

LS 640 CURRENT CONCEPTS IN IMMUNOLOGY
NPuri*

| S.No. | Topics | Contact hours |
|-------|--|---------------|
| 1. | Growth of Immunology as a discipline, and newly discovered cellular and molecular components of the Immune system | 2 |
| 2. | Regulation of hematopoiesis and use of hematopoietic stem cells in gene therapy | 2 |
| 3. | Recent discoveries of molecular mechanisms of pathways involved in effector functions of innate immunity | 2 |
| 4. | Recognition mechanisms of innate immunity: PAMPs and DAMPs | 2 |
| 5. | Interface between innate and adaptive immunity | 2 |
| 6. | Immunoglobulin molecule: structure-function relationship, and molecular mechanisms of generation of antibody diversity | 2 |
| 7. | Monoclonal Antibodies and Antibody engineering | 2 |
| 8. | Alternative pathways of antigen processing and presentation | 2 |
| 9. | Transplantation | 2 |
| 10. | Regulation of differentiation, selection, and activation of T lymphocytes | 2 |
| 11. | Recognition mechanisms of NK cells | 2 |
| 12. | Immuno-pathology and mechanisms of hypersensitivity reactions | 1 |
| 13. | Immune tolerance and autoimmunity | 2 |
| 14. | Immune deficiency diseases | 1 |
| 15. | Vaccines | 2 |
| 16. | Applications of immunological principles (diagnostics etc.); tumor immunology, and immune response during bacterial, parasitic and viral infections would be discussed in context of the current knowledge of immunological mechanisms through tutorials or student presentations and discussions. | 4 |

Suggested Reading:

1. Roitt's Essential Immunology
2. Immunobiology: The immune system in health and disease by Charles Janeway et al
3. Kuby Immunology
4. Relevant review articles/research papers/handouts will be provided in the course.