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: Fall 2021 **Course Number and Course Title:** **GS04 1813: History of Biology and Cancer Science** **Credit Hours: 3** **Meeting Location: 4SCR1.1110 auditorium or 4SCR5. Conference room** **Building/Room#: South campus research building 4, first floor, 1881 East Rd, Houston, TX77054** **WebEx/Zoom Link: Depends on the GSBS policy now**	**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: Jan 11, 2021** **Classes End: Apr 29, 2021** **Final Exam Week: None**

Class Meeting Schedule

Day	Time
Tuesday	**3:30P-5PM**
Friday	**3:30P-5PM**

Course Director Name and Degree: **Raghu Kalluri, M.D., Ph.D.** Title: **Professor and Chairman** Department: **Department of Cancer Biology** Institution: *UTH* ***MDACC*** Email Address: rkalluri@mdanderson.org Contact Number: **617-320-7299** **Course Co-Director/s:** (if any) N/A Name and Degree: Title: Department: Institution: *UTH* *MDACC* Email Address:	**Instructor/s (See attached)** 1. Name and Degree Institution: Email Address : 2. Name and Degree Institution: Email Address : 3. Name and Degree Institution: Email Address

NOTE: Office hours are available by request. Please email me to arrange a time to meet. **Teaching Assistant**: (if any) Name and Email Address Name and Email Address	4. Name and Degree Institution: Email Address

Course description:
This course is designed to have students experience the history of Biology and Cancer Science as it evolved. Seminal papers in the last 100 years will be reviewed in a chronological fashion to have students appreciate seminal discoveries that advanced our fundamental understanding of human Biology and the disease called Cancer. Through this journey students will be able to experience how techniques and tools to study Biology evolved and how such knowledge was applied to understand and unravel new information about cancer. The course will highlight how such fundamental biology helped translate science and help generate drugs to combat cancer.

Textbook/Supplemental Reading Materials (if any)

- **Reading materials will roll in step-wise during the course (see class schedule for details)**
- **Published paper in the last 100 years will be dicussed and this will be discussed when we meet on January 11th.**

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

A course that allows students to appreciate how Biology and Cancer Science evolved. This will be achieved by discussing seminal papers and evaluating techniques that were used to derive such seminal conclusions that moved the field forward. The students will be made to understand that good science evolves slowly but definitively.

***Specific Learning Objectives*:**

1) Read and comprehend papers and understand related background in the field that led to the study.
2) Discuss each critical figure and its implication.
3) Evaluate whether the conclusion of the paper was logically derived from the data.
4) Appreciate how Biology and Science evolved.
5) Use this knowledge to think of important questions left unanswered in Biology and Cancer Science.
6) Learn how experiments were designed and how things are different today.

Student responsibilities and expectations:

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

1. Read, synthesis and review materials from 1-2 seminal primary research articles relating to the week's topic. Additional overview of related papers that provide related background information is encouraged but optional.
2. Prepare for course presentations during student-lead and faculty-supervised class discussions based on the reading materials
3. Participate in and contribute to course discussions during lecture
4. No exams. Homework and course grading is solely based on paper preparation, literature synthesis, discussion participations and taking initiatives, and presentation skill maturations.

Students are expected to complete all assigned reading material (reviews and research literature) prior to class.

Grading System: Letter Grade (A-F) **Pass/Fail**

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

Percentage	Description
Homework (%)	
Quiz (%)	
Presentation (%)	
Midterm Exams (%)	
Final Exam (%)	
Workshop or Breakout-Session **(100 %)**	**Course grade will be entirely based on literature review, synthesis, presentation, and class participation**
Participation and/or Attendance **(100 %)**	

CLASS SCHEDULE

Date	Duration (# hour/s lecturer taught)	Lecture Topic	Lecturer/s
Tues, Jan 11	1h30m	DNA	Student lead discussion
Fri, Jan 14	1h30m	DNA	Faculty supervised discussion
Tues, Jan 18	1h30m	Codon	Student lead discussion
Fri, Jan 21	1h30m	Codon	Faculty supervised discussion
Tues, Jan 25	1h30m	Gene regulation	Student lead discussion
Fri, Jan 28	1h30m	Gene regulation	Faculty supervised discussion
Tues, Feb 1	1h30m	Epigenetics: DNA methylation & histone code	Student lead discussion
Fri, Feb 4	1h30m	Epigenetics: DNA methylation & histone code	Faculty supervised discussion
Tues, Feb 8	1h30m	Influence on cancer cells	Student lead discussion
Fri, Feb 11	1h30m	Influence on cancer cells	Faculty supervised discussion
Tues, Feb 15	1h30m	Vesicles	Student lead discussion
Fri, Feb 18	1h30m	Vesicles	Faculty supervised discussion
Tues, Feb 22	1h30m	The genomic dark matter	Student lead discussion
Fri, Feb 25	1h30m	The genomic dark matter	Faculty supervised discussion
Tues, Mar 1	1h30m	Oncogene and proto-oncogene	Student lead discussion
Fri, Mar 4	1h30m	Oncogene and proto-oncogene	Faculty supervised discussion
Tues, Mar 8	1h30m	P53 and tumor supressor	Student lead discussion
Fri, Mar 11	1h30m	P53 and tumor supressor	Faculty supervised discussion
Tues, Mar 15	1h30m	Oncomouse	Student lead discussion
Fri, Mar 18	1h30m	Oncomouse	Faculty supervised discussion
Tues, Mar 22	1h30m	Tumor initiating and adult stem cells	Student lead discussion
Fri, Mar 25	1h30m	Tumor initiating and adult stem cells	Faculty supervised discussion
Tues, Mar 29	1h30m	Field cancerization	Student lead discussion
Fri, Arp 1	1h30m	Field cancerization	Faculty supervised discussion
Tues, Apr 5	1h30m	Chemo and targeted molecular therappy	Student lead discussion
Fri, Apr 8	1h30m	Chemo and targeted molecular therappy	Faculty supervised discussion
Tues, Apr 12	1h30m	Tumor immunity and immunotherapy	Student lead discussion
Fri, Arp 15	1h30m	Tumor immunity and immunotherapy	Faculty supervised discussion
Tues, Apr 19	1h30m	CRIPSR	Student lead discussion
Fri, Apr 22	1h30m	CRIPSR	Faculty supervised discussion
Tues, Apr 26	1h30m	Single cell technology	Student lead discussion
Fri, Apr 29	1h30m	Single cell technology	Faculty supervised discussion