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 2023** Course Number and Course Title: **GS04 1011 Workshop for Experimental Training in Mouse Cancer Biology** Credit Hour: **1** Meeting Location: **In Person** Building/Room#: **Gallick Classroom (BSRB S3.8367) & North Campus Animal Facility** WebEx/Zoom Link: **N/A**	**Program Required Course:** No **Approval Code:** Yes **(If yes,** the Course Director or the Course Designee will provide the approval code.) **Audit Permitted:** Yes **Classes Begin: July 5, 2023** **Classes End: July 28, 2023** **Final Exam Week: N/A**

Class Meeting Schedule

Day	Time
Wednesday/Friday	**10 am – 11 am**
Wednesday/Friday	**1 pm – 5 pm**

Course Director
Name and Degree: **Randy L. Johnson, Ph.D.**
Title: **Professor**
Department: **Cancer Biology**
Institution: ***MDACC***
Email Address: rljohnson@mdanderson.org
Contact Number: 832-647-6109

Cont. Course Co-Director/s:

Name and Degree: **N/A**
Title:
Department:
Institution:
Email Address:

Instructor/s

1. **Jody Swain, DVM, DACLAM**
   Institution: **MDACC**
   Email Address: jswain@mdanderson.org
2. **Jennifer Mitchell, MS, DVM, DACLAM**
   Institution: **MDACC**
   Email Address: jmitchell2@mdanderson.org
3. **Richard Behringer, Ph.D.**
   Institution: **MDACC**
   Email Address: rrb@mdanderson.org
4. **James A. Bankson, Ph.D.**
   Institution: **MDACC**
   Email Address: jbankson@mdanderson.org

Contact Number: **Teaching Assistant**: N/A Name and Email Address	5. **Natalie W. Fowlkes, MS, DVM, Ph.D., DACVP** Institution: **MDACC** Email Address: nwfowlkes@mdanderson.org

Course description:

This workshop is intended as an introduction for students who have initially joined a laboratory and plan to work with mice as a research model. Through both lecture and laboratory/practicals, students will become familiar with regulations, procedures, and basic knowledge of working with laboratory mice. Lecture topics will include genetics, IACUC regulations, colony management, imaging and necropsy. Laporatory practicals will include basic handling and restraint, injection, tissue and blood collection, and basic surgery.

Textbook/Supplemental Reading Materials (if any)

- **N/A**

Course Objective/s:

Upon successful completion of this course, students will have a basic and practical understanding of using the laboratory mouse in an academic research setting

***Specific Learning Objectives*:**

1. Regulation of use of the laboratory mouse in academia: compliance, IACUC, and AAALAC.
2. Origins and uses of the mouse in Cancer Biology Research
3. Mouse colony management and health
4. Basic handling of laboratory mice and common procedures (injection, blood collection, etc.)
5. Postmortem tissue collection and processing

Student responsibilities and expectations:

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

1. Be punctual and attend all lectures and laboratory practicals.

2. Complete independent study/Online learning (AALAS learning coursework) prior to laboratory/practicals.

Grading System: Pass/Fail

Student Assessment and Grading Criteria :

Percentage	Description
Homework (0 %)	
Quiz (0 %)	
Presentation (0 %)	
Midterm Exams (0 %)	
Final Exam (0 %)	
Workshop or Breakout-Session (0 %)	
Participation and/or Attendance (100 %)	

CLASS SCHEDULE – Summer 2023

Day/Date	Duration (Hour (s) taught by the lecturer)	Lecture Topic	Lecturer/s
7/5/2023	1	Introduction/History of the Mouse in Cancer Biology Research	Johnson
7/7/2023	1	IACUC, Regulations and Guidelines	Mitchell
7/12/2022	1	Mouse Genetics and Transgenics	Behringer
7/14/2023	2	Small Animal Imaging in Cancer Biology Research	Bankson
7/14/2023	4	Basic mouse handling and restraint; Subcutaneous and Intraperitoneal Injections	Swain/Mitchell
7/19/2023	1	Basic Rodent Health Conditions/Mouse Colony Management	Swain
7/19/2023	4	Intravenous Injection, Oral Gavage, Mammary Fat Pad Injections, and Basic Anesthesia	Swain/Mitchell
7/21/2023	4	Review of Anesthesia, Aseptic Surgery Training and Basic Surgery Training	Swain/Mitchell
7/26/2023	1	Necropsy lecture	Fowlkes
7/26/2023	1	Necropsy	Fowlkes
7/26/2023	4	Ear tagging, tail snips, tissue biopsy, euthanasia	Swain/Mitchell

RJ/*jal*

GS04 1011: Workshop for Experimental Training in Mouse Cancer Biology

Course Outline:

Lectures: 10-11 am

Laboratory/Practical: 1-5 pm

Day	Date	Topic	Location	Instructor(s)
Wednesday	7/5/2023 Lecture:	Introduction/History of the Mouse in Cancer Biology Research	Gallick Classroom BSRB	(Johnson)
Friday	7/7/2023 Lecture:	IACUC, Regulations and Guidelines	Gallick Classroom BSRB	(Mitchell)
Wednesday	7/12/2023 Lecture:	Mouse genetics and transgenics	Gallick Classroom BSRB	(Behringer)
Friday	7/14/2023 Lecture:	Small Animal Imaging in Cancer Biology Research/Small Animal Imaging Facility Tour	*SCRB3/4: 3SCR3.3202a/b*	(Bankson)
Friday	7/14/2023 Laboratory/Practical:	Basic mouse handling and restraint; Subcutaneous and Intraperitoneal Injections	*North Campus Vivarium*	(Mitchell/Swain)
Wednesday	7/19/2023 Lecture:	Basic Rodent Health Conditions//Mouse Colony Management	Gallick Classroom BSRB	(Swain)
Wednesday	7/19/2023 Laboratory/Practical:	Intravenous injection, oral gavage, mammary fat pad injections, and basic anesthesia	*North Campus Vivarium*	(Mitchell /Swain)
Friday	7/21/2023 Laboratory/Practical:	Review of anesthesia, aseptic surgery training and basic surgery training	*North Campus Vivarium*	(Mitchell /Swain)
Wednesday	7/26/2023 Lecture:	Necropsy lecture	Gallick Classroom BSRB	(Fowlkes)
Wednesday	7/26/2023 Laboratory/Practical:	Necropsy	*North Campus Vivarium*	(Fowlkes)
Friday	7/28/2023 Laboratory/Practical:	Ear tagging, tail snips, tissue biopsy, and euthanasia	*North Campus Vivarium*	(Mitchell /Swain)

Total lecture hours: 6
Total Laboratory/Practical hours: 20

Additional activities:

Independent study/Online learning to be completed prior to Laboratory/Practicals.

AALAS Learning Coursework (9.5 hrs)

- "Working with the Laboratory Mouse"
- "Introduction to Mice"
- Under Anesthesia , Analgesia & Surgery
  - "Aseptic Techniques for Rodent Survival Surgery"
  - "Inhalation Anesthesia Systems for Rodents"
  - "Pain Management in Laboratory Animals"
  - "Post Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress"

Individual laboratory supervised shadowing (9.5 hrs)

Students are required to be on an existing approved mouse protocol so they can with appropriate supervision in their own laboratory gain additional practice for methods learned in the laboratory portion of the course.