

Course Contents:

Gastrointestinal System: Gastrointestinal secretions and their control: Salivary, gastric, pancreatic and liver; Digestion and Absorption of carbohydrates, proteins, lipids, vitamins, ions and water; Motility of gastrointestinal tract: Functional anatomy, regulation and motility in various segments.

Osmoregulation: Problems of osmoregulation; Obligatory exchange of ions and water; Osmoregulators and osmoconformers; Osmoregulation in aqueous and terrestrial environments.

Environmental Challenges: Temperature and animal energetics; Temperature relation of Ectotherms, Heterotherms and Endotherms; Dormancy: Special metabolic state; Body rhythms and energetic; Energy, environment and evolution.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work: 25 marks

Midterm Exam: 35 marks

Final term Exam: 40 marks

Books Recommended:

1. Randall, D., Burggren, W., French, K. and Fernald, R., 2002. Eckert Animal Physiology: Mechanisms and Adaptations, 5th ed. W.H. Freeman and Company, New York
2. Bullock, J., Boyle, J. and Wang, M.B., 2001. Physiology, 4thEd.Lippincott, Williams and Wilkins, Philadelphia.
3. Berne, R.M. and Levy, M.N., 2016. Principles of Physiology, 3rd Ed.. St. Louis, Mosby.
4. Guyton, A.C. and Hall, J.E., 2020. Textbook of Medical Physiology, 14th Ed.. W.B. Saunders Company, Philadelphia.
5. Withers, P.C., 1992. Comparative Animal Physiology. Saunders College Publishing, Philadelphia.
6. Schmidt-Nelsen, K., 2008. Animal Physiology, Adaptation and Environment, 5th Ed.. Cambridge University Press, Cambridge.
7. Tharp, G. and Woodman, D., 2015. Experiments in Physiology, 11th Ed. Prentice Hall, London

UZO-558 Physiological Systems and Adaptations-II(Lab.)

Cr. (1)

Course Contents:

Experiments on digestion on nutrients by enzymes and effects of factors; Study of exocrine secretion in stomach or pancreas and effects of factors. Experiments on kidney regulation of osmolality; Urine analysis; Study of osmoregulatory adaptations in animals inhabiting various environments; Demonstration of effect of temperature on several physiological responses; Study of animals in various types of dormancy.

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