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 2026

Course Number and Course Title:
GS21 1301: Clinical Perspective for a Basic Scientist

Credit Hours: 1

Meeting Location: UTHH-MD Anderson Cancer Ctr

Building/Room#: BSRB S3.8351

WebEx/Zoom Link:

Program Required Course: ☐ Yes ☑ No

Approval Code: ☐ Yes ☑ No

(If yes, the Course Director or the Course Designee will provide the approval code.)

Audit Permitted: ☑ Yes ☐ No

Classes Begin: June.1

Classes End: June. 12

Final Exam Week: June 8

Class Meeting Schedule

Day	Time
Monday - Friday June. 1-5, 2026	9:00am-10:00am
Monday - Friday June. 8-12, 2026	9:00am-10:00am

Course Director

Name and Degree: Wantong Yao, MD, PhD

Title: Associate Professor

Department: Translational Molecular Pathology

Institution: ☐ *UTH* ☑ *MDACC*

Email Address: wyao22@mdanderson.org

Contact Number: 713-563-4411

Course Co-Director/s: (if any)

Name and Degree: Lawrence Kwong, PhD

Title: Associate Professor

Department: Translational Molecular Pathology

Institution: ☐ *UTH* ☑ *MDACC*

Email Address: lkwong@mdanderson.org

Contact Number: 713-563-4763

Office Hours:

Instructor/s (Use additional page as needed)

1. Name and Degree: Rodabe Amaria, PhD
   Institution: MDACC
   Email Address : rnamaria@mdanderson.org

2. Name and Degree: Ecaterina Dumbrava, MD
   Institution: MDACC
   Email Address : eeileana@mdanderson.org

3. Name and Degree: Edwin Ostrin, MD, PhD
   Institution: MDACC
   Email Address: ejostrin@mdanderson.org

4. Name and Degree: Ahsan Farooqi, MD, PhD
   Institution: MDACC
   Email Address: afarooqi@mdanderson.org

Teaching Assistant: (if any)	**Cont. Instructor/s**
Name and Email Address Name and Email Address	5. Name and Degree: Lawrence Kwong, PhD Institution: MDACC Email Address: lkwong@mdanderson.org

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.

Textbook/Supplemental Reading Materials (if any)

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<u>Course Objective/s</u>:

Upon successful completion of this course, students will

Full Course Objective on page 5.

***Specific 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
5.

Student responsibilities and expectations: *(See example below. **NOTE:** Delete the written example once you input your information in this field.*

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

Example:
Students enrolled in this course will be expected to perform the following activities each week:

1. Read, process, and review (study) material from 1 or 2 seminal reviews relating to the week's cancer biology topic
2. Read 2 research articles (e.g., primary research)
3. Write 2 one-page literature synopses for the assigned research articles (see Course Grading for more detail)
4. Prepare for and take course quizzes based on course lectures/ readings.
5. Attend and participate at the journal club review session
6. Participate in and contribute to course discussions during lecture, review sessions
7. Prepare for and take a final examination based on lecture and some reading material

Students are expected to complete all assigned reading material (reviews and research literature) prior to class. While you may work and discuss all course materials and assignments in groups, all writing assignments must be your own. Plagiarism and failure to properly cite scientific literature and other sources will not be tolerated and are grounds for dismissal from the course and further GSBS disciplinary action. Cheating or engaging in unethical behavior during examinations (quizzes and final) will be grounds for dismissal from the course without credit and further GSBS disciplinary action.

Grading System: ☐ Letter Grade (A-F) ☑ Pass/Fail	
Student Assessment and Grading Criteria : (May include the following:)	
Homework (%)	Description
Quiz (%)	Description
Presentation (%)	Description
Midterm Exams (%)	Description
Final Exam (50 %)	Description
Workshop or Breakout-Session (%)	Description
Participation and/or Attendance (50 %)	Description

CLASS SCHEDULE

Day/Date	Duration [Hour(s) taught by lecturer]	Lecture Topic	Lecturer/s
Mon, June 1	1 Hour	Clinical Trials	Dr. Rodabe N. Amaria
Tue, June 2	1 Hour	Chemotherapy and other systemic therapies	Dr. Ecaterina Dumbrava
Wed, June 3	1 Hour	Epidemiology/prevention	Dr. Edwin J. Ostrin
Thu, June 4	1 Hour	Radiation Oncology	Dr. Ahsan Farooqi
Fri, June 5	1 Hour	Animal Models & C0-Clinical Trials	Dr. Larry Kwong
Mon, June 8	1 Hour	Surgery	Dr. Chiba Ene
Tue, June 9	1 Hour	Pathology	Dr. Priyadharsini Nagarajan

Wed, June 10	1 Hour	Multiomics	Dr. Larry Kwong
Thu, June 11	1 Hour	Survivorship	Dr. Alma Rodriguez
Fri, June 12	2 Hour	Final Test	Dr. Wantong Yao

NOTE: Provide other class information as needed.

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 misunderstood population. Additionally, a survivor will talk about her/his journey through cancer.