

PHY 1333: RESPIRATORY AND GASTROINTESTINAL PHYSIOLOGY

Pre-requisites: PHY 1331

Credit Units: 4.5

Purpose of the course;

To teach the student the organization and functions of respiratory and gastrointestinal systems.

Expected Learning Outcomes of the Course;

At the end of the course, the student should be able to:

1. Describe the organization and functions of respiratory and gastrointestinal systems.
2. Outline the functions of respiratory and gastrointestinal systems.
3. Describe respiratory process
4. Describe the digestive process
5. Outline the role of the liver and pancreas.

Course Content

Respiratory system: Functional organisation. Gas laws. Respiratory process and mechanism. Lung volumes and capacities. Spirometry. Structure and function of alveolar Surface tension and surfactant. Alveolar diffusion. Ventilation perfusion ratios. Neuronal regulation. Role of the respiratory system on acid base balance. Non respiratory functions of the lungs. **Gastrointestinal System:** Functional organisation and function. Enteric nervous system. Endocrine and paracrine functions and regional regulations. Function of the extrinsic nervous system. Gastrointestinal exocrine glands. Phases and types of gastric and intestinal motility. Gastrointestinal reflexes. Functions of the liver, bile and the pancreas. Regulation of appetite and satiety. **Practicals:** Assessment of the lung volumes, breathe sounds and blood gases. Assessment of GIT and actions of enzymes, liver function tests.

Mode of Delivery;

Lectures, power point presentations, and class discussions. These will take a participatory approach. Laboratory learning and Experiments: The lecturer, together with the laboratory technical staff, will take the students through practical sessions, beginning with demonstrations. The students will thereafter be expected to use pre formulated laboratory manuals to carry out various practical exercises then write out their findings in their laboratory workbooks. **Video demonstrations and/or CD-Roms** on Respiratory and Gastrointestinal Physiology when available, after the relevant topic has been covered. **Assignment criteria:** Students will be given several individual or group research assignments on topics relevant to the course. These could include lectures, discovery learning, problem-based learning, experimental learning, group-based learning, independent studies and e-learning.

Instructional Materials and/or Equipment;

Lecture notes or power points for presentation; Tutorials; Video demonstrations; CD-Roms; Dissection kits; Microscopes; Text books; Practical Manuals, Physiological solutions and organ baths; glassware; physiological equipment; physiological charts.

Course Assessment;**Distribution of Marks**

Continuous Assessment Tests /Quizzes (atleast 2 sit in)	20%
Oral examination/Term paper	10%
Mid-Quarter Exam	20%
Final Exam	25%
Continuous Laboratory exercises	15%
End semester Practical Exam	10%
Total	<u>100%</u>

Grading

90 - 100	A
87 - 89	A ⁻
84 - 86	B ⁺
80 - 83	B
77 - 79	B ⁻
74 - 76	C ⁺
70 - 73	C
67 - 69	C ⁻
64 - 66	D ⁺
62 - 63	D
60 - 61	D ⁻
00 - 59	F

Core Reading Materials for the Course

[Barrett](#), K. E., [Barman](#), S. M., [Boitano](#), S., [Brooks](#), H. (2012). Ganong's Review of Medical Physiology. 24th Edition, LANGE Basic Science. McGraw-Hill Medical, New York

[Hall, J. E.](#) (2011). Guyton & Hall Physiology Review. 2nd Edition. Saunders, Philadelphia, USA

Recommended Reference Materials;

Hall, J. E., Guyton, A. C. (2010). Guyton and Hall Textbook of Medical Physiology. 12th Edition. Saunders, Philadelphia, USA

[Martini](#), F. H., [Nath](#), J. L., [Bartholomew](#), E. F. (2011). Fundamentals of Anatomy & Physiology. 9th Edition. Benjamin Cummings, San Fransisco, CA

[McPhee](#), S. J., [Hammer](#), G. D. (2009). Pathophysiology of Disease: An Introduction to Clinical Medicine. 6th Edition. McGraw-Hill Medical, New York, USA

Sherwood, L. (2010) *Human Physiology: From Cells to Systems*. Brooks/Cole, Cengage Learning, USA

Silverthorn, D. U. (2012) *Human Physiology: An Integrated Approach*, 6th Edition. Pearson Benjamin Cummings, Salt Lake City.

Thibodeau, G.A. and Patton, K.T. (2011). *Structure and Function of the Body*. 14th Edition. St. Louis: Mosby-Year Book Inc., Philadelphia, USA