# ANIMAL PHYSIOLOGY

**PROF. MAINAK DAS**

Department of Biological Sciences & Bioengineering
IIT Kanpur

**PRE-REQUISITES :** Biology at standard 10th (Secondary school examination)

**INTENDED AUDIENCE :** UG and PG students pursuing biology, biotechnology, zoology and bio-engineering

**INDUSTRY SUPPORT :** Biomedical industries

**COURSE OUTLINE :**

The course will be an informal journey to know your own body. It will provoke you to think the following:

How our body functions?
What it is made up of and what are the organizational hierarchy of your body?
How its regular function is disrupted and how the body tries to restore its normal functioning?
How the body adjusts itself under extreme physiological situations and how it re-calibrates its functions?

**ABOUT INSTRUCTOR :**

Prof.Mainak Das is a faculty of IIT Kanpur India in the department of biological sciences & bioengineering since April 26 2010. He did his bachelors degree (1989-1994) in agriculture from College of Agriculture Indore. Thereafter he did his post graduate degree (1994-1997) in animal physiology from National Dairy Research Institute Karnal India. Following his post graduate studies, he worked as researcher in IISc Bangalore India (1997-1999), University of Neuchatel, Switzerland (1999-2000), University of Clemson, USA (2000-2004) and in University of Central Florida, USA (2004-2010). He did his doctoral studies from College of Medicine of University of Central Florida (2004-2008), while working as a full time employee of the university. He introduced the regular physiology course for the PG students in IIT Kanpur in 2011. He has wide interest in physiology, sensors, energy and bioelectronics and maintains an active research team at IT Kanpur, India. Prof. Das has been working on cell culture technologies, serum free medium development and defined cell culture systems for last 20 years. He has expertise in long term culturing of excitable cells. His doctoral thesis is a complex problem of modern cell culture technology, titled:‘Tissue Engineering The Motoneuron To Muscle Segment Of The Stretch Reflex Arc Circuit Utilizing Micro-fabrication,Interface Design And Defined Medium Formulation’.

**COURSE PLAN :**

**Week** 1**:** Introduction

**Week** 2**:** Skeletal system

**Week** 3**:** Muscles

**Week** 4**:** Neural system

**Week** 5**:** Neural system

**Week** 6**:** Neural system

**Week** 7**:** Neural system

**Week** 8**:** Neural system and Special senses

**Week** 9**:** Neural system and Special senses

**Week** 10**:** Cardiovascular system

**Week** 11**:** Respiratory and Blood

**Week** 12**:** Endocrine, Digestive, Blood, Kidney, and Reproductive system