

Course Objectives:

The objectives of the course are:-

1. To enhance the knowledge in the area of Cancer Biology.
2. To provide core concepts involved in the transformation of normal cell in to cancer cell.
3. To introduce the major signaling circuitry programs contributing towards cancer.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

1. **ACQUIRE** the advanced knowledge of Cancer Biology.
2. **UNDERSTAND** the concepts of transformation of normal cell in to tumor cell.
3. **ANALYZE** the signaling pathways contributing towards Cancer.
4. **EVALUATE** the problems related to genetic mutations and tumor suppressor genes, etc.

Course Contents:

An overview of Cancer, Properties of cancer cells, Major types of human cancers, Hallmarks of cancer, TNM staging system of cancer, Cancer diagnostic markers. Cell signaling/Cell communication, Carcinogens: environmental and dietary carcinogens and their mode of action. Oncogenes: proto-oncogenes and viral oncogenes, Tumor suppressor genes. P53 as a model tumor suppressor gene. Role of p53 in cell cycle regulation and induction of apoptosis.

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. Bettar, E.E. 1973. Cell Biology And Medicine, John Wiley.
2. Beck, F. 1975. The Cell In Medical Science, Academic Press, New York.
3. Margaret A., 2005. Knowles, Peter J. Selby Introduction to the Cellular and Molecular Biology of cancer Oxford University Press, USA; 4th Ed.
4. L.M. Franks, N.M. Teich, 1997. Introduction to the Cellular and Molecular Biology of Cancer, Oxford University Press, USA, 3rd Ed.

UZO-426

Cancer Biology-I(Lab.)

Cr. (1)

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Course Contents:

Cell culture: cell revival, Cell passage and cell freezing Identification of cancer cells from prepared slides of various human cancer tissues. Quantification of Live and dead cells using Trypan blue assay and Live/Dead assay. Teaching-Learning Strategies

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