IMPORTANT: This syllabus form should be submitted to OAA (gsbs_academic_affairs@uth.tmc.edu) a week before the start of each semester.

NOTE to STUDENTS: If you need any accommodations related to attending/enrolling in this course, please contact one of the Graduate School's 504 Coordinators, Cheryl Spitzenberger or Natalie Sirisaengtaksin. We ask that you notify GSBS in advance (preferably at least 3 days before the start of the semester) so we can make appropriate arrangements.

Term and Year: **Summer 2025** Course Number and Course Title: **GS21 1301: Clinical Perspective for a Basic Scientist** **Credit Hour: 1** Meeting Location: **UTHH-MD Anderson Cancer Ctr.** Building/Room#: **BSRB Gallick Classroom, S3.8367** **WebEx/Zoom Link:**	**Program Required Course:** No **Approval Code:** No **Audit Permitted:** Yes Classes Begin: **June 9, 2025** Classes End: June **20, 2025** Final Exam Week: **June 20, 2025**

Class Meeting Schedule

Date	Time
June 9 -13, 2025	**9:00 - 10:00 am**
June 16-20, 2025	**9:00 - 10:00 am**

Course Director Name and Degree: **Wantong Yao, MD, PhD** Title: **Associate Professor** Department: **Translational Molecular Pathology** Institution: **MDACC** Email Address: wyao22@mdanderson.org Contact Number**: 713-563-4411** **Course Co-Director/s:** Name and Degree**: Lawrence Kwong, PhD** Title: **Associate Professor** Department: **Translational Molecular Pathology** Institution: **MDACC** Email Address: lkwong@mdanderson.org	**Instructor/s** (Use additional page as needed) 1. **Rodabe Amaria, PhD** Institution: MDACC Email Address: rnamaria@mdanderson.org 2. **Ecaterina Dumbrava, MD** Institution: MDACC Email Address: eeileana@mdanderson.org 3. **Edwin Ostrin, MD, PhD** Institution: MDACC Email Address: ejostrin@mdanderson.org 4. **Ahsan Farooqi, MD, PhD**

Contact Number**: 713-563-4763**

Name and Degree**: Yang Chen, PhD**

Title: **Assistant Professor**

Department: **Translational Molecular Pathology**

Institution: **MDACC**

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Contact Number: **713-792-5491**

NOTE: Office hours are available by request. Please email me to arrange a time to meet.

Teaching Assistant:

N/A
Name and Email Address

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5. **Lawrence Kwong, PhD**

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9. **Wantong Yao, MD, PhD**

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Course Description:
In this newly created nanocourse, emphasis is on clinical aspects in cancer and how research in general can accelerate, contribute to answer clinical questions in this field. Therefore, many of our speakers are clinicians, or have a strong clinical background, e.g. in pathology, surgery, therapy modalities, or clinical trials.

Course Objective/s: (We need 3-5 learning objectives that we can use for the course survey.)
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.
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

Multiomics/patient samples: 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.

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.

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.

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.

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.

Biomarkers: A researcher will introduce basis of molecular biomarkers, molecular profiling technologies, and their clinical applications, including risk assessment, early detection, and prediction of therapeutic responses, monitoring, and determination of prognosis.

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.

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

Learning objectives:

1) **To understand the process of implementing laboratory research results in the clinic**
2) **To understand how cancers are "basketed" to specific therapies in the clinic**
3) **To understand how new cancer therapies are assessed for efficacy and safety**
4) **To gain insight into how clinical practice is organized**

Student Responsibilities and Expectations:

Students enrolled in this course will be expected to attend each course, and prepare for and take a final examination based on lectures.

Grading System: **Pass/Fail**

Student Assessment and Grading Criteria : *(May include the following:)*

Percentage	Description

Final Exam (50%)	
Participation and/or Attendance (50 %)	

CLASS SCHEDULE Summer 2025

Date	Duration (Hour(s) taught by lecturer)	Lecture Topic	Lecturer/s
Monday, **June 9**	**1 hour**	**Clinical Trials**	**Dr. Rodabe N. Amaria**
Tuesday, **June 10**	**1 hour**	**Chemotherapy and other systemic therapies**	**Dr. Ecaterina Dumbrava**
Wednesday, **June 11**	**1 hour**	**Epidemiology/prevention**	**Dr. Edwin J. Ostrin**
Thursday, **June 12**	**1 hour**	**Radiation Oncology**	**Dr. Ahsan Farooqi**
Friday, **June 13**	**1 hour**	**Animal Models & C0-Clinical Trials**	**Dr. Larry Kwong**
Monday, **June 16**	**1 hour**	**Surgery**	**Dr. Chiba Ene**
Tuesday, **June 17**	**1 hour**	**Pathology**	**Dr. Priyadharsini Nagarajan**
Wednesday, **June 18**	**1 hour**	**Multiomics**	**Dr. Larry Kwong**
Thursday, **June 19**	**1 hour**	**Survivorship**	**Dr. Alma Rodriguez**
Friday, **June 20**	**2 hour**	**Final Test**	**Dr. Wantong Yao**

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