

SYLLABUS BIO 103: INVESTIGATIONS

BREAST CANCER: WITHIN AND BEYOND THAT PINK RIBBON

This course focuses on the many aspects of breast cancer. We will discuss not only the biological basis of breast cancer, but also the public health, public policy and political aspects. Topics will include: the basic biology of cancer, the impact of politics, advertising and metaphors (e.g. the War on Cancer, Cancer Survivors, Battling Cancer) on breast cancer, access to healthcare and health insurance, and controversies involving current breast cancer screening programs. Substantial time will be given to the laboratory where students will examine living breast cancer cells *in vitro*.

INSTRUCTOR INFORMATION:

Barbara Christie-Pope, PhD

Office: 205 Russell Hall

Phone: x-4395

Feel free to come by my office any time. I am usually in my office from 11-12 after morning class and 3-4 in the afternoon. You can also e-mail me at bchristie-pope to set-up an appointment. Please do not wait to contact me if you are having problems in the course.

CONTACT INFORMATION:

I use email to contact students. Check your email twice a day. I do not call cell phones.

LEARNING GOALS

This course is designed to help you understand the role of the natural sciences in your life in the context of a specific disease.

1. You will improve your skills in:
 - a. Critical reading
 - b. Analyzing writing (published, your colleagues, and your own)
 - c. Revision (not simply editing)
 - d. Citing and documenting sources
2. You will recognize the interplay of molecules, cells and tissues in cancer.
3. You will learn how to ask a scientific question, design an experiment to address that question, obtain and analyze your results.
4. You will learn how to interpret information about risk factors, disease processes, screening regimens and treatments.
5. You will learn to ask questions about political, sociological and economic influences related to breast cancer.

These goals will be achieved through writing assignments, readings, discussions and lectures regarding breast cancer. Exams will evaluate your comprehension of the biology of breast cancer. In addition, an understanding of the biology of cancer will be reinforced through an examination of living cancer cells and therapies used to treat cancer.

This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, inquiry, reasoning, and communication.

COURSE INFORMATION:

Meeting Times: 9:00-11:00 am and 12:30-3, Monday through Friday, or as indicated on the course schedule.

TEXTBOOKS AND MATERIALS:

NONE! Wow, I just saved you a fortune! There are wonderful, and accurate, internet sites for this material. No single text covers precisely the content of this course. I have internet sites listed on the schedule that I want you to review and study. **Review these sites PRIOR to class for that particular day.** I will also use images from biology textbooks.

The PowerPoint presentations I use will be available on Moodle the morning before the lecture. Access to these PowerPoint presentations requires that you use them wisely! They are convenient study guides but unless you take notes during discussions, these presentations will do you no good on exams.

GRADING:

Review on Moodle :

1. Silverthorn and Gill. What to do to make an A. Advan in Physiol. Edu 32:332 (2008)
2. Words to Watch for in Essay Questions

NOTE: You cannot withdraw from this course on the 15th day unless you complete all the requirements for assignments and exams on the assigned day. You will make an F in this course if you fail to turn in all assignments (and make a reasonable effort on each one).

One Minute Papers (20% of grade)

Each day, either at the beginning or ending of a class session, you will be given one minute to write on one of the following topics:

1. Summarize the material you were asked to review last night.
2. What was the main point of yesterday's discussion in class?
3. What topic/subject was unclear to you from today (or yesterday's) discussion? Explain why you found it unclear.
4. What is/was your reaction to the topic of discussion from today (or yesterday)?

Exams (30% of grade)

Exams will last approximately 2 hours. Exams consist of short answer and essay questions. Read the questions and your answers carefully; you will be graded on your knowledge of the material and your ability to present that knowledge clearly and concisely. Exams are closed book and without notes.

Exams will be given on the day scheduled only. I will accommodate a legitimate reason from missing an exam, but I determine whether or not the reason is legitimate. I use the following grading scale on exams:

100-90 A

89-85 A-

84-80 B+

79-75 B

74-70 B-

69-65 C+

64-60 C

59-55 C-

54-50 D+

49-45 D

44-40 D-

Writing Assignments: 30% of grade

I will not accept a GOOGLE docs paper! You must provide me with a WORD document. If you write using GOOGLE docs, make sure you format it and save it in WORD. All computers on campus have WORD. If you send me a GOOGLE doc paper, I will send it back and it will not be graded. No pdf's either!!

Name and save your paper using the following format: lastname_I. For example, my first paper would be: Christie-pope_I, second paper would be Christie-pope_II.

- I. (10%) Your full draft should be done by Friday, January 18, 9AM. We will workshop your paper that afternoon (see instructions on Workshops). An incomplete paper will not allow feedback, and I can guarantee that your final paper will suffer. You should review your draft after the workshop, and email me the final paper by noon on Saturday, January 19. I strongly recommend that you take your paper to the Writing Studio, however I also realize that you may not have that opportunity the first week of the course.

Limit your paper to 3-4 pages, double spaced, font size 11-12. You should have a clear thesis statement (a thesis is not a topic!) and each paragraph should begin with a topic sentence. You must also use **at least three sources** for your paper. Your sources must be reputable and not blogs! Check out the O.W.L. for what constitutes a reputable source:

<https://owl.english.purdue.edu/owl/resource/553/01/>. Be assured that I will check every one of your sources. You may use APA (American Psychological Association) or CSE (Council of Science Editors) for formatting your sources. You may not use footnotes or quotes in your

paper! One of the goals of writing in this class is for you to learn how to paraphrase and use proper citations. Quotes are sometimes excellent but are easily abused and misused. Therefore, for the purposes of this course, no quotes!

Choose one of the following topics for your first paper:

- A. Metaphors and Cancer: We will watch a short video regarding the language used regarding cancer (<http://scienceblog.cancerresearchuk.org/2015/09/28/may-i-take-your-metaphor-how-we-talk-about-cancer/>). There are numerous angles you can use to discuss the use of metaphors. Your paper may focus on how metaphors influence perceptions of cancer for people with breast cancer and/or the general public. You may choose to discuss the gender issues inherent in these metaphors. You may even come up with your own metaphor(s) for cancer, and discuss why you feel your metaphor(s) are more appropriate than currently used language. Or, you may defend the current metaphors used to describe cancer by justifying their use.
- B. "Pink washing": Companies and organizations that promote and use the pink ribbon brand on their products to support breast cancer awareness, yet also produce or manufacture items or substances that are linked to cancer, are called "pinkwashers." (see: [https://en.wikipedia.org/wiki/Pinkwashing_\(breast_cancer\)](https://en.wikipedia.org/wiki/Pinkwashing_(breast_cancer))) We will watch the film, Pink Ribbons, Inc., the first day of the course that examines these companies and organizations including their links to breast cancer awareness and advocacy groups. You may defend the legitimacy of these companies' actions, or you may refute them. You could investigate some "pink" products for evidence of pink washing.

- II. (20%) Draft of your first paragraph of this assignment is due Friday, January 25, at 9AM. We will workshop this paragraph in the afternoon. A draft of the rest of the paper (completed!) is due Thursday, January 31, at 9AM. We will workshop this version that afternoon. Your final paper is due Wednesday, February 6, at 9AM. There is no page limit for this paper but it should be at least 5-8 pages.

Find an article from the general press that discusses some aspect of breast cancer. Do not use science indexes to find the article; no articles from scientific journals like Science, Nature, Cell, etc. In addition, find the original source (scientific journal article) that the general press article is based on. Critique the general press article. The following questions should be answered somewhere in your paper (DO NOT LIST THESE AS NUMBERS AND THEN ANSWER!) Incorporate these questions into your paper.

1. Why are you interested in the topic of the general press article?
2. What scientific principles are involved with this topic?
3. What topics have the author(s) of the general press article assumed their readers already know; what topics have not been explained by the authors or are confusingly explained?
4. Do you feel that the authors have adequately and correctly explained the original source? How would you explain the original source?

5. Were there any other general press articles on this same topic? (LOOK FOR THESE! I will!) How did these compare to the original general press article and to the scientific article?

Abide by the same instructions as Assignment I regarding reputable sources but you must use at least 5 sources for this paper (one will be the general press article, another will be the original scientific source, and 3 others will support your paper). Again, no footnotes or quotes!

Laboratory (20% of grade: 15% for [Lab Notebook](#); 5% for Presentation)

Every drug on the market has been extensively tested in both the laboratory and the clinic before approval. Drug testing begins with preclinical testing on experimental animals (*in vivo*) or in living, cell cultures (*in vitro*). This preclinical testing answers several questions such as what the drug's target is; is the drug toxic and at what concentration; is the drug worth pursuing in clinical trials which are extremely expensive. You will be performing a preclinical test to determine if a particular substance enhances the growth of living cancer cells or if the substance is toxic and kills the cells.

The class will be divided into teams of 2-3 students. Each team will be given a substance to test on living, human breast cancer cells. Some of the substances have been proposed to be "cancer causing", while others are proposed anti-cancer agents or chemotherapy agents. You will not know what your substance is until you have your results. Therefore, you will be blinded.

Your grade will be determined by your participation in your team, your lab notebook, and a presentation. Although you are working in a team, each of you requires your own lab notebook. [See the detailed instructions on how to keep a lab notebook.](#)

ATTENDANCE:

Attendance is required for all scheduled class times. Call before you miss a morning or afternoon session. Realize that "sleeping-in" or a "defunct alarm clock" is not a valid excuse for missing class. **Five percent will be removed from your cumulative total for each unexcused absence.** If you are absent 3 or more times without a valid excuse, I will not allow you to withdraw on the 15th day, and the highest grade you can hope for is a C-, regardless of your cumulative total. In addition, class starts at 9am or 12:30pm, not at 9:05am or 12:35pm. Obviously, this means BE ON TIME!

CLASSROOM BEHAVIOR

Decorum in the Classroom: Please play an active role in this course by asking questions or responding to questions. However, refrain from eating (our classroom is NOT a cafeteria), reading materials not related to the course, and conversing with your fellow classmates during

discussions. Coffee, tea, water are allowed but may be restricted if we have a lab activity in the classroom. You may bring a small snack during exam periods, but not a full breakfast or lunch!

Leave your iPods, MP3 players, other musical devices, cell phones, pagers, anything with an on/off button in your room or, at least, turned off and out of sight. You will not use them in class or during class time. You will place ALL OF your cell phones (and SMART watches) on the front desk during exams. Please remember to pick them back up after the exam. You will not have access to your device at any time for any reason during an exam. Personal electronic devices can be very disruptive to you and to your classmates. Using these devices during instructional times is a clear sign of disrespect to both me and to your classmates who are your colleagues.

I want you to take hand-written notes. Using a laptop does not engage your brain as fully as writing. If you must use a laptop, I may ask to see your notes. **You may not record my lectures** unless you have an accommodation to do so.

Drop Policy:

College policy states that you may drop at any time during the first three days of class. If you want or need to drop this course on the 15th day, **you must have attended class and completed all assignments/ exams due or administered by that day.**

ACCOMMODATIONS:

Cornell College makes reasonable accommodations for persons with disabilities. Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format. For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see <http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml>.

ACADEMIC HONESTY EXPECTATIONS: Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Compass, our student handbook, under the heading "*Academic Policies-Honesty in Academic Work.*"