



## **MED-492 course (Online)**

# **Basics & Methods in Biomedical Research**

**Department of Medicine – College of Human medicine**

Fall / Winter-Spring / Summer

Welcome to MED 492- Basics & Methods in Biomedical Research. This course will teach concepts common to all biomedical research disciplines, such as literature review, critical thinking, experimental design, research laboratory skills, data collection and analysis, modes of scientific reporting (manuscript preparation, effective oral & poster presentations), and ethical and responsible conduct in research.

### **Course Outline**

- 1- Welcoming & Introduction to the Course.
- 2- Introduction to Basic Research and its Importance in Translational Research and Human Health.
- 3- Introduction to Responsible Conduct of Research.
- 4- Scientific Literature Search, Writing and Communication.
- 5- Laboratory Safety & Regulations in Research: OSHA, MIOSHA, MSU Chemical Hygiene Plan, Bloodborne Pathogens, Hazardous Waste, Controlled Substances, IRB, Animal Welfare and Safety Guidelines for the Use of Animals in Research.
- 6- Introduction to General Laboratory Equipment and Safe Operation.
- 7- Reagents & Buffers Preparation.
- 8- Introduction to Light Microscopy.
- 9- Introduction to Blood Sampling and Cell Isolation/Count.
- 10- Cell Culturing Techniques and Tissue Harvesting/Storage.
- 11- Experimental Design, Data collection & Analysis.
- 12- Scientific Presentation (abstract, poster, and oral presentation).

Course Director: Elahé Crockett, Ph.D.