor of all Maladies” Week 3 Homework: Read the Prologue: (pp. 1-8)**

- a. What is cancer?
- b. What type of cancer is leukemia?
- c. What are the different kinds of leukemia?

**“Emperor of all Maladies” Week 4 Homework: Read pp. 37-59****“A Private Plague” p. 37**

What is an osteosarcoma? How do osteosarcomas form, and why is this disease important in the study of ancient forms of cancer?

Why are osteosarcomas rare in ancient skeletal remains?

**“Onkos” p. 46**

What are the language roots of the words “oncology” and “cancer?” Why do these root words describe cancer so well?

**“Vanishing Humors” p. 51**

Who was Veselius, and what contribution did he make to the study of the human body?

**“Remote Sympathy” p. 55**

What specific improvements were made in surgical techniques in 19<sup>th</sup> century Western medicine?

**“Emperor of all Maladies” Week 5 Homework: Read pp. 60-79****“A Radical Idea” p. 60**

What was Halsted’s “radical idea” for the treatment of cancer? Why do you think Halsted was allowed to continue experimenting on women with these aggressive surgeries?

**“The Hard Tube and the Weak Light” p. 73**

Briefly discuss the development of X-rays as a means to treat cancer. Why was this discovery considered a “double-edged sword?”

**“Emperor of all Maladies” Week 6 Homework: Read pp. 80-92****“Dyeing and Dying” p. 80**

What important contribution did the dye industry make toward the improvement of medical diagnosis in the 19<sup>th</sup> century? What were some of the organisms and diseases that were identified by this process?

**“Poisoning the Atmosphere” p. 89**

Paracelsus wrote, “Every drug is a poison in disguise.” What did he mean by this statement? Give at least two examples.

**“Emperor of all Maladies” Week 7 Homework: Read pp. 93-122, 178-189**“The Goodness of Show Business” p. 93

Discuss the meaning of the statement, “A disease needs to be transformed politically before it can be transformed scientifically.”

“The House that Jimmy Built” p. 101&“They Form a Society” p. 107

How did Mary Lasker borrow from the worlds of business, advertising and even the military to build a nationwide effort to combat cancer? How might Lasker’s vision be invoked today to generate funding and national attention for breast or ovarian cancer?

“These New Friends of Chemotherapy” p. 116

How is the early history of chemotherapy linked to the history of modern warfare?

“The Cart and the Horse” p. 171

How did the moon landing of 1969 give cancer a boost in publicity?

“A Moon Shot for Cancer” p. 180

Briefly describe the conflict between politics and public funding of cancer in this chapter.

**“Emperor of all Maladies” Week 8 Homework: Read pp. 237-242, 250-254, 258-259**“Coffins of Black” p. 237

This section on prevention begins with an illustration of the incidence in British chimney sweeps of scrotal cancer—caused by soot. Chimney sweeping was the first identified carcinogenic occupation. What occupations are considered carcinogenic today?

Page 239 states, “Remove the carcinogen—and cancer would stop appearing.” How did the tobacco industry react to studies in the 1950s about the link between cigarettes and lung cancer? How did the industry’s reaction differ from that of the general public?

“A Thief in the Night” p. 250

How did tobacco companies sow doubt into the scientific research that had been performed on the correlation between smoking and cancer?

“A Statement of Warning” p. 258

After tobacco sales dropped in the United States, tobacco companies sought to promote their products abroad. What unique strategy was used in Mexico that allowed tobacco companies to be nearly exempt from restrictions in labeling and advertising?

**“Emperor of all Maladies” Week 9 Homework: Read pp. 281-283, 286-290, 298-300**

“Curiouser and Curiouser” p. 276

What was so unique about the discovery of the cause of gastritis, ulcers and stomach cancer discovered in 1984?

“A Spider’s Web” p. 286

Briefly discuss the sequence of logic and events that lead to the development of the Pap smear and mammogram. How have Pap smear recommendations changed in the last 50 years? How effective are Pap smears in detected early stages of cancer? What about mammography?

**“Emperor of all Maladies” Week 10 Homework: Read pp. 315-320, 322-324**“Stamp” p. 305

What did Susan Sontag mean when she said AIDS and cancer had both become "not just a biological disease but something much larger—a social and political category replete with its own punitive metaphors?"

“The Map and the Parachute” p. 321

Nelene Fox was denied coverage for bone marrow transplant because her insurance carrier had deemed the procedure “experimental” or “investigational” even though many cancer clinics throughout the country were successfully using it. How did Nelene Fox’s case affect insurance coverage for cancer treatment following her death?

**“Emperor of all Maladies” Week 11 Homework: Read pp. 372 (last paragraph)-375, 384-386, 397-399**“A Risky Prediction” p. 370

In 1979, a cell line derived from Earl Jensen, a long-term smoker who died of bladder cancer, was obtained from Dana-Farber Cancer Institute to be used for research. Do patients such as Earl Jensen have any rights to determine what their cells are used for?

Briefly describe the origin and history of HeLa cells in research. (outside research)

“The Hallmarks of Cancer” p. 384

Briefly describe the current thinking as to how normal cells progress into cancer cells. (What are the steps involved?)

“No One Had Labored in Vain” p. 395

How is the analogy of a concentration camp used in this chapter to depict living with cancer?

What is the current use of the umbilical cord cells in medicine?

**“Emperor of all Maladies” Week 12 Homework: Read pp. 419-422, 424-427, 441-443**“A City of Strings” p. 412

Barbara Bradfield declined further chemotherapy and enrolled in an alternative herbal therapy program. Your friend asks you about alternative cancer treatments. What are the most common ones? How can their legitimacy and efficacy be determined? How would you advise your friend?

“Drugs, Bodies, and Proof” p. 423

“Scientific uncertainty is no excuse for inaction....We cannot wait for ‘proof.’” Read the story of Mari Nelson, and address two reasons why one might agree with this statement, and two reasons why one might disagree with this statement.

“The Red Queen’s Race” p. 441

Why is cancer in this chapter referred to as “The Red Queen Syndrome?”

**“Emperor of all Maladies” Week 13 Homework: Re-read pp. 39-45, read 464-465**“Atossa’s War” p. 461

Give a brief history as to the therapies developed for cancer therapy from ancient times until the present. How might future cancer therapies look different than the therapies of the last 3500 years?

*Be sure you are able to define and use the following terms found in this section: (do not turn these definitions in as part of your homework.)*

<i>Abscess</i>	<i>Huckster</i>	<i>Prophyla(xis, ctic)</i>
<i>Adjuvant</i>	<i>Insidiously</i>	<i>Recapitulate</i>
<i>Algorithm</i>	<i>Interstices</i>	<i>Renaissance Man</i>
<i>Amenable</i>	<i>Malevolent</i>	<i>Retinue</i>
<i>Benign</i>	<i>Malignant</i>	<i>Systemic</i>
<i>Bilateral</i>	<i>Mastectomy</i>	<i>Tamoxifem</i>
<i>Caustic</i>	<i>Melancholia</i>	<i>Therapeutic</i>
<i>Clandestine</i>	<i>Metastasi(s, ize)</i>	<i>Tumor</i>
<i>Enumerate</i>	<i>Palliat(e, ive)</i>	<i>Vizier</i>
<i>Genome</i>	<i>Poultice</i>	
<i>Heterogeneity</i>	<i>Prognosis</i>	

**“Emperor of all Maladies” Week 14 Homework: Read pp. 467-470**

Read the story of Germaine Berne (pp. 467-470) then consider this statement from p. 465: “The War on Cancer may best be ‘won’ by redefining victory.” Do you agree or disagree? Why?