

BIOL846- Cancer Biology Fall 2023- 3 Credits

Instructor Information

Instructor: Dr. Surabhi Chandra

Office: BHS 201B

Phone: 308-865 8695

Email: chandras2@unk.edu (preferred contact); emails responded within 24 hours

Office Hours: MWF (9:00-10:00am); or by appointment

Textbook and Computer Requirements

Required Text: The Biology of Cancer, ISBN-13: 978-0-393-88765-5

Computer: You will need to have an up-to-date browser, operating system and some additional software on your computer in order to take this class. Some of the documents in this course will be available in PDF form. If you do not have Adobe Acrobat Reader software on your computer, you can download it from <https://get.adobe.com/reader/>

Course Description and Objectives

Course Description:

This course is designed as a survey of the current state of knowledge in the cellular and molecular biology of cancer processes. The students will also review current literature in cancer biology by analyzing and critiquing current articles.

Course objectives:

1. Gain a core understanding of the molecular and genetic basis of cancer.
2. Name and describe the characteristics of cancer cells.
3. Understand and recognize the complexity of cancer and the evolution of cancer cells throughout disease progression.
4. Understand the cellular and molecular basis of strategies for current and future cancer prevention and treatment methods.
5. Identify the molecular and genetic basis of various cancers.
6. Describe and determine how different cancer therapeutics and preventative methods work and discuss scenarios in which they may or may not be effective.

Course Format, Access, and Attendance

- **Course Format:** Because this is a web-based course and conducted entirely online, it is extremely important that you **regularly check your UNK email and Canvas**. In this course students will demonstrate their level of achievement by completing tests, participating in discussion boards, and submitting assignments, which will be completed online.
- **Course Access:** After accessing the course on Canvas, use the links provided on the home page or on the left of the Canvas screen for syllabus, modules, lectures, discussions, quizzes, assignments, or additional resources.
- **Attendance:** Since this is an online course, “attendance” refers to checking announcements, reading the content, doing the activities, and submitting the assignments by the deadline. It is required that you should be logging in the course at least 3-4 times a week. The instructor can check if you have been accessing the course regularly or not. You are advised to allot specific times on several days of the week (MWF or TTh) towards this course like your regular in-class sessions. Print a copy of the schedule on the last page and paste it at a prominent place to keep track of deadlines.

Course Design

The course is outlined in the form of modules as mentioned below. Each module will entail reading the textbook chapters, watching the lecture videos, reading additional resources, and participating in a quiz. In addition to the quizzes, there will be mid-term and final exams. The details on these will be provided as per their schedule.

Modules:

- There will be 4 modules in this course (schedule on the last page) which are categorized based on the content covered.

Lecture Content:

- Lecture content including lecture notes, lecture videos, and additional material will be posted on Monday of each week.
- An announcement will be posted each week along with the lecture content.
- The content covered in these will be primarily from the textbook.

Quiz:

- Topics covered in the quiz will be announced on Canvas (Schedule on the last page).
- Content would include chapters covered in the week and additional reading materials as provided.
- Quizzes will open on Friday @ 8 am and due by Tuesday @ midnight.
- These will typically include multiple choice questions, true/false and fill in the blank type of questions.
- *Two of the lowest scores* from these quizzes will be dropped at the end of the semester.

Exams:

- These will include content for that module i.e., textbook chapters as well as extra referencing based on the topics covered.
- These exams will have both a timed-online (MCQ) component as well as a take-home short-answer/essay component.
- Final exam is NOT comprehensive.

Course Communication

Announcements:

- Announcements will be posted on Canvas. Please make sure to check them regularly, as they will contain important information regarding assignments, or class concerns.

Discussion Board:

- Discussion Board will be used as a means of online communication between students and the instructor.
- Original Post- Each module in this course would have a discussion board. You will be assigned to specific groups to participate in the discussion boards. Please read the material assigned and respond to the question posted. The length of the post must be a minimum of 150-200 words with critical and thoughtful explanation of the topics. Support your post with relevant peer-reviewed articles. Original post is due by Friday @ midnight.
- Reply to Postings- There will be a minimum of 2 responses that you are required to provide on other students' postings. These responses should not be limited to one word such as "bravo", "nice" or use internet lingo (LOL, ROFL etc.). Typical responses should be at least 2-3 sentences after carefully analyzing the post and providing your inputs. Responses are due by Sunday @midnight.

- **Grading** - Each original post will be worth 7 points and responses will be 3 points (1.5 points each). Points will be deducted if original posts and responses are submitted within an hour of each other. Discussion boards are meant for interaction with your peers', hence continued participation is encouraged.

Coffee House: Since this is an online course, it is normal to have questions regarding assignments, tests, and lecture material. You can post these questions in the COFFEE HOUSE forum under the Discussion Board. This will be an open forum where you can help each other.

Grades

Discussion board postings	50 points = 4 modules (10 points each) + Introduction (10 points)
Quizzes	80 points = 10 quizzes (10 points each) – 2 lowest (10 points each)
Exam	400 points = 4 exams (100 points each)

Total **530 points**

Grades will be assigned as follows:

- 100 – 90% - A grades (>97% = A+; 96-93% = A; 92-90%= A-)
- 89 – 80% - B grades (89-87% = B+; 86-83%= B; 82-80% = B-)
- 79 – 70% - C grades (79-77% = C+; 76-73%= C; 72-70% = C-)
- 69 – 60% - D grades (69-67% = D+; 66-63%= D; 62-60% =D-)
- 60% and lower – F grade

Other Course Policies

- **Late Work:** Late work will not be accepted. If you have an extenuating circumstance, please contact me before the assignment is due to make alternate arrangements. I will require documentation in such cases.
- **Dropping the Class:** To avoid getting an F for the course, it is your responsibility to officially withdraw from the course prior to the deadline. Withdrawing from a class is done through your secure student account in MyBlue.
- **Receiving an Incomplete:** An incomplete ("I") is issued only if circumstances beyond your control (for example, hospitalization during finals week) prevent you from completing the required work for the class by the end of the semester. The circumstances preventing you from finishing the class must have arisen *after* the withdraw deadline. An incomplete grade will give you an *extension* to complete outstanding work only; it is *not* an opportunity to "start over" in the class. A contract must be signed detailing a timeline for completing the work, and all outstanding work must be completed within one year or the "I" grade *automatically* converts to a failing "F" grade. The conversion of an incomplete grade to a failing grade is university policy and is not within the control of instructor.
- **Finals Week Policy:** The final exam will be administered in the time period scheduled during finals week in accordance with University policy ([Final Exam Schedule](#)). More information about UNK's Finals Week Policy, including when it is appropriate to ask for special accommodations to move a course's final exam, can be found here: [Finals Week Policy](#).

UNK Policies

- **Ethics and Behavior:** You should be following the highest ethical, academic, and professional standards. The University's Academic Integrity policy is listed in Article VI of the Student Handbook. UNK Student Handbook or (<http://www.unk.edu/offices/reslife.aspx?id=2402>). Use of proper language and maintaining appropriate decorum is expected during the course. Discussion

boards will be moderated, and any use of abusive/foul language will be dealt with strictly and can result in expulsion from the university.

- **UNK Student Code of Conduct:** Please review the student code of conduct (<https://www.unk.edu/student-affairs/code-of-conduct.php>). Anyone caught cheating will fail the course.
- **Students with Disabilities:** It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with the UNK Disabilities Services for Students (DSS) office, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu
- **Academic Honesty Policy:** Academic honesty is essential to the existence and integrity of an institution of higher education. The responsibility for maintaining that integrity is shared by all members of the academic community. To further serve this end, the University of Nebraska at Kearney has a policy relating to academic integrity. To ensure all students understand the expectations, UNK has adopted Academic Integrity Policy.
- **Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault:** Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes they may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:
 - Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599
 - Campus Police (or Security) 308-865-8911
 - Title IX Coordinator 308-865-8655Retaliation against the student making the report, whether by students or University employees, will not be tolerated.
- **Students Who are Pregnant:** It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact the Student Health office at 308.865.8218. The following links provide information for students and faculty regarding pregnancy rights. <https://thepregnantscholar.org/title-ix-basics/> <https://nwlc.org/resource/faq-pregnant-and-parenting-college-graduate-students-rights/>
- **UNK Statement of Diversity & Inclusion:** UNK stands in solidarity and unity with our students of color, our Latinx and international students, our LGBTQIA+ students and students from other marginalized groups in opposition to racism and prejudice in any form, wherever it may exist. It is the job of institutions of higher education, indeed their duty, to provide a haven for the safe and meaningful exchange of ideas and to support peaceful disagreement and discussion. In our classes, we strive to maintain a positive learning environment based upon open communication and mutual respect. UNK does not discriminate on the basis of race, color, national origin, age, religion, sex, gender, sexual orientation, disability or political affiliation. Respect for the diversity of our

backgrounds and varied life experiences is essential to learning from our similarities as well as our differences. The following link provides resources and other information regarding D&I: <https://www.unk.edu/about/equity-access-diversity.php>


- **Veterans Services:** UNK works diligently to support UNK’s military community by providing military and veteran students and families with resources and services to help them succeed. Veterans Services assists with the GI Bill process and acts as a liaison between the student and the Veterans Administration. If you need assistance or would like more information, please contact Lori Weed Skarka at 308-865-8520 or unkveterans@unk.edu.

Additional Resources

- **Tech Support:** Available through email at unkhelpdesk@unk.edu or phone 308-865-8363.
- **Learning Commons (Tutoring):** Learning Commons services are available in person and on Zoom for all online and on-campus UNK students. To request an appointment for subject tutoring, writing tutoring, success coaching, or foreign language support, please submit an Appointment Request Form, call the Learning Commons Welcome Desk at 308-865-8905, or stop by the Welcome Desk in person in University Residence North (URN). To submit a draft of your writing for a tutor to review, go to the Writing Center page.
Website: https://www.unk.edu/offices/learning_commons/index.php

Please take a note of the deadlines for dropping or withdrawing from the course
https://www.unk.edu/offices/registrar/academic_policies_handbook/Academic_Calendar.php

Last day to withdraw from one or more full-semester course for the term: November 10

Weekly Schedule (Tentative)				
Week	Dates	Module	Chapters Tested	Assessment
1	08/21-08/25	M 1	Chap 1- The Biology and Genetics of Cells and Organisms	Quiz 1 (08/25-08/29) Chap 1
2	08/28-09/01	M 1	Chap 2- The Nature of Cancer Chap 3- Cancer as an Infectious Disease	Quiz 2 (09/01-09/05) Chap 2 and 3
3	09/04-09/08	M 1	Chap 4- Cellular Oncogenes	Quiz 3 (09/08-09/12) Chap 4
4	09/11-09/15	M 2	Chap 5- Growth Factor, Receptors, and Cancer	EXAM 1 (09/11-09/18) Chap 1, 2, 3, 4
5	09/18-09/22	M 2	Chap 6- Cytoplasmic Signaling	Quiz 4 (09/22-09/26) Chap 5, 6
6	09/25-09/29	M 2	Chap 7- Tumor Suppressor Genes	Quiz 5 (09/29-10/03) Chap 7
7	10/02-10/06	M 3	Chap 8- pRb and Control of the Cell Cycle Clock	EXAM 2 (10/02-10/09) Chap 5, 6, 7
8	10/09-10/13	M 3	Chap 9- p53: Master Guardian and Executioner	Quiz 6 (10/13-10/17) Chap 9
9	10/16-10/20	M 4	Chap 10- Eternal Life: Cell Immortalization and Tumorigenesis	Quiz 7 (10/20-10/24) Chap 10
10	10/23-10/27	M 4	Chap 11- Multistep Tumorigenesis	Quiz 8 (10/27-10/31) Chap 11
11	10/30-11/03	M 4	Chap 12- Shaping and Characterizing the Cancer Genome	EXAM 3 (10/30-11/06) Chap 8, 9, 10, 11
12	11/06-11/10	M 4	Chap 13- Angiogenesis	Quiz 9 (11/10-11/14) Chap 12, 13
13	11/13-11/17	M 4	Chap 14- Invasion and Metastasis	NO QUIZ
14	11/20-11/24		THANKSGIVING BREAK 	
15	11/27-12/01	M 4	Chap 15- Tumor Immunology	Quiz 10 (12/01-12/05) Chap 14, 15
16	12/04-12/08		Chap 16- Cancer Immunotherapy	FINAL EXAM (12/04-12/11) Chap 12, 13, 14, 15, 16

Discussion Board Schedule		
Module	Topic	Due Date
M 1	Chap 1, 2, 3, 4	Original: 09/08; Response: 09/10
M 2	Chap 5, 6, 7	Original: 09/29; Response: 10/01
M3	Chap 8, 9, 10, 11	Original: 11/03; Response: 11/05
M 4	Chap 12, 13, 14, 15	Original: 12/01; Response: 12/03