2021 VIRTUAL Johns Hopkins Mouse Pathobiology and Phenotyping Short Course

♦ Rigor and Reproducibility in Translational Research

JHUSOM ME680.712 Phenotyping for Functional Genetics

July 26 -30, 2021 – ONLINE !!

REGISTRATION REQUIRED

- ➲ **GRAD students** (may also schedule in-lab training at a later date)
- ➲ **Tuition Remission Form (for JHU Faculty & Staff)** $50 for any/all sessions labs, tours, slide conference, Monday reception
- ➲ **NON JHU** Registration Form: $50 for Lectures + Lab Demo Sessions
- ➲ **EXHIBIT** Registration (includes access to course lectures activities throughout the week)

Target Audience: Graduate students and postdocs, as well as research faculty and staff, who currently work with, or expect to work with mouse models and genetically engineered mice.

- In 2010 the short course format was adopted, largely for continuity of the practical laboratory training experience.
- Offered virtually in 2020, 2021: online lectures, lab demo and interactive sessions

Up to 29 hr Approved RACE CE credit. [Only sessions attended can be claimed for credit]
In lab training to be scheduled at a later date, after passing exam to include clinical and physical examination of mice, specimen collection, clinical pathology and anatomic pathology (Familiarity with basic anatomy is EXPECTED for participation in laboratory sessions).

Syllabus material is provided: Hard copy laboratory manual is provided to all enrolled in laboratory sessions. Lecture and laboratory syllabus material is provided electronically as pdf's linked to the program. It is NOT necessary to purchase a text book.

JHUSOM graduate school ME 680.712 Course credit and grades are based on:

1. Attendance and participation in online sessions;
2. Exam ('take home', Open book, JHU honor code applies), distributed Monday at the beginning of the course, and Due Friday, 5pm.The exam is intended to be practical and relevant to diverse research

PROGRAM

Expect 5-10 min breaks between sessions to sort technology issues…

MONDAY July 26, 2021 Welcome, Introductions

8am password protected login begins
845-10 Brayton Introduction: Phenotyping & Famous Mice
10-11 Brayton Common Phenotypes & Disease (Spontaneous /NON infectious)
11-12 Brayton External Environmental (X) Factors and Reproducibility
12-1 LUNCH BREAKOUT SESSIONS: MEET THE PARTICIPANTS
1-2 C Zeiss [Yale] COVID in MICE: options and opportunities
2-3 Brayton Microbial & infectious Research Challenges
3-4 Brayton Immunovariability in (immune sufficient and deficient) mice
4-5 Hutchinson – Research relevant social life and behaviors of mice
5-6 VIRTUAL RECEPTION BYOB: MEET THE PARTICIPANTS

TUESDAY July 27, 2021 GEM & Multidisciplinary Phenotyping

9-10 Hawkins Making Mice – traditional and new transgenic technologies
10-11 Aja Metabolic Phenotypes and Phenotyping
11-12 Mitzner Pulmonary/Respiratory Phenotypes & Phenotyping
12-130 LUNCH & VIRTUAL Meet the Cores BREAKOUT SESSIONS
CSMR (metabolic), MRB Behavioral, ESC, OTS
130-230 Doyle Ophthalmic Phenotypes and Phenotyping

230-330 Vicencio/Lauer Auditory Phenotypes and Phenotyping
330-430 Foss/Gabrielson IMAGING for Phenotyping

WEDNESDAY July 28, 2021 Practical Phenotyping 1

JH Phenotyping Laboratory Manual 5th ed 2019 (PDF 58p ~6MB) free to download
TO BE REVIEWED by Wednesday AM

9-1030 **LAB 1:** Brayton Villano Forbes et al – Clinical / Physical Exam + DEMO
1030-12 Brayton – Clinical Pathology (Hematology Chemistry, etc for research)
12-130 LUNCH & VIRTUAL Meet the Cores BREAKOUT SESSIONS
CSMR (metabolic), AIMS Core, MRB Imaging 1230-50, ESC, OTS
130-3 **LAB 2:** Villano Stover Castell et al Specimen collections etc procedures
3-4 VIRTUAL Faculty/Core breakout Q&A sessions AND/OR
interactive REVIEW (Quiz format)

THURSDAY July 29, 2021 Practical Phenotyping 2

9-1030 Brayton/Forbes Anatomic Pathology Phenotyping **Lecture**:
Necropsy, examination, tissue collection trimming Lecture
1030-1130 **LAB 3:** Forbes / Brayton/ Myers /Powers **DEMO/video Q&A**:
Anatomic Pathology – Necropsy, examinaton, tissue collection
1130-12 Fedor OTS CORE Histology Lab presentation
12-1 LUNCH BREAK (on your own)
1-215 Brayton Comparative Anatomy/Pathology (human/mouse)
230-330 Meeker Immunohistochemistry: principles and protocol development
330-430 Faculty Discussion of participants research questions AND/OR
Research Relevant Mouse Phenotypes & Pathology – interactive REVIEW (Quiz format)

FRIDAY July 30, 2021 Practical Phenotyping 3 Advanced Pathology

9-10 QUIZ A review
10-11 D Rao Practical Pre GLP Pathology (efficacy/safety in academic settings)
11-12 L Bassel NCI Digital Pathology: image analysis and quantitative pathology
12-1 J Ward Embryo and Developmental Phenotyping
1-130 pathology Faculty Discussion of participants research questions
5pm Quizzes Due ! for course ME680.712

PARTICIPATING CORES

- Johns Hopkins Phenotyping and Comparative Pathology Core (MRB)
  iLAB information and submission
- JH Animal Care and Use Committee (ACUC)
- Applied Imaging Mass Spectrometry (AIMS) Core
- Behavioral Core SOM Rodent Behavioral Phenotyping (MRB)
- CSMR Centralized Services for Metabolism Research
- Johns Hopkins Transgenic and ES Cell core
- MRB Molecular Imaging Core MRI, PET, CT, SPECT, IVIS, Optical Imaging, Ultrasound
- OTS Oncology Tissue Services Core -TMA, IHC, Scanning, Histology core labs

iLAB information and submission https://johnshopkins.corefacilities.org/