Bi123
The Biology of Cancer

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Course background and goals
Cancer has been a recognized disorder for many centuries, but was not a considered a serious threat to human health until the 1900s, when advances in medical science began to mitigate the more common forms of morbidity and mortality. Cancer is a collection of over one hundred diseases that show various clinical differences, but have similar underlying causes and effects: the normal genetic controls of cell division malfunction, allowing a cell to undergo unrestrained multiplication, usually leading to an anomalous mass of cells (a tumor), some of which may spread to distant locations in the body to establish further tumors. Cancer is thus rightly called a genetic disease. We will focus our attention on the genetics and cell biology of cancer since tremendous advances in our understanding of the initiation and progression of cancers, and in the promise of effective treatment, have been realized in the past two decades through basic research in genetics and cell biology.

This is an introductory course, meaning nothing more than that there are no prerequisites for enrollment. Though a background in biology is useful, it is neither essential nor necessary. This course will be taught under the assumption that students have no more than a high-school level familiarity with basic life sciences (specifically regarding cells and genes). Those who have no experience with or recollection of biology may find the pace of this course quite rapid; those well-versed in biology may find the pace rather slow at times. Most of the material, however, will be new to all students.

There is a considerable amount of unique terminology in all branches of the life sciences, and this is perhaps most evident in medicine. While we will endeavor to minimize the use of such terminology as can be reasonably done without creating confusion, we will still develop an extensive vocabulary to describe processes or components specific to cell biology, genetics, anatomy, physiology, and cancer. You should approach this course as if you are taking an introductory course in a foreign language, and routinely review the vocabulary in common use.

By the end of the term we hope that you will have developed a thorough understanding of the biological basis of cancer—its causes, conditions, treatments, and prognoses. This can benefit you in several ways: you should be much better able to evaluate scientific articles on cancer in the popular press; you may become an effective advocate, interpreter, or liaison for a family member or friend facing cancer; you can make more educated choices if you should become a cancer patient yourself; and you may be motivated to adopt a lifestyle that significantly minimizes your lifetime risk of developing cancer.
Format
There will be three 50-minute lectures each week. Attendance is not mandatory, but much of the information that you will be expected to assimilate (and demonstrate on exams) will not be found in the reading. Slides used in the lectures will be made available on the website as pdf files a day or two before each lecture. Detailed notes for the week’s lectures (except for those of guest speakers) will be posted on the website at the end of each week. See below for website details.

Discussions
In these sessions we will expand upon material presented in lecture, explore topics not addressed in lecture, and provide opportunities to clarify lecture material. Attendance for many of the sessions will count toward your course grade, and there will be worksheets to be completed before or during these sessions. The schedule and worksheets will be provided during the first week’s discussion session. It is important that you go the “Discussion” link on the course website each week for more information about what will be done that week.

You cannot make up an absence by attending a different section. Assignments for the discussions are due at either the beginning or end of the sessions; due times are printed on the worksheets. Late work will not be accepted.

Text, course packet, and references
A course packet that contains selected readings is required, and can be purchased at the UO Bookstore. If a packet is not available, you must request one at the Bookstore, and they should have it for you within 24 hours.

The course text is One Renegade Cell, by Robert Weinberg (also available at the UO Bookstore). Though Weinberg’s focus is the molecular basis of cancer biology, his clarity and effective use of simple analogies make the text accessible to the layperson. A broader general text is the out-of-print Cancer: The Misguided Cell, by David Prescott and Abraham Flexer. For a more detailed treatment of several topics, The Biological Basis of Cancer, by Robert McKinnell, et al., is an excellent resource. Copies of these books will be on reserve in the Science Library.

Course website
The course website address is http://biology.uoregon.edu/classes/bi123w13/. The site is not administered through Blackboard, but a link on the Bi123 Blackboard Announcements page will take you to the course site. It contains the lecture and lab schedules, staff contact information, lecture notes and PowerPoint slides, supplemental material, announcements, current student scores, and related links. Lecture notes, slides, and supplemental reading are password protected. The password will be provided in the course packet and in class.
Grading
Each student’s course grade will be determined from the highest score derived from 3 methods:

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<th>Method 1</th>
<th>Method 2</th>
<th>Method 3</th>
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<tr>
<td>Exam 1</td>
<td>100 pts</td>
<td>150 pts (100 x 1.5)</td>
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<td>Exam 2</td>
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<td>150 pts (100 x 1.5)</td>
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<td>Final exam</td>
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<td>200 pts (150 x 1.333)</td>
<td>200 pts (150 x 1.333)</td>
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<td>Discussion</td>
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<td>Homework</td>
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<td>Lecture participation</td>
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Exams will be based upon lecture material, reading, and discussion section material. The second exam is not cumulative, but the final exam is cumulative. Six discussion sessions will count toward your grade (10 points each; the lowest score will be dropped). Three 25-point homework assignments will be given during the term. They will be posted on the course website, and will be due at your discussion section on weeks 3, 6, and 9. The “Lecture participation” component of the grading is in the form of i-clicker responses. These will be used in most lectures. Answers do not have to be correct for you to receive credit. Only 90% of the responses will be counted so that you won’t necessarily be penalized for a few missed sessions. See below for i-clicker policy and registration.

No other opportunities for points will be offered. Early or makeup exams will not be offered. Please do not ask for exceptions.

If you miss a midterm exam your grade will be based upon the Method 2 or Method 3 scores. Late homework assignments will be accepted the day after they are due (at lecture on Friday), but will be worth only 15 points. Assignments later than that will receive no credit. Absences from discussion sessions cannot be made up.

Class conduct
Class starts promptly at 3:00 and ends at 3:50. Please arrive on time and do not pack up before the conclusion of the lecture. Arriving late and leaving early is disruptive to others around you and to the speaker. Do not talk during lecture in a volume audible to anyone but the intended recipient. Please do not use any electronic devices during class; they are of no help to your learning, and are distracting to those around you and to the instructor.

Computers will not be allowed in lecture. If you have a requirement for using a computer to take notes, please make accommodations with the instructor on the first day of class. Your use of the computer may be monitored by a teaching assistant.

All work submitted in this course must be your own. Instances of suspected cheating or plagiarism on exams, quizzes, and reports will be referred to the Office of Student Conduct and Community Standards. Such cases are taken seriously, and charges of academic misconduct will be pursued to the fullest extent allowable. Sanctions may include a failing mark for the course.
For definitions of violations, a description of the hearing process, and a summary of penalties for findings of academic misconduct, go to

http://studentlife.uoregon.edu/StudentConductandCommunityStandards/ConductCode/tabid/69/Default.aspx

**Accommodations for students with disabilities**
If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me as soon as soon as possible, and not later than January 14. Please bring a notification letter from the Accessible Education Center outlining your approved accommodations.

**Bi123 i►clicker policy and registration**
Since lecture participation via polling by i►clickers constitutes 5% of your total score in this course, it is recommended that you purchase an i►clicker remote from the UO Bookstore (these can be sold back to the UO Bookstore at the end of the term for about 50% of the new purchase cost; however, note that i►clickers are being used with increasing frequency on campus, and you are likely to have other courses that require their use).

In order to receive credit for in class use of the i►clicker, you will need to register your i►clicker remote online within the first two weeks of class. You must have come to class at least once and responded on all questions posed during that lecture in order to complete this registration properly. Once you have responded in at least one class meeting, go to the “Course Documents” section in the Bi123 Blackboard site. Complete the fields with your first name, last name, Duck ID (not student ID number), and remote ID. The remote ID is below the barcode found on the bottom of the back of your i►clicker remote, or within the battery compartment. If you are not successful in registering on-line, we will provide an opportunity for you to register your clicker during class or during a discussion session.

The i►clicker response system will be used most days in class, and you are responsible for bringing your remote daily. Since the use of i►clickers in this course contributes to each student’s final grade, in-class misuse of these devices may be considered as acts of academic misconduct; this includes the loaning your i►clicker to a classmate who registers responses in your absence from lecture. If a student is caught using two i►clickers, both that student and the owner of the loaned device will, at the very least, lose all clicker points for the term. The few points gained from such actions is not worth the risk of a misconduct charge.