

GS21 1301: Nanocourse Syllabus: Clinical perspective for a basic scientist

This course is covering a wide range of clinical and clinical research related topics.

Epidemiology/Prevention: Students will be introduced to basic genetic epidemiology principles and discuss molecular epidemiologic approaches including GWAS studies. A physician will discuss the concept and practice of cancer prevention including dietary recommendation, medication, vaccination, and screening.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Coya Tapia	Edwin J. Ostrin	2

Clinical Trial/Biostatistics: Students will be taught about cancer-specific trials and how prospective and interventional designs are used to maximize yield in Phase 1, 2 and 3 trials. Students will learn about clinical trial protocols, key components of the protocol include detailed background of the disease and type of intervention, primary and secondary objectives, inclusion and exclusion criteria, drug description including dose

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Larry Kwong	Rodabe N. Amaria	2

Multiomics/Biomarkers: Lectures for this topic will cover how multiomic approaches will be used to understand molecular alterations in patient derived samples including tumor samples, blood and other bodily fluids and how this information will be used to influence diagnostic and treatment decisions.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Larry Kwong	Scott E. Woodman	1
	Johannes Fahrman	1

Animal Models and Co-clinical trials: Students will be taught various mouse models used in cancer research. The concept of patient-derived xenografts and genetically engineered mouse models will be reviewed and their applications in co-clinical trials and how this helps in stratification of patient populations that will likely respond to therapy will be explained.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Larry Kwong	Vashisht Yennu-Nanda	2

Surgery: A surgeon will discuss e.g. basic knowledge of surgery, feasibility and limitations that might occur or what surgical results can be expected. What tumors what extent of tumor can be operated and where are limitations to surgical interventions.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Krishna Bhat	Jeffrey Weinberg	2

Pathology: This lecture will focus on basis of pathology and the practical application of pathology in basic science, translational and clinical research. The topics addressed in the lecture include types of tissue samples and optimal collection techniques, processing of tissue samples and review of procedures, basics of histopathologic interpretation of samples, and advances in molecular pathology with respect to individualized cancer therapies.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Krishna P. Bhat	Priyadharsini Nagarajan	2

Radiation and Chemotherapy: This lecture will review the concepts relating to the effects of radiation on normal tissues and effects on malignant cells and helps students to understand the role and use of combination modalities, such as chemotherapy and radiation in oncology. Various types of therapies including chemotherapy, molecular targets, and immunotherapy will be reviewed. The lecture also includes some information regarding how toxicity of cancer treatment can be minimized using proton therapy, especially in pediatrics.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Krishna P. Bhat	Kristina Woodhouse	2

Survivorship: This lecture describes the development of the Cancer Survivorship Program at MD Anderson, focusing on the development of guidelines to guide clinical practice, education modules to provide guidance to community physicians on the care of survivors and research seed-funding resources to provide preliminary data to help fund trials that describe the management of this highly mis-understood population. Additionally, a survivor will talk about her/his journey through cancer.

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Coya Tapia	Susan Rafte	1
	Alma Rodriguez	1

Exam: A multiple choice questions based test will be offered on the last day of the course and students will graded using the pass/fail system

<u>Course Director</u>	<u>Instructors</u>	<u>Hours</u>
Krishna P. Bhat		3