

**IMPORTANT:** This syllabus form should be submitted to OAA ([gsbs\\_academic\\_affairs@uth.tmc.edu](mailto: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 Spitzengerger 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.

<p><b>Term and Year</b></p> <p>Course Number and Course Title:</p> <p>Credit Hours:</p> <p>Meeting Location:</p> <p>Building/Room#:</p> <p>WebEx/Zoom Link:</p>	<p>Program Required Course:      Yes      No</p> <p>Approval Code:      Yes      No</p> <p><b>(If yes, the Course Director or the Course Designee will provide the approval code.)</b></p> <p>Audit Permitted:      Yes      No</p> <p>Classes Begin:</p> <p>Classes End:</p> <p>Final Exam Week:</p>
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**Class Meeting Schedule**

Day	Time

<p><b>Course Director</b></p> <p>Name and Degree:</p> <p>Title:</p> <p>Department:</p> <p>Institution:      <i>UTH</i>      <i>MDACC</i></p> <p>Email Address:</p> <p>Contact Number:</p> <p><b>Course Co-Director/s:</b> (if any)</p> <p>Name and Degree:</p> <p>Title:</p> <p>Department:</p> <p>Institution:      <i>UTH</i>      <i>MDACC</i></p> <p>Email Address:</p> <p>Contact Number:</p> <p><b>NOTE:</b> Office hours are available by request. Please email me to arrange a time to meet.</p>	<p><b>Instructor/s</b> (Use additional page as needed)</p> <p>1.</p> <p style="padding-left: 20px;">Name and Degree</p> <p style="padding-left: 20px;">Institution:</p> <p style="padding-left: 20px;">Email Address :</p> <p>2.</p> <p style="padding-left: 20px;">Name and Degree</p> <p style="padding-left: 20px;">Institution:</p> <p style="padding-left: 20px;">Email Address :</p> <p>3.</p> <p style="padding-left: 20px;">Name and Degree</p> <p style="padding-left: 20px;">Institution:</p> <p style="padding-left: 20px;">Email Address</p> <p>4.</p> <p style="padding-left: 20px;">Name and Degree</p> <p style="padding-left: 20px;">Institution:</p> <p style="padding-left: 20px;">Email Address:</p>
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<b>Teaching Assistant:</b> (if any)  Name and Email Address  Name and Email Address	<b>Cont. Instructor/s</b>  5. Name and Degree Institution: Email Address
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**Course description:**

**Textbook/Supplemental Reading Materials** (if any)

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**Course Objective/s:**  
Upon successful completion of this course, students will

***Specific Learning Objectives:***

- 1.
- 2.
- 3.
- 4.
- 5.

**Student responsibilities and expectations:**




**NOTE:** Provide other class information as needed.

*jal/04.21*

Date	Lecture Title	Lecturer(s)	Exception?
8/30/2021	Review of basic biochemistry	Stafford	
9/1/2021	Biomolecules	Stafford	
9/3/2021	The eukaryotic cell I	Stafford	
9/6/2021	HOLIDAY – NO CLASS	HOLIDAY	
9/8/2021	The eukaryotic cell II	Stafford	
9/10/2021	DNA and the genome	Taylor	
9/13/2021	Protein synthesis	Taylor	
9/15/2021	Thermodynamics and bioenergetics	Stafford/Walker	
9/17/2021	Enzymes and kinetics	Stafford/Walker	
9/20/2021	Cellular energetics and glycolysis	S Millward	
9/22/2021	Aerobic respiration and anaerobic glycolysis	NZ Millward	
9/24/2021	Non-carbohydrate metabolism	S Millward	
9/27/2021	Regulation and dysregulation of metabolism	NZ Millward	
9/29/2021	Imaging metabolism	NZ Millward	
10/1/2021	The cell cycle and mitosis	Jones	
10/4/2021	DNA maintenance and repair	Taylor	
10/6/2021	Cell death: Apoptosis, autophagy, and necroptosis	S Millward	
10/8/2021	Introduction to radiobiology and significance of radiotherapy for cancer treatment	Schueler	
10/11/2021	Target theory and cell survival curves	Schueler	
10/13/2021	Dose-response relationships in radiotherapy	Schueler	
10/15/2021	LET and RBE	Sawakuchi	
10/18/2021	Immunology and the immune system I	Jones	
10/20/2021	Immunology and the immune system II	Jones	
10/22/2021	Cancer biology I	Stafford/Walker/Farach-Carson	
10/25/2021	Tumor growth and development	Stafford	
10/27/2021	Image driven modeling of tumor growth and response to radiation therapy	Hormuth	
10/29/2021	Cell-cell and cell-substratum interactions	Farach-Carson	
11/1/2021	Cell interactions with extracellular matrix	Farach-Carson	
11/3/2021	Cell communications in complex tissues	Farach-Carson	
11/5/2021	Controls of cell fate and decision making	Farach-Carson	
11/8/2021	Cell and matrix responses to stress: wound healing	Farach-Carson	
11/10/2021	Cancer biology II	Farach-Carson	
11/12/2021	Systems approach to modeling cancer	Karacosta	
11/15/2021	Response of tumors to radiation	Howell	
11/17/2021	Response of normal tissues to radiation	Howell	
11/19/2021	Fractionation: the linear quadratic approach	Howell	
11/22/2021	The linear quadratic approach in clinical practice	Howell	
11/24/2021			
11/26/2021	HOLIDAY – NO CLASS	HOLIDAY	

11/29/2021	Pathogenesis of normal tissue side effects and time factors in normal tissue response to radiation	Fuller	
12/1/2021	Modified fractionation	Howell	
12/3/2021	The oxygen effect and tumor hypoxia	Schueler	
12/6/2021	Biological response modifiers for normal tissues	?????	
12/8/2021	Retreatment tolerance of normal tissues	Fuller	
12/10/2021	Alternative approaches to radiotherapy (FLASH)	Schueler	
TBD	<b>FINAL EXAM</b>	9 am to noon	