

## **Syllabus: BIOM-515, Spring 2021**

**Course Title:** Cancer Biology

**Course Number:** Bio515

**Course Credits:** 3.0

**Primary Instructor:** Dr. Eric Bartee

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Phone: (505) 272-9916

Office Hours: Anytime

Location: CRF 309a

**Co-Instructor:** Dr. Todd Thompson

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**Course Teaching Assistant:** Ms. Miriam Valenzuela-Cardenas

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### **Class meetings:**

Mon 9:00 – 10:30

Thurs 9:00 – 10:30

### **Course Description:**

Fundamental elements of cancer development, progression, presentation and treatment will be the focus of this graduate course. Basic genetic, biochemical, cell, and molecular mechanisms of tumorigenesis will be interwoven with clinical perspectives, normal versus tumor pathology, and therapeutic strategies. Specific blood cancer and solid tumor examples and readings of current literature will offer perspectives on distinctions between tumor types, molecular drivers, roles of the immune system and the microenvironment in progression and metastasis. Class format will include a combination of instructor- and student-led discussions.

### **Course Goals:**

- To gain an overview of genetic, biochemical, cell, and molecular mechanisms of human cancers
- To gain an understanding of the relationship between biomedical research and the clinical and patho-biological aspects relevant to the diagnosis and therapeutic treatment of human cancers
- To identify active areas of cancer research and prospective cancer research interests
- To read and discuss current scientific cancer literature

### **Student Learning Outcomes:**

- Define and explain genetic, biochemical, cell and molecular mechanisms of cancer
- Distinguish the major steps in cancer development and progression and their relationship to disease mechanisms and therapeutic strategies


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- Describe the major clinical-translational areas of research in cancer biology and the goals of biomedical research in these areas
- Demonstrate effective use of information technology, oral presentation and team work skills through discussion of current literature

### Textbook and Reading:

**All of the most current course information, general communications, primary literature readings, and instructor slides will be posted and occur through UNM LEARN.**

UNM Learn features a new accessibility tool called Ally that is available in UNM Learn for Spring 2020 courses. Ally automatically creates alternative formats of certain file types in

UNM Learn. Students can click the Alternative Formats icon (  ) that appears next to supported files to download the format that is most appropriate for their devices and learning needs. Information for students is available at [Viewing Content - Alternative Formats](#).

**For background reading we suggest:** “The Basic Science of Oncology” 5<sup>th</sup> Ed., Ian Tannock et al., (2013) McGraw Hill Education, ISBN 978-0-07-174520-8

**Primary Literature.** Readings for discussion sessions will include salient primary literature articles that explore basic mechanisms of carcinogenesis, clinical perspectives and therapies. The readings will be assigned in advance by individual faculty along with guiding questions to be addressed in student-led discussion sessions.

**Class Reading Materials and Slides.** Assigned readings from the primary literature will be posted in advance through UNM Learn. Instructor lecture slides will also be made available.

### Assessment and Grading:

- 136 Total Points are possible
- 56 Points: Student group paper discussions (4 points/session; 14 total sessions)
- 80 Points: Take home exams (20 points/each; 4 total)
- Regular class attendance is expected, unless an excused absence is requested and approved in advance by Dr. Bartee. Excessive absences will impact grade.
- Grading scale:
  - >95 = A+
  - 90 – 95 = A
  - 85 – 90 = A-
  - 80 – 85 = B+
  - 75 – 80 = B
  - 70 – 75 = B-
  - 65 – 70 = C+
  - 60 – 65 = C
  - <60 = Not Passed

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## Course Schedule:

<b>BLOCK 1: Introduction to Carcinogenesis and Programmed Cell Death</b>		
	January 18, 2020	<b>UNM Holiday</b>
Todd Thompson	January 21, 2020	<b>Cancer Terminology and Definitions</b>
	January 25, 2020	<b>Chemical &amp; Physical Carcinogenesis</b>
	January 28, 2020	Group paper presentations
C. Andy Hu	February 1, 2020	<b>Molecular Pathways in Carcinogenesis</b>
	February 4, 2020	Group paper presentations
	February 8, 2020	<b>Programmed Cell Death in Cancer</b>
	February 11, 2020	Group paper presentations
	<b>BLOCK 1 TAKE HOME EXAM: Distributed Feb 11 -- Due beginning of class Feb. 15</b>	
<b>BLOCK 2: Cancer Immunology: Infection, Inflammation and Immune Therapies</b>		
Allison Kell	February 15, 2020	<b>Chronic Inflammation and Cancer</b>
	February 18, 2020	Group Paper Discussions
Eric Bartee	February 22, 2020	<b>Basis for anti-Cancer Immunity</b>
	February 25, 2020	Group Paper Discussions
	March 1, 2020	<b>Immunological impact of the Tumor microenvironment</b>
	March 4, 2020	Group Paper Discussions
	March 8, 2020	<b>Current methods of Cancer Immunotherapy</b>
	March 11, 2020	Group Paper Discussions
<b>BLOCK 2 TAKE HOME EXAM: Distributed Mar 11 -- Due beginning of class Mar 22</b>		
	March 15, 2020	<b>SPRING BREAK</b>
	March 18, 2020	<b>SPRING BREAK</b>
<b>BLOCK 3: Breast Cancer: Roles of Microenvironment and Cell Signaling in Development, and Targeted Therapeutics</b>		
Helen Hathaway	March 22, 2020	<b>Breast Structure Development and Function in Cancer</b>
Curt Hines	March 25, 2020	<b>Breast Cancer Microenvironment</b>
Hathaway + Hines	March 29, 2020	Group Paper Discussion
Eric Prossnitz	April 1, 2020	<b>Steroid Receptors &amp; Hormone-targeted Breast Cancer Therapy</b>
	April 5, 2020	Group Paper Discussion
Mara Steinkamp	April 8, 2020	<b>Tyrosine Kinase Receptors and Targeted Therapeutics</b>
	April 12, 2020	Group Paper Discussion
<b>BLOCK 3 TAKE HOME EXAM: Distributed Apr 12 -- Due beginning of class Apr 15</b>		
<b>BLOCK 4: Cancer Genomics</b>		
Scott Ness	April 15, 2020	<b>Cancer Genomics</b>
	April 19, 2020	<b>Genetic Lesions in Cancer</b>
	April 22, 2020	Paper Discussion
	April 26, 2020	<b>Oncogenes and Tumor Suppressors or DNA Damage Repair</b>
	April 29, 2020	Paper Discussion
Ksenia Matlawska-Wasowska	May 3, 2020	<b>Pediatric Leukemias</b>
	May 6, 2020	Paper Discussions/Clinical Perspectives
<b>BLOCK 4: TAKE HOME EXAM: Distributed May 6 –Due May 10 (9:00 AM)</b>		

## Accommodation Statement

Accessibility Services (Mesa Vista Hall 2021, 277-3506) provides academic support to students who have disabilities. If you think you need alternative accessible formats for undertaking and completing coursework, you should contact this service right away to assure your needs are met

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in a timely manner. If you need local assistance in contacting Accessibility Services, see the Bachelor and Graduate Programs office.

### **Title IX Statement**

A Note about Sexual Violence and Sexual Misconduct: As a UNM faculty member, I am required to inform the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu) of any report I receive of gender discrimination which includes sexual harassment, sexual misconduct, and/or sexual violence. You can read the full campus policy regarding sexual misconduct at <https://policy.unm.edu/university-policies/2000/2740.html>. If you have experienced sexual violence or sexual misconduct, please ask a faculty or staff member for help or contact the LoboRESPECT Advocacy Center.

### **Academic Integrity**

The University of New Mexico believes that academic honesty is a foundational principle for personal and academic development. All University policies regarding academic honesty apply to this course. Academic dishonesty includes, but is not limited to, cheating or copying, plagiarism (claiming credit for the words or works of another from any type of source such as print, Internet or electronic database, or failing to cite the source), fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. The University's full statement on academic honesty and the consequences for failure to comply is available in the University Catalog and in the Pathfinder.

### **Cell Phones and Technology**

As a matter of courtesy, please turn off cell phones, pagers, and other communication and entertainment devices prior to the beginning of class. Notify me in advance if you are monitoring an emergency, for which cell phone ringers should be switched to vibrate.