

***Syllabus for B.A./B.Sc.(Hons.)  
in Anthropology  
under CBCS Gauhati University  
(Effective from 2019-20 session)***

***This is approved in the Academic Council held on 08.11.2019***



***Department of Anthropology  
Gauhati University***

## COURSE STRUCTURE FOR B.A./B.SC. (HONS.) ANTHROPOLOGY

Semester	Type	Core	AECC	SEC	DSE	GE
	Credits	14x6=84	2x4=08	2x4=8	4x6=24	4x6=24
I		ANT- HC-1016	ENG-AE- 1014			ANT-HG- 1016
		ANT-HC-1026				
II		ANT-HC-2016	ENV-AE- 2014			ANT-HG- 2016
		ANT-HC-2026				
III		ANT-HC- 3016		SE- 3014  Tourism Anthropology		ANT-HG- 3016
		ANT-HC-3026				
		ANT-HC-3036				
IV		ANT-HC-4016		ANT-SE- 4014 Public Health and Epidemiology		ANT-HG- 4016 ANT-HG- 4026
		ANT-HC-4026				
		ANT-HC-4036				
V		ANT-HC- 5016			ANT-HE- 5016 ANT-HE- 5026/ ANT-HE- 5036/ ANT-HE- 5046/	
		ANT-HC-5026				

VI	ANT-HC- 6016			ANT-HE-6016	
	ANT-HC-6026			ANT-HE-6026/ ANT-HE-6036/	

### Legends

**HC: Core course**

**SE: Skill Enhancement Course**

**HE: Discipline Specific Papers**

**HG: Generic Elective**

**Directives: A student majoring in Anthropology may take Generic Elective papers from any other disciplines available in the college, other than Anthropology.**

## LIST OF CORE PAPERS

<b>SEMESTER I</b>	<b>SEMESTER II</b>
ANT-HC- 1016 :Introduction to Biological Anthropology	ANT-HC-2016 : Archaeological Anthropology
ANT-HC- 1026 :Introduction to Socio-Cultural Anthropology	ANT-HC-2026: Fundamentals of Human Origin and Evolution
<b>SEMESTER III</b>	<b>SEMESTER IV</b>
ANT-HC- 3016:Tribes and Peasants in India	ANT-HC-4016: Theories of Culture and Society
ANT-HC- 3026:Human Ecology: Biological and Cultural Dimensions	ANT-HC- 4026: Human growth and Development
ANT-HC- 3036: Biological Diversity in Human Population	ANT-HC- 4036: Research Methods
<b>SEMESTER V</b>	<b>SEMESTER VI</b>
ANT-HC-5016: Human Population Genetics	ANT-HC- 6016: Forensic Anthropology
ANT-HC-5026: Anthropology in Practice	ANT-HC- 6026: Anthropology of India

## LIST OF ELECTIVE PAPERS

### DISCIPLINE SPECIFIC ELECTIVE

GENERIC ELECTIVE ( For the students other than the discipline of Anthropology)

<p><b>ABILITY ENHANCEMENT ELECTIVE COURSE (Skilled Based)</b></p> <p>ANT-SE-3014 : Tourism Anthropology ANT-SE-4014 : Public Health and Epidemiology</p>	<p style="color: red; text-align: center;"><b>I SEMESTER</b></p> <p><b>ANT-HG-1016: Introduction to Biological Anthropology</b></p>		
<p style="color: red; text-align: center;"><b>V SEMESTER</b></p> <p>ANT-HE-5016: Indian Archaeology</p> <p><i>Any one from the following:</i></p> <p>ANT-HE-5026: Anthropology of Religion, Politics &amp; Economy/or ANT-HE- 5036 :Paleoanthropology</p> <p><i>Any one from the following:</i></p> <p>ANT-HE-6046: Demographic Anthropology / ANT-HE 6026:Human Genetics</p>	<p style="color: red; text-align: center;"><b>II SEMESTER</b></p> <p><b>ANT-HG-2016: Introduction to Socio-Cultural Anthropology</b></p> <p style="color: red; text-align: center;"><b>III SEMESTER</b></p> <p><b>ANT-HG-3016: Archeological Anthropology</b></p>		
<p style="color: red; text-align: center;"><b>VI SEMESTER</b></p> <p>ANTH-HE 6016: Dissertation</p> <p>(Compulsory)</p>	<p style="color: red; text-align: center;"><b>IV SEMESTER</b></p> <p><b>Anyone of the following:</b></p> <p><b>ANT-HG-4016: Research Methods</b> <b>ANT-HG-4026: Anthropology in Practice</b></p>		
SEMESTER	COURSE OFFERED	COURSE NAME	CREDIT
<b>I</b>	<b>ABILITY ENHANCEMENT COMPULSORY COURSE-1</b>		
	<b>ENG-AE-1014</b>	<b>English Communication</b>	<b>4</b>
	<b>ANT-HC-1016</b>	<b>Introduction to Biological Anthropology ( Theory +Practical)</b>	<b>4+2=6</b>
	<b>ANT-HC-1026</b>	<b>Introduction to Socio-Cultural Anthropology ( Theory +Practical)</b>	<b>4+2=6</b>

	<b>GENERIC ELECTIVE</b>		
	<b>ANT-HG-1016</b>	This paper is only for the students of other disciplines. <b>i. Introduction to Biological Anthropology</b>	<b>6 (Theory+ Practical)</b>
<b>II</b>	<b>ABILITY ENHANCEMENT COMPULSORY COURSE-2</b>		
	<b>ENV-AE-2014</b>	<b>Environmental Science</b>	<b>4</b>
	<b>ANT- HC-2016</b>	<b>Archaeological Anthropology (Theory+ Practical)</b>	<b>4+2=6</b>
	<b>ANT-HC-2026</b>	<b>Fundamentals of Human Origin and Evolution (Theory+ Practical)</b>	<b>4+2=6</b>
	<b>GENERIC ELECTIVE</b>		
	<b>ANT-HG-2016</b>	<b>Introduction to Socio-Cultural Anthropology (Theory+Practical)</b>	<b>4+2=6</b>
<b>III</b>	<b>ANT- HC-3016</b>	<b>Tribes and Peasants in India (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANT-HC-3026</b>	<b>Human Ecology: Biological and Cultural Dimensions (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANT- HC-3036</b>	<b>Biological Diversity in Human Population (Theory+Practical)</b>	<b>4+2=6</b>
	<b>GENERIC ELECTIVE</b>		
	<b>ANT-HG-3016</b>	<b>Prehistoric Archeology (Theory+Practical)</b>	<b>4+2=6</b>
	<b>SKILL ENHANCEMENT COURSE</b>		
	<b>ANT-SE-3014</b>	<b>Tourism Anthropology</b>	<b>4</b>
	<b>ANT- HC-4016</b>	<b>Theories of Culture and Society (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANT-HC-4026</b>	<b>Human growth and Development (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANT- HC-4036</b>	<b>Research Methods (Theory+Practical)</b>	<b>4+2=6</b>

IV	<b>GENERIC ELECTIVE (Any one)</b>		
	<b>ANT-HG-4016</b>	<b>Research Methods</b>	<b>6</b>
	<b>ANT-HG-4026</b>	<b>Anthropology in Practice</b>	<b>(Theory+ Practical)</b>
	<b>SKILL ENHANCEMENT COURSE</b>		
	<b>SEC-II</b>		
	<b>ANT-SE-4014</b>	<b>Public Health and Epidemiology</b>	<b>4</b>
V	<b>ANT-HC-5016</b>	<b>Human Population Genetics (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANT- HC-5026</b>	<b>Anthropology in Practice(Theory+Practical)</b>	<b>4+2=6</b>
	<b>DISCIPLINE ELECTIVE PAPERS</b>		
	<b>ANT-HE-5016</b>	<b>Indian Archaeology (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANY ONE THE FOLLOWING:</b>		
	<b>ANT-HE-5026</b>	<b>Anthropology of Religion, Politics &amp; Economics</b>	
	<b>ANT-HE-5036</b>	<b>Urban Anthropology</b>	
	<b>ANT-HE-5046</b>	<b>Paleoanthropology</b>	
VI	<b>ANT-HC-6016</b>	<b>Forensic Anthropology (Theory+Practical)</b>	<b>4+2=6</b>
	<b>ANT- HC-6026</b>	<b>Anthropology of India (Theory+Practical)</b>	<b>4+2=6</b>
	<b>DISCIPLINE ELECTIVE PAPERS</b>		
	<b>ANT-HE-6016</b>	<b>Dissertation (Comulsory)</b>	<b>6</b>
	<b>ANY ONE FROM THE FOLLOWING:</b>		
	<b>ANT-HE-6026</b>	<b>Human Genetics</b>	<b>6 (Theory+ Practical)</b>
	<b>ANT-HE-6046</b>	<b>Demographic Anthropology</b>	

**TOTAL CREDITS IN B.SC/B.A HONOURS IN ANTHROPOLOGY: 148**

**PART I  
CORE PAPERS**

**ANT-HC-1016: Introduction to Biological Anthropology**

**ANT-HC- 1026: Introduction to Socio-Cultural Anthropology**

**ANT-HC-2016: Archaeological Anthropology**

**ANT-HC-2026: Fundamentals of Human Origin and Evolution**

**ANT-HC- 3016: Tribes and Peasants in India**

**ANT-HC- 3026: Human Ecology: Biological and Cultural Dimensions**

**ANT-HC- 3036: Biological Diversity in Human Population**

**ANT-HC-4016: Theories of Culture and Society**

**ANT-HC-4026: Human growth and Development**

**ANT-HC- 4036: Research Methods**

**ANT-HC-5016: Human Population Genetics**

**ANT-HC-5026: Anthropology in Practice**

**ANT-HC-6016: Forensic Anthropology**

**ANT-HC-6026: Anthropology of India**



## Semester I

# ANT-HC-1016

## Introduction to Biological Anthropology

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE: Provide understanding of the essence of Biological Anthropology.**

**COURSE OUTCOME:**

- **Students will learn about the genesis and development of biological anthropology.**
- **Learn about the aspects from which evolution and variation is studied.**

### Theory

**Unit I:** History of Physical Anthropology and development of modern Biological anthropology, aim, scope and its relationship with allied disciplines.  
Difference in the approaches of modern and traditional Biological anthropology, with emphasis on human evolution.

**Unit II:** History and development of understanding human variation and evolutionary thought.

Theories of evolution: Lamarckism, Neo Lamarckism, Darwinism, Synthetic theory, Mutation and Neo mutation theory, Shifting balance theory, Quantum Evolution, The Neutral Molecular Theory of Evolution, Punctuated Equilibrium Theory and Coalescent Theory

**Unit III:** Non human primates in relation to human evolution:  
1. Classification and characteristics of living primates  
2. Comparative anatomy and behavior of human and non-human primates.  
3. Significance of non-human primate study in Biological Anthropology

**Unit IV:** Great division of Humanity  
1. A comparative account of various racial classifications (Hooton, Deniker, Risley and Guha)  
2. UNESCO Statement on Race.  
3. Recent understanding of human biological categories in the context of human genome research

**Unit V:** Elementary genetics: Cell, Cell division, Biological basis of Inheritance, Chromosome (Structure and shape, Human Karyotype), Gene, DNA (Structure, replication), RNA, mRNA (its role in understanding human evolution)

### Practical

**I:** Somatometric measurements:

1. Maximum head length
2. Maximum head breadth
3. Minimum frontal breadth
4. Maximum bizygomatic breadth
5. Bigonial breadth
9. Physiognomic facial height
10. Morphological facial height
11. Physiognomic upper facial height
12. Morphological upper facial height
13. Head circumference

6. Nasal height
7. Nasal length
8. Nasal breadth

14. Stature
15. Sitting height
16. Body weight
17. Total Upper Extremity length
18. Total Lower Extremity length

**2: Somatoscopic observation:**

- |              |                |                |                |
|--------------|----------------|----------------|----------------|
| 1. Head form | 2. Hair form   | 3. Facial form | 4. Eye form    |
| 5. Nose form | 6. Hair colour | 7. Eye colour  | 8. Skin colour |

**Suggested Readings**

1. Gebo L. Daniel (2014). Primate Comparative Anatomy, John Hopkins University, Baltimore, USA
2. Groves C (2001). Primate taxonomy. Smithsonian, USA
3. Jurmain R., Kilgore L., Trevathan W., Ciochon R.L. (2012). Introduction to Physical Anthropology. Wadsworth Publ., USA
4. Kroeber A. L. (1948). Anthropology. Oxford & IBH Publishing Co., New Delhi.
5. Rastogi S and Shukla B.R.K (2003). Laboratory Manuals of Physical Anthropology, Bharat Book Centre, Lucknow, India
6. Stanford C., Allen J.S. and Anton S.C. (2010). Exploring Biological Anthropology. The Essentials. Prentice Hall Publ, USA.

**ANT-HC-1026**  
**Introduction to Socio-Cultural Anthropology**  
**Credit 6 (Theory: 4; Practical: 2)**

**COURSE OBJECTIVE : To impart the conceptual and theoretical knowledge of Social and Cultural Anthropology along with practical knowledge of data collection techniques.**

**COURSE OUTCOMES :**

- **The basic theoretical knowledge about Social and Cultural Anthropology can be achieved.**
- **The knowledge of first-hand field data collection and analysis can be gained.**

**Theory**

- Unit I:** Anthropological perspective and orientation; Scope and relevance of Social Anthropology; Relationship of Social Anthropology with other disciplines
- Unit II:** Concepts of society and culture; status and role; groups and institution, social stratification; caste and class; characteristics of culture, culture and civilization; Material and non material aspects of culture; acculturation, enculturation, structure of culture- culture trait, culture complex, culture area, age area, culture focus, variation and diversity in culture.
- Unit III:** Social Institutions:  
Family –definition, forms, approaches to the study of family.  
Marriage – forms, regulations, rules, alliance systems.  
Kinship – terminology, behaviour, avoidance, incest, rules of descent.
- Unit IV:** Concept of Supernaturalism : religious specialists, magic, witchcraft  
Anthropological concept of Religion: Theories :Contributions of E. B. Tylor, James Frazer, Emile Durkheim , E. E. Evans Pritchard.
- Unit V:** Theory and practice of ethnographic fieldwork; survey research; comparative and Historical methods

**Practical**

Methods and Techniques of Social Anthropology: The practical will include the following techniques and methods in collection of data in Social Anthropology.

- |                              |              |
|------------------------------|--------------|
| 1.Observation                | 2.Interview  |
| 3.Questionnaire and Schedule | 4.Case study |
| 5.Lifehistory                |              |

### **Suggested Readings**

1. Beattie J. (1964). *Other Cultures*. London: Cohen & West Limited.
2. Bernard H. R. (1940). *Research Methods in Cultural Anthropology*. Newbury Park: Sage Publications.
3. Davis K. (1981). *Human Society*. New Delhi: Surjeet Publications.
4. Delaney C. (2004). *Orientation and disorientation In Investigating Culture: An Experiential Introduction to Anthropology*. Wiley-Blackwell.
5. Ember C. R. et al. (2011). *Anthropology*. New Delhi: Dorling Kindersley.
6. Ferraro G. and Andreatta S. (2008). In *Cultural Anthropology: An Applied Perspective*. Belmont: Wadsworth.
7. Karen O'reilly. (2012). *Practical Issues in Interviewing Ethnographic Methods*. Abingdon: Routledge
8. Lang G. (1956). *Concept of Status and Role in Anthropology: Their Definitions and use*. *The American Catholic Sociological Review*. 17(3):206-218
9. O'reilly K. (2012). *Ethnographic Methods*. Abingdon: Routledge.
10. Parsons T. (1968). *The Structure of Social Action*. New York: Free Press
11. Rapport N. and Overing J. (2004). *Key Concepts in Social and Cultural Anthropology*. London: Routledge.
12. Royal Anthropological Institute of Great Britain and Ireland (1971). *'Methods' In Notes and Queries on Anthropology*. London: Routledge & Kegan Paul Ltd.

## Semester-II

# ANT-HC-2016

## Archaeological Anthropology

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** To provide an understanding of the prehistoric and archaeological background of evolution, variation and continuity of human society and culture.

**COURSE OUTCOME:**

- Student will be acquainted with archaeometrical background of prehistoric, protohistoric and historical evolution of human culture.
- Students will have practical understanding of prehistoric culture through tool technology and pottery technology.

### Theory

- Unit I:** Introduction  
Definition and scope of archaeological anthropology, Relation with other Disciplines. Division of Prehistoric period: Stone age and metal age; Lower Paleolithic, Middle Middle Paleolithic and Upper Paleolithic, Mesolithic, Neolithic (Characteristic features of the period in general).
- Unit II:** Methods of studying archaeological anthropology: Archaeological, Paleontological and Geological Methods of classifications, Methods of Field Archaeology: Concept of site, artifact, culture and industry, Site survey and Aerial photography  
Excavation: Concepts, tools and test pits. Concept of Ethno archaeology and new archaeology
- Unit III:** Methods of Estimation of Time and Reconstruction of the Past  
Absolute dating methods ( Radio-Carbon, Potassium Argon, Thermoluminescence, Dendrochronology), Relative dating methods ( Stratigraphy, Typology, Patination, Seriation, Palynology, Palaeontology, Flurin Analysis, Varve-Clay analysis).  
Methods of climatic reconstruction: palynology, paleontology, soil pH estimation.
- Unit IV:** Geochronology of Pleistocene Epoch  
Plio-Pleistocene Boundary  
Glacial and Interglacial  
Pluviation and Inter Pluviation  
Different types of geo-climatic events
- Unit V:** Typo-Technological study of the prehistoric tools

**Unit VI:** Earliest Evidence of Culture in the World  
Konso, Olorgesailie, Olduvai Gorge  
Pirro Nord, Dmanisi  
Attirampakkam, Isampur  
Soanian and Madrasian Culture

### **Practical**

1. Typo-technological Analysis of Prehistoric Tools: Identification, Interpretation and Drawings of the tool Types
  - a. Core Tool Types
  - b. Flake Tool Types
  - c. Blade Tool Types
  - d. Microlithic Tool Type
  - e. Neolithic Tool Type
2. Ceramic Technology: Basic concept (Students have to draw one wheel made, one hand made and one partly wheel made and partly hand made pottery.)

### **Suggested Readings**

1. Allchin and Allchin (1993). *The Rise of Civilization of India and Pakistan*. Cambridge University Press.
2. Bhattacharya D.K. (1978). *Emergence of Culture in Europe*, Delhi, B.R. Publication.
3. Bhattacharya D.K. (1979). *Old Stone Age Tools and Techniques*. Calcutta, K.P. Bagchi Company
4. Bhattacharya D.K. (1996). *Palaeolithic Europe*. Netherlands, Humanities Press.
5. Champion et al. (1984). *Prehistoric Europe*. New York, Academic Press.
6. Fagan B.M. (1983). *People of Earth: An Introduction*. Boston, Little, Brown & Company.
7. Phillipson D. W. (2005). *African Archaeology*. Cambridge, Cambridge University Press.
8. Sankalia H.D. (1964). *Stone Age Tools*. Poona Deccan College

# ANT-HC-2026

## Fundamentals of Human Origin & Evolution

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE: Provide an understanding of the evolutionary stages of man.**

**COURSE OUTCOME:**

- **Students will learn about the stages of human evolutionary development.**
- **Will know about the fossil finds on the basis of which the evolutionary stages are identified.**

### Theory

- Unit I:** Primate origins and evolution with special reference to Paleocene, Eocene, Oligocene and Miocene: Plesiadiformes, Adapoidea, Omomyoidea, Anaptomorphidae, Parapithecus, Propliopithecus, Limnopithecus, Proconsul, Dryopithecus, Sivapithecus, Ramapithecus and Gigantopithecus
- Unit II:** Human Origin on the basis of interpretation of fossil evidences:  
1. Ardipithecus: Sahelanthropus tchadensis, Orrorin tugenensis, Ardipithecus ramidus  
2. Australopithecines: distribution, features and their phylogenetic relationships.  
3. The emergence of genus Homo: Homo habilis and Homo erectus, Narmada Man  
4. The emergence of Archaic Homo sapiens: Neanderthals
- Unit III:** Hominisation Process
- Unit IV:** Origin of modern humans (*Homo sapiens sapiens*) and their distribution and features: Cro Magnon, Grimaldi, Chancelade,
- Unit V:** Evolutionary Change in Human Skeleton with special reference to Skull, dentition, Vertebral Column, Pelvis, Femur and Foot  
Human Skeletal morphology: cranial osteology, post-cranial osteology and dentition.

### Practical

- 1: Drawing, description and identification of skulls of any two from each:
  - a) **Living Anthropoid Skull:** Gorilla, Chimpanzee, Orangutan and Gibbon.
  - b) **Fossil Anthropoid Skull:** Parapithecus and Dryopithecus (Cast models and appropriate photographs should be utilized).
  - c) **Fossil Hominid Skull:** Pithecanthropus, Heidelberg jaw, Neanderthal and Cromagnon man (Cast models and appropriate photographs should be utilized).
- 2: **Osteology**  
Drawing, Description and Identification of the following Bones: Frontal bone, Parietal, Occipital, Maxilla, Zygomatic, Mandible, Sphenoid, Humerus, Radius, Ulna, Femur, Tibia, Fibula, Scapula, Clavicle Pelvis, Sternum, Vertebral Column. Sides to be identified for paired bones.
- 3: **Osteometry:** Measurement of long bones: lengths, minimum/least Circumference, Caliber index of Humerus, Radius, Ulna, Femur, Tibia, Fibula

### **Suggested Readings**

1. Buettner-Janusch, J. (1966). *Origins of Man: Physical Anthropology*. John Wiley & Sons, Inc., New York, London, Sydney.
2. Conroy, G.C. (1997). *Reconstructing Human Origins: A Modern Synthesis*. W. W. Norton & Company, New York, London.
3. Howell F.C. (1977). *Horizons of Anthropology*. Eds. S. Tax and L.G. Freeman, Aldine Publishing House, Chicago.
4. Nystrom P. and Ashmore P. (2011). *The Life of Primates*. PHI Learning Private Limited, New Delhi.
5. Seth P. K. and Seth S. (1986). *The Primates*. Northern Book Centre, New Delhi, Allahabad.
6. Singh I. P. and Bhasin M.K. (1989). *Anthropometry: A Laboratory Manual on Biological Anthropology*. Kamla-Raj Enterprises, Chawri Bazar, Delhi.
7. Standford C.; Allen J.S. and Anton S.C. (2012). *Biological Anthropology: The Natural History of Mankind*. PHI Learning Private Limited, New Delhi.
8. Swindler D. R. (2009). *Introduction to the Primates*. Overseas Press India Pvt. Ltd., New Delhi.



## Semester-III

# ANT-HC-3016

## Tribes and Peasants in India

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** To impart the anthropological knowledge of tribes, villages and peasantry of India

**COURSE OUTCOME:**

- The anthropological knowledge and approach to study of tribes, villages and peasantry can be gained.
- The problems, prospects, development, and government policies for tribes, villages and peasants can be achieved.

### Theory

**Unit I:** Anthropological Concept of Tribe

1. Problems of nomenclature, definition and classification.
2. Features of tribes in India.

**Unit II:** Tribes and Wider world.

1. The history of tribal administration; Constitutional safeguards
2. Draft National Tribal Policy, Issues of acculturation assimilation and integration. Impact of development schemes and programme on tribal life

**Unit III:** Anthropological Concept of Village

1. The concept of peasantry.
2. Approaches to the study of peasants – economic, political and cultural.
3. Characteristics of Indian village: social organization; economy and changes.
4. Caste system and changes.

**Unit IV:** Ethnicity Issues: Tribal and peasant, movements; Identity issues

### Practical

- A. Reading of Ethnography: Students are required to read and analyze any two of the Ethnographies (as listed below) and prepare a report based upon it. The report should clearly link up the study with the concept of tribe and peasantry and delineate clearly the concept used in the text.
1. Research questions/objectives of the study and their relevance.
  2. Theoretical schema.
  3. Methods and techniques used in the study.
  4. Key findings and their significance in the context of the objectives of the study.
  5. Critical analysis of the finding on the basis of contemporary available resources.

- B. Museum visit and preparation of a report: the report should include relevance of museum in anthropology, arrangement of specimens in ethnographic museum; Cleaning, treatment and preservation methods.

**List of Ethnographies:**

- Walker A. (1986). *The Todas*. Delhi : Hindustan Publishing Corporation Verrier Elwin (1992). *The Muria and their Ghotul*. USA: Oxford University Press.
- Malinowski M. (1922). *Argonauts of the Western Pacific*. London: Routledge and Kegan Paul Ltd.
- Furer-Haimendorf C.V. (1939). *The Naked Nagas*. London: Methuen and Co.
- Evans-Pritchard E.E. (1940). *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford : Clarendon Press.
- Majumdar D. N. (1950). *Affairs of tribes*. Lucknow: Universal Publishers Ltd.
- Dube S.C. (1955). *Indian Village*. London: Routledge and Kegan Paul Ltd.
- Berreman G.D. (1963). *Hindus of the Himalayas*. Berkeley: California University Press.

**Suggested Readings**

1. Gupta D. (1991). *Social Stratification*. Oxford University Press: Delhi.
2. Madan V. (2002). *The Village in India*. Oxford University Press: Delhi.
3. Nathan D. (1998). *Tribe-Caste Question*. Simla: IAS.
4. National Tribal Policy (draft). (2006). Ministry of Tribal Affairs. Government of India.
5. Patnaik S.M. (1996). *Displacement, Rehabilitation and Social change*. Inter India Publication, Delhi.
6. Shah G. (2002). *Social Movement and the State*. Delhi: Sage.
7. Shanin T. (1987). *Peasants and Peasantry*. New York, Blackwell.
8. Vidyarthi L.P. and Rai B.K. (1985) *Tribal Culture in India*, New Delhi, Concept Publishing Company.
9. Wolf E. (1966). *Peasants*. NJ, Prentice Hall.

**ANT-HC-3026**  
**Human Ecology: Biological & Cultural dimensions**  
Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** To impart the knowledge about human adaptation in the ecological setting and on urbanization and industrialization process.

**COURSE OUTCOME:**

- The knowledge on human adaptation in ecology will be gained.
- The knowledge on urbanization and industrialization in human societies will be achieved.

**Theory**

**Biological Dimensions**

**Biological Dimensions**

**Unit I:** i..Definition and concept of the term ecology, human ecology, ecosensitivity adaptation, acclimation, acclimatization, biotic and abiotic component.

ii. Method of studying ecology

**Unit II:** Bio-cultural adaptation to environmental stresses: heat, cold and altitude. Homeostasis and thermoregulation. Ecological rules and their applicability among human beings (Gloger's, Allen's and Bergmann's rule).

**Unit III:** Impact of urbanization and industrialization on Man.

**Unit IV:** Bio-cultural factors influencing the diseases and nutritional status. Evolution of Human diet.

**Cultural Dimensions:**

**Unit V:** Culture as a tool of adaptation; Various modes of human adaptation in pre-state societies.

- i. Hunting and food gathering
- ii. Pastoralism
- iii. Shifting cultivation

**Unit VI:** Ecological themes of state formation: i. Neolithic revolution, ii. Hydraulic civilization

**Unit VII:** Agriculture and peasantry; Industrial civilization and growth of urban societies  
Impact of urbanization and industrialization on Man.

## **Practical**

### **1. A. Biological**

#### **Dimensions: Indices**

1. Body Mass Index
2. Ponderal Index
3. Relative Sitting Height Index
4. Relative Upper Extremity Length Index
5. Relative Total Lower Extremity Length Index
6. Nasal Index

### **B. Cardiovascular function: Blood pressure, heart rate, pulse rate**

### **2. Cultural Dimensions**

1. Make a research design pertaining to any environmental problem and do a project based on it.

## **Suggested Reading**

1. Human ecology: biocultural adaptation in human communities. (2006) Schutkowski, H. Berlin. Springer Verlag.
2. Human ecology and cognitive style: comparative studies in cultural and physical adaptation. (1976).Berry, J.B. New York: John Wiley.
3. Human ecology. (1964) Stapledon.Faber & Faber.
4. Studies in Human Ecology. (1961) Theodorson, G.A. Row, Peterson & Company Elmsford, New York.
5. Human ecology: (1973) Problems and Solutions. Paul R. Ehrlich, Anne H. Ehrlich and John P. Holdress.W.H. Freeman & Company, San Francisco.
6. Cohen, Yehudi A. 1968. Man in adaptation; the cultural present. Chicago: Aldine Pub. Co.
7. Redfield, Robert. (1965). Peasant society and culture an anthropological approach to civilization. Chicago [u.a.]: Univ. of Chicago Press.
8. Symposium on Man the Hunter, Richard B. Lee, and Irven DeVore. 1969. Man the hunter. Chicago:Aldine Pub. Co.

**ANT-HC-3036**  
**Biological Diversity in Human Populations**  
Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** Provide an understanding of how to assess human biological diversity.

**COURSE OUTCOME:**

- The students will learn about markers for understanding biological diversity.
- Classical markers use for classifying races.
- Classification of Indian population.

**Theory**

- Unit I:** Concept of Biological Variability, Sources of Genetic Variation, Interpretation of Human Variation, Genetic Polymorphism (Serological, Biochemical and DNA markers).
- Unit II:** i. Classical approaches of classifying human population: Racial groups of mankind and racial criteria.  
ii. A critical appraisal of contribution of Risley, Guha, Rickstett and Sarkar towards understanding ethnic elements in the Indian populations.
- Unit III:** Pre and Proto historic racial elements in India. Linguistic classification of Indian population.
- Unit IV:** Genetic diversity among Indian Population.  
Racial elements in NE India, with special reference to Assam
- Unit V:** Recent understanding of human biological categories in the context of human genome research.
- Unit VI:** Demographic Perspective  
Demographic Anthropology; Sources of Demographic Data, Demographic Processes, Demographic profile of Indian populations and its growth structure.

**Practical**

1. Craniometric Measurements (Skull and Mandible)

Students should be trained for identifying landmarks on the skull, taking accurate measurements on at least 3 skulls by following standards techniques.

**I. Linear measurements:**

Maximum cranial length	Maximum cranial breadth
Maximum bizygomatic breadth	Maximum frontal breadth
Minimum frontal breadth	Nasal height
Nasal breadth	Bi-mastoid breadth

**II. Angular measurements**

Greatest occipital breadth	Upper facial height
Bi-maxillary breadth	Outer bi-orbital breadth
Inner bi-orbital breadth	Greatest Occipital breadth
Glabella-inion length	Nasion-inion length
Nasion-basion length	Nasion-prosthion length

	Frontal chord	Parietal chord
	Occipital chord	
<b>III.</b>	<b>Curvilinear or arc measurements</b>	
	Frontal arc	Parietal arc
	Occipital arc	sagittal cranial arc
	Horizontal circumference of head	
	Metopic angle	Facial profile angle
	Nasal profile angle	Alveolar profile angle

2. Collection of demographic data from primary or secondary sources.

### Suggested readings:

1. Baker P.T. and J.S. Weiner (ed.) (1996) *The Biology of Human Adaptability*. Oxford & New York, Oxford University Press.
2. Bhende A. and T. Kantikar (2006) *Principles of Population Studies*. Himalayan Publishing House, Mumbai
3. Bogin B. (1999). *Pattern of Human Growth*. 2nd edition CUP.
4. Cameron Noel and Barry Bogin (2012) *Human Growth and development*. Second edition, Academic Press Elsevier.
5. Eckhardt R.B. (1979) *The Study of Human Evolution*. McGrand Hill Book Company, USA.
6. Frisancho R. (1993) *Human Adaptation and Accommodation*. Univ, of Michigan press
7. Harrison G.A., Tanner, J.M., Pilbeam, D.R., Baker, P.T. (1988) *Human Biology*. Oxford University Press.
8. Jurmain Robert Lynn kilgore Wenda Trevathan and Ciochon (2010). *Introduction to Physical Anthropology*. Wadsworth Publishing, USA.
9. Kapoor A.K. and Satwanti Kapoor (ed) (1995). *Biology of Highlanders*. Jammu, Vinod Publisher & Distributor.
10. Kapoor A.K. and Satwanti Kapoor (eds) (2004) *India's Elderly-A Multidisciplinary Dimension*. Mittal Publication, New Delhi.
11. Klepinger L.L. (2006). *Fundamentals of Forensic Anthropology*. John Willey & Sons., New Jersey.
12. Malhotra K.C. and B. Balakrishnan (1996) *Human Population Genetics in India*
13. Malina Robert M., Claude. Bouchard, Oded. Bar-Or. (2004) Growth, and Physical activity. *Human Kinetics*.
14. Stanford C., Allen, S.J. and Anton, C.S. (2013): *Biological Anthropology*. 3rd edition, Pearson, USA.

## Semester-IV

# ANT-HC- 4016

## Theories of Culture and Society

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** To impart the knowledge about the basic theories of culture and society in the study of Anthropology

**COURSE OUTCOME:**

- The knowledge of the basic theories of culture in Anthropology can be gained.
- The knowledge of the basic theories of society in Anthropology can be gained.

### Theory

**Unit I:** Emergence of Anthropology: Interface with evolutionary theory and colonialism, Changing perspectives on Evolutionism, Diffusionism and Culture area theories; Historical Particularism. Neo-evolutionism (V. Gordon Childe, Leslie White, Julian Steward)

**Unit II:** Durkheim and social integration, Functionalism and Structural-functionalism and British Social Anthropology

**Unit III:** Structuralism: Claude Levi-Strauss and Edmund Leach

**Unit IV:** Culture and Personality (Margaret Mead, Ruth Benedict and Cora Dubois)

**Unit V:** Symbolic and Interpretative approach

### Practical

As a part of the practical following exercises will be undertaken by the students so as to enable them to connect the theories they learn with things of everyday living.

1. To identify a topic relating to contemporary issue and formulate research questions and clearly identify the theoretical perspectives from which they are derived.
2. Identification of variables of a study.
3. Various types of hypotheses.
4. Formulation of hypothesis.
5. Identification of universe and unit of study with justifications.
6. Choice of appropriate research technique and method in the context of theoretical framework.
7. Data collection and analysis



### **Suggested Readings**

1. Applebaum H.A. (1987) *Perspectives in Cultural Anthropology*. Albany: State University of New York.
2. Barnard A. (2000). *History and Theory in Anthropology*. Cambridge: Cambridge University.
3. McGee R.J. and Warms R.L. (1996) *Anthropological Theories: An Introductory History*.
4. Moore M. and Sanders T. (2006). *Anthropology in Theory: Issues in Epistemology*, Malden, MA: Blackwell Publishing.

**ANT-HC-4026**  
**Human Growth and Development**  
**Credit 6 (Theory: 4; Practical: 2)**

**COURSE OBJECTIVE: Provide an understanding of the growth of human from foetus into man.**

**COURSE OUTCOME:**

- **Students will learn about concepts related with growth and stages of growth.**
- **Students will learn biocultural factors that influence growth and development.**
- **Students will learn human body composition.**

**Theory**

- Unit I:** Concept of human growth, development, differentiation and maturation
- Unit II:** Prenatal (conception till birth) and postnatal (birth till senescence) period of growth, Pattern of normal growth curves, ethnic and gender differences in growth curves, secular trend.
- Unit III:** Bio-cultural factors (genetic, social, and ecological factors) influencing patterns of growth and variation, methods and techniques to study growth, significance/ applicability of growth studies.
- Unit IV:** Concept of Ageing, Senescence and Population Ageing. Primary, secondary and tertiary ageing. Methods and techniques of studying age changes.
- Unit V:** Nutritional epidemiology-concept of balanced diet, impact of malnutrition (over and under) with special reference to obesity, Kwashiorkor and Marasmus. Assessment of nutritional status.
- Unit V:** Human physique and body composition: models and techniques; gender and ethnic differences.

**Practical**

1. Growth status: Somatometry (stature, body weight, mid upper arm circumference, chest girth, abdominal girth, hip circumference, calf circumference), assessment of chronological age.
2. Obesity assessment: General (BMI, body fat %, Conicity index, body adiposity indices) and regional adiposity indices (WC, WHR, WHtR).
3. Nutritional assessment through dietary pattern and anthropometric indices.

## **Suggested Readings**

1. Bogin B. (1999) Patterns of human growth. Cambridge University Press.
2. Frisancho R. (1993) Human Adaptation and Accommodation. University of Michigan Press.
3. Cameron N and Bogin B. (2012) Human Growth and Development. Second edition, Academic press  
Elsevier.
4. Harrison GA and Howard M. (1998). Human Adaptation. Oxford University Press.
5. Harrison GA, Tanner JM, Pibeam DR, Baker PT. (1988). Human Biology. Oxford Univ. Press.
6. Jurmain R, Kilgore L, Trevathan W. Essentials of physical anthropology. Wadsworth publishing.
7. Kapoor AK and Kapoor S. (1995) Biology of Highlanders. Vinod Publisher and Distributor.
8. Kathleen K. (2008). Encyclopedia of Obesity. Sage.
9. Malina RM, Bouchard C, Oded B. (2004) Growth, Maturation, and Physical Activity. Human Kinetics.
  
10. McArdle WD, Katch FI, Katch VL. (2001) Exercise Physiology: Energy, Nutrition, and Human  
Performance.
11. Singh I, Kapoor AK, Kapoor S. (1989). Morpho-Physiological and demographic status of  
the Western  
Himalyan population. In Basu and Gupta (eds.). Human Biology of Asian Highland  
Populations in the  
global context.
12. Sinha R and Kapoor S. (2009). Obesity: A multidimensional approach to Contemporary  
global issue.  
Dhanraj Publishers. Delhi.

**ANT-HC-4036**  
**Research Methods**  
**Credit 6 (Theory: 4; Practical: 2)**

**COURSE OBJECTIVE: To impart knowledge on research design formulation, fieldwork tradition, methods and techniques of data collection and ethics of research.**

**COURSE OUTCOME:**

- **The knowledge on formulation of research design, application of methods and techniques in data collection will be obtained.**
- **The ethics of research will be understood for an effective research study.**

**Theory**

**Unit I:** Research Design

Conceptual framework, formulation of research problem, formulation of hypothesis, sampling, data analysis and reporting, basic tenets of qualitative research and its relationship with quantitative research

**Unit II:** Field work tradition in Anthropology

Ethnographic approach, holistic approach, contribution of Malinowski, Boas and other pioneers; cultural relativism, ethnocentrism, etic and emic perspectives, comparative and historical methods, techniques of rapport establishment identification of representative categories of informants, maintenance of field diary and logbook.

**Unit III:** Tools and techniques of data collection

Concept of survey, relationship of survey method with ethnographic method, construction of questionnaire and interview schedule, validation and internal consistency of questionnaire- Observation - Participant, Non-participant, Controlled Interview-Structured and unstructured, Focused Group Discussion, key informant Interview Case Study and life history. Genealogy - Technique and application

**Unit IV:** Ethics and Politics of Research

Identify, define, and analyze ethical issues in the context of human subject research. Ethical importance of consent, privacy and confidentiality in research. Issues of academic fraud and plagiarism

**Unit V:** Analysis and Writing Up

1. Chapterization, preparing a text for submission and publication, concepts of preface, notes (end and footnotes), glossary, prologue and epilogue, appendix, bibliography (annotated) and references cited, review and index.
2. Similarities and differences between qualitative and quantitative data analysis; introduction of software for data analysis.

**Unit VI:** Bio-Statistics:Types of variables, presentation and summarization of data (tabulation and illustration).  
Descriptive statistics: Measurers of Central Tendency, Measure of Variation, Variance and standard deviation.  
Tests of Inference: Variance ratio test, Student's't' tests, Chi-square test and measures of association, Analysis of variance, Correlation.  
Pedigree Analysis- Importance and implication.

### **Practical**

1. Construction of Genealogy.
2. Observation: Direct, Indirect, Participant, Non-participant, Controlled
3. Questionnaire and Schedule, Interview- Unstructured, Structured, Key informant interview, Focused Group Discussion, and Free listing, pile sorting
4. Case study and life history
5. Project report writing- preparation of research problem, study design, data collection techniques, analysis and report writing based on somatometric, dermatoglyphic and serological data or social problem.

### **Suggested Readings**

1. Garrard E and Dawson A. What is the role of the research ethics committee? Paternalism, inducements, and harm in research ethics. *Journal of Medical Ethics* 2005; 31: 419-23.
2. Bernard H.R. *Research Methods in Anthropology, Qualitative and Quantitative Approaches*. Jaipur: Rawat Publications. 2006.
3. Madrigal L. *Statistics for Anthropology*. Cambridge: Cambridge University Press. 2012.
4. Zar JH. *Biostatistical Analysis*. Prentice Hall. 2010.
5. Michael A. *The Professional Stranger*. Emerald Publishing. 1996.
6. Bernard R. *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. AltaMira Press. 2011.
7. Emerson RM, Fretz RI and Shaw L. *Writing Ethnographic Fieldnotes*. Chicago, University of Chicago Press. 1995.
8. Lawrence NW. *Social Research Methods, Qualitative and Quantitative Approaches*. Boston: Allyn and Bacon. 2000.
9. O'reilly K. *Ethnographic Methods*. London and New York: Routledge. 2005.
10. Patnaik S.M. *Culture, Identity and Development: An Account of Team Ethnography among the Bhil of Jhabua*. Jaipur: Rawat Publications. 2011.
11. Pelto PJ and Pelto GH. *Anthropological Research, The Structure of Inquiry*. Cambridge: Cambridge University Press. 1978.
12. Sarantakos S. *Social Research*. London: Macmillan Press. 1998.

## Semester-V

# ANT-HC-5016 Human Population Genetics

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** Provide an understanding of measuring changes in human population.

**COURSE OUTCOME:**

- Students will learn about mechanisms which create variation in gene frequencies.
- Students will learn the method of assessing gene frequency variation.
- Students will learn how ecological factors which help maintain gene frequencies.

### Theory

- Unit I:** Essentials of Genetics  
Landmarks in the history of genetics, principles in human genetics, single locus (Mendelian) versus multilocus (quantitative/complex) inheritance, chromosome theory of inheritance (segregation and independent assortment)  
Mendelian inheritance (single factor and multifactorial inheritance),  
Non- Mendelian inheritance (multiple allelism, Co-dominance; sex linked, sex limited, sex controlled, epistasis; penetrance and expressivity; Cytoplasmic inheritance)
- Unit II.** Ecological Genetics and Polymorphism  
Phenotypic & genotypic polymorphisms, transient polymorphism, balanced polymorphisms, models explaining the maintenance of genetic polymorphism (Relationship between sickle cell and malaria, X-linked polymorphism, selection due to infectious diseases and its association with blood groups and other)
- Unit III:** Hardy-Weinberg principle: Concept, Assumptions of Hardy Weinberg equilibrium, its applications and exceptions
- Unit IV:** Mechanism for dynamics in Gene Frequency:  
Mutation, selection (pattern and mechanism), Genetic drift (bottle neck and founder effect), Gene flow/migration, inbreeding and its consequences.
- Unit V:** Population structure and admixture in human populations. Random & non-random mating (positive and negative assortative mating), heritability.

### Practical

1. **ABO and Rh (D) Blood groupings:** Student should be trained in determining ABO and Rh blood groups of at least 5 individuals by following standard procedure.
2. **Testing of Colour Vision (Color Blindnes):** Ishihara's Chart should be used to determine the colour blindness. Inferences should be recorded on at least 5 subjects.
3. **PTC test:** Student should be trained to test PTC testing ability in at least 5 individuals following standard procedure.

## Suggested Readings

1. Brooker R.J.(2012). *Genetics: analysis & principles*. The McGraw-Hill Companies, Inc 4th ed.
2. Cavalli-Sforza, L.L. and Bodmer, W.F (1971). *The Genetics of Human Population*. San Francisco:  
Freeman
3. Cooper DN and Kehrler-Sawatzki H. (2008). *Handbook of Human Molecular Evolution*.John Wiley  
& Sons, volume-2.
4. Crawford MH (2007). *Anthropological Genetics Theory, Methods and Applications*.  
Cambridge  
University Press
5. Cummings M.R. (2011). *Human Heredity: Principles and Issues*. Ninth Edition. Brooks/Cole,  
Cengage Learning
6. Jobling, M.A. Hurls M. and Tyler-Smith C. (2004). *Human Evolutionary Genetics:Origins,  
Peoples &  
Disease*.GS. NY
7. Lew Kristi (2019). *Understanding the Human Genome*. Enslow Publishing, New York.,
8. Lewis R. (2009). *Human Genetics: Concepts and Applications* 9th Edition. The McGraw–Hill  
Companies, Inc.
- 9.Mcelheny K. Victor (2010). *Drawing the Map of Life: Inside the Human Genome Project*.  
Merloyd Lawrence Book., USA
10. Patch C. (2005). *Applied Genetics in Healthcare*. Taylor & Francis Group
11. Relethford J.H. (2012). *Human Population Genetics*. Wiley-Blackwell, USA
12. Snustad .D.P. and Simmons M.J. (2006). *Principles of Genetics*, Fourth Edition, John Wiley  
& Sons  
USA, Hoboken NJ
13. Strachan T, Read A.P. (2004). *Human Molecular Genetics*. Garland Science/Taylor &  
Francis Group.
14. Vogel F. and Motulsky A.G. (1996). *Human Genetics*. Springer, 3rd revised edition. USA.

**ANT-HC-5026**  
**Anthropology in Practice**  
**Credit 6 (Theory: 4; Practical: 2)**

**COURSE OBJECTIVE:** To impart knowledge about the applied aspects of Anthropology.

**COURSE OUTCOME:**

- **The knowledge of Applied Anthropology, Action Anthropology and Role of Anthropology in Development**
- **Student will gain knowledge of recent trend of Anthropology.**

**Theory**

**Unit I:** Academic Anthropology  
Academics and Practitioners: Differences, Structure, Activities, Controversies and Issues: Applied Anthropology, Action Anthropology and Development Anthropology.

**Unit II:** Role of Anthropology in Development  
Anthropology and Public Policy, Need Assessment and Community Development, Anthropology of NGO's, Management Anthropology, Environment and Community Health, Social and economic sustainability, Cultural resource management.

**Unit III:** Future Dynamics in Anthropology  
Trends in Anthropology: Anthropology of Tourism, Anthropology In Census; Designing and Fashion, Visual Anthropology

**Unit IV:** Constitutional Perspective and Human Rights  
Constitutional Provisions, Evaluation, Planning and Development of Indian Populations; Human Rights, National and State Human Rights Commission and other Grievance Redressal Mechanism.

**Practical**

1. The students will visit a NGO, corporate office, panchayat office or census office and write principal observations on the same.
2. Write a project on constitutional provisions or evaluation of any development project / report.
3. Write a project on Religious Tourism / Tribal Tourism / Health Tourism / Fashion / Human Rights / Ecotourism.
4. Collection of demographic data from secondary sources and write a project on demographic profile.



## Suggested Readings

1. Arya A and Kapoor AK. (2012). Gender and Health Management in Afro-Indians. Global Vision Publishing House, New Delhi.
2. Kertzer DI and Fricke T. (1997). Anthropological Demography. University of Chicago Press.
3. Basu, A. and P. Aaby (1998). The Methods and the Uses of Anthropological Demography. 329 pp. Oxford, Clarendon Press
4. Carter A. (1998). Cultural Models and Demographic Behavior. In The Methods and the Uses of Anthropological Demography edited by Basu A and Aaby P. Oxford: Clarendon Press. pp 246-268.
5. Census of India (2001, 2011) and National Family Health Survey (2006,2010).
6. Ervic, Alexander M., (2000). Applied Anthropology: Tools and Perspectives for Contemporary Practice, Boston, MA: Allyn and Bacon.
7. Erwin A. (2004). Applied Anthropology Tools and Practice, Allyn and Bacon.
8. Gupta S and Kapoor AK. (2009). Human Rights among Indian Populations: Knowledge, Awareness and Practice. Gyan Publishing House, New Delhi.
9. Willen SS. (2012). Anthropology and Human Rights: Theoretical Reconsiderations and Phenomenological Explorations. Journal of Human Rights. 11:150–159.
10. Goodale M. (2009). Human Rights: An Anthropological Reader. Wiley Blackwell.
11. Gupta S and Kapoor AK. (2007). Human Rights, Development and Tribe. In : Genes, Environment and Health – Anthropological Perspectives. K. Sharma, R.K. Pathak, S. Mehra and Talwar I (eds.). Serials Publications, New Delhi.
12. Margaret AG. (2003). Applied Anthropology: A Career-Oriented Approach, Boston, MA: Allyn and Bacon.
13. Halbar BG and Khan CGH. (1991). Relevance of Anthropology – The Indian Scenario. Rawat Publications, Jaipur.
14. Kapoor AK (1998). Role of NGO's in Human Development : A Domain of Anthropology. J Ind Anthropol Soc; 33:283-300.
15. Kapoor AK and Singh D. (1997). Rural Development through NGO's. Rawat Publ, Jaipur.
16. Klepinger LL (2006). Fundamentals of Forensic Anthropology. Wiley-Liss Publications
17. Kumar RK and Kapoor AK. (2009). Management of a Primitive Tribe: Role of Development Dynamics. Academic Excellence, Delhi.
18. Mehrotra N and Patnaik SM. (2008). Culture versus Coercion: The Other Side of Nirmal Gram Yojna, Economic and Political weekly. pp 25-27.
19. Mishra RC (2005). Human Rights in a Developing Society, Mittal Publications, Delhi.

20. Noaln RW. (2002). Anthropology in Practice: Building a Career outside the Academy. Publishing Lynne Reinner.
21. Patnaik SM (1996). Displacement, Rehabilitation & Social Change. Inter India Publications, New Delhi.
22. Patnaik SM (2007). Anthropology of Tourism: Insights from Nagaland. The Easter Anthropologist.  
60 (3&4):455-470
23. Srivastav OS (1996). Demographic and Population Studies. Vikas Publishing House, India
24. Vidyarthi LP and BN Sahay (2001). Applied Anthropology and Development in India, National Publishing House, New Delhi.
25. Vidyarthi LP. (1990). Applied Anthropology in India – Principles, Problems and Case Studies. Kitab Mahal, U.P.
26. Vidyarthi V (1981). Tribal Development and its Administration. Concept Publishing Company, New Delhi.

## Semester-VI

# ANT-HC-6016

## Forensic Anthropology

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** Provide an understanding of the forensic aspect of anthropology.

**COURSE OUTCOME:**

- Students will learn about distinguishing human from non-human skeletal remains.
- Students will learn about the techniques of making personal identification.

### Theory

- Unit I:** Introduction to Forensic Anthropology: Definition, Brief History, Scope, Applications and Integration of Forensic Anthropology.
- UnitII:** Basic Human Skeletal Biology, Identification of Human and Non-Human Skeletal remains, Ancestry, age, sex and stature estimation from bones, Discovery and techniques for recovering skeletonized Human Remains.
- UnitIII:** Personal Identification, Complete and Partial Identification, Methods of Identification in Living Persons: Somatometry, Somatoscopy, Tattoo Marks, Fingerprints, Footprints, Handwriting, Deformities and Others.
- Unit IV:** Serology: Identification and Individualization of bloodstain, Patterns of Bloodstains.
- Unit V:** Individualization: Forensic Odontology-Tooth Structure and Growth, Bite Marks, Facial Reconstruction, DNA profiling

### Practical

1. Study of Human Long Bones. Estimation of age, sex and stature from bones.
2. Somatometric and somatoscopic observation for identifying individuals.
3. Examination of finger prints and hand writing  
Analysis and interpretation of finger ball pattern types, palmar main lines and pattern index;  
Finger print classification and development of chance prints and statistical treatment of the data collected (Ten Subjects).

### Suggested Readings:

1. Bass W.M. (1971). Human Osteology: A Laboratory and Field manual of the Human Skeleton. Columbia: Special Publications Missouri Archaeological Society.
2. Black S. and Ferguson E. (2011). *Forensic Anthropology 2000 to 2010*.CRC Press, London.
3. Byers, S. N. (2008). Forensic Anthropology. Boston: Pearson Education LTD.
4. Gunn A. (2009) *Essential Forensic Biology* (2nd ed). Chichester: Wiley-Blackwell
5. Modi, R. B. J. P. (2013). *A Textbook of Medical Jurisprudence and Toxicology*.Elsevier.
6. Reddy V. R. (1985). Dental Anthropology, Inter-India Publication, New Delhi.

7. Spencer, C. (2004). *Genetic Testimony: A Guide to Forensic DNA Profiling*, Pearson, New Delhi.
8. Vats Y., Dhall J.K. and Kapoor A.K. (2011). Gender Variation in Morphological Patterns of Lip Prints among some North Indian Population. *J. Forensic Odontology*, 4: 11-15.
9. Wilkinson, C. (2004). *Forensic facial reconstruction*. Cambridge University Press.

**ANT-HC-6026**  
**Anthropology of India**  
**Credit 6 (Theory: 4; Practical: 2)**

**COURSE OBJECTIVE:** The broad objective of the course is to understand the racial linguistic and ethnic dimension of Indian society and the social dynamics which is constantly acting on it over the years.

**COURSE OUTCOME:**

- The students will learn about racial linguistic and ethnic dimension of Indian society.
- The students will be familiar with the anthropological situation of the country.

**Theory**

**Unit I:**

1. Origin, history and development of Anthropology in India, approaches to study Indian society and culture- traditional and contemporary
2. Racial and linguistic elements in Indian population; Ethnic elements in Northeast India.
3. Understanding the diversity of Indian social structure - concept of Varna, Jati, Caste, Ashram or purusharatha,

**Unit II:** Contribution of contemporary biological, social and archaeological anthropologists in India.

**Unit III:**

1. Tribal situation in India- biogenetic variability, linguistic and socio-economic characteristics ; Problems of tribal peoples, land-alienation, indebtedness, lack of educational facilities, shifting-cultivation, migration, forests and tribal unemployment, health and nutrition, tribal movement and quest for identity
2. Developmental projects- tribal displacements and rehabilitation problem
3. Impact of culture-contact, urbanization and industrialization on tribal and rural population
4. Basic concepts -Great tradition and little tradition, sacred complex, Universalization and Parochialization, Sanskritization and Westernization, Dominant caste, Tribe-caste continuum, Nature-Man-Spirit complex, pseudo-tribalism,

**Unit IV:**

1. Problems of exploitation and deprivation of scheduled caste/ tribe and other Backward Classes.
2. Constitutional safeguards for the Scheduled caste and scheduled tribes.

**Practical**

1. Identify various traits/variables which can be used in racial classification and comment on its relevance.

2. Review a book/edited volume on Indian social structure such as caste, religion, tribe or rural population and give its salient features.
3. Explore the biological diversity of any population group considering a minimum of five genetic traits.
4. Highlight the contributions of any two contemporary Indian anthropologists.

### **Suggested Reading**

1. Nicholas D. (2001). *Castes of Mind: Colonialism and the Making of Modern India*. Princeton University Press.
2. Bernard CS. (2000). *India: The Social Anthropology of Civilization*. Delhi: Oxford University Press.
3. Bhasin MK, Watter H and Danker-Hopfe H. (1994). *People of India – An Investigation of Biological variability in Ecological, Ethno-economic and Linguistic Groups*. Kamla Raj Enterprises, Delhi
4. Lopez DS. (1995). *Religions of India in Practice*. Princeton University Press
5. Gupta D. *Social Stratification*. Delhi: Oxford University Press.
6. Karve I. (1961). *Hindu Society: An Interpretation*. Poona : Deccan College
7. Guha BS. (1931). The racial attributes of people of India. In: *Census of India, 1931, vol I, Part III (BPO, Simla)*
8. Trautmann TR (2011). *India: Brief history of Civilization*. Oxford University Press: Delhi
9. Vidyarthi LP and Rai BK. (1976). *The tribal culture of India*. Concept Publishing Co, Delhi.
10. Haddon AC. (1929). *Races of man*. Cambridge University, London.
11. Kapoor A.K. (1992). *Genetic Diversity among Himalayan Human Populations*. M/S Vinod Publishers, Jammu
12. Majumdar DN. (1901). *Races and Culture of India*. Asia Publishing House, Bombay
13. Dube SC. (1992). *Indian Society*. National Book Trust, India : New Delhi.
14. Dumont L. (1980). *Homo Hierachicus*. University of Chicagon Press.
15. Guha B.S. (1931). The racial attributes of people of India. In : *Census of India, 1931, vol I, Part III (BPO, Simla)*
16. Malhotra K.C. (1978). *Morphological Composition of people of India*. J. Human Evolution.

**PART II**  
**DISCIPLINE SPECIFIC**  
**ELECTIVE PAPERS**

ANT-HE-5016: Indian Archaeology

ANT-HE-5026: Anthropology of Religion,  
Politics and Economy

or

ANT-HE- 5036 Paleoanthropology

ANT-HE-6016: Dissertation (Compulsory)

ANT-HE-6026: Human Genetics

Or

ANT-HE-6036: Demographic Anthropology

## Semester V

### ANT-HE-5016 Indian Archaeology Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** The broad objective of the course is to acquaint the students with the prehistoric background of the country both from theoretical and practical perspective.

**COURSE OUTCOME:**

- The students will be familiar with the rich prehistoric past of the country.
- The students will understand the prehistoric foundation on which the later course of history in the country developed.

#### Theory

**Unit I:** Prehistoric India: Pleistocene chronology of India: A critical assessment

**Unit II:** Character, distribution and interpretation of habitat and economy of the following cultures of India:

- Lower palaeolithic
- Middle palaeolithic
- Upper palaeolithic
- Mesolithic culture
- Neolithic Culture

**Unit III:** Bronze Age culture in Indus Basin:

Harappan Civilization: Sites, Artifacts, Town planning and Architecture, Trade and Commerce and Causes of declination.

**Unit IV:** Megalithic Cultures in India with special reference to Northeast India.

**Unit V:** Important Excavated Archaeological Sites of North East India

Daojali Hading  
Selbalgre  
Ambari  
Sarutaru  
Parsi Parlo

#### Practical

1. Identification of tools:

- |   |                  |
|---|------------------|
| (a) Handaxe varieties, chopper/chopping tools | (f) End scrapers |
| (b) Cleaver varieties                         | (g) Borers       |



- (c) Side scraper varieties
- (d) Knives
- (e) Burins

- (h) Microlithic tools
- (i) Bone tools

3. Application of Remote Sensing and GIS in Prehistoric Archaeology.

- Visual Interpretation Techniques/Keys
- Visual Interpretation of Aerial Photograph: Identification and mapping of cultural features from aerial photographs.
- Identification and Drawing of Physical and Cultural features from satellite imagery.

Suggested reading:

1. D. K. Bhattacharya (1996) An Outline of Indian Prehistory. Delhi, Palika Prakashan.
2. H. D. Sankalia (1974) Prehistory and Protohistory of India and Pakistan. Poona, Deccan College.
3. H. D. Sankalia (1982) Stone Tool Type and Technology. Delhi, B.R.Publication.

# **ANT-HE-5026**

## **Anthropology of Religion, Politics and Economy**

**Credit:6 (Theory: 4; Practical:2)**

**COURSE OBJECTIVE:** To impart the knowledge of anthropological theories of religion, the economies and political institutions, along with their interrelationship.

**COURSE OUTCOME:**

- **The knowledge on the anthropological theories of religion, economies and political institutions will be gained.**
- **The knowledge on the interrelationship between religion, economies and political institutions will be achieved.**

### **Theory**

**UNIT I:** Anthropological approaches to understand religion- magic, animism, animatism, totemism, naturism; witchcraft and sorcery; Religious specialists: shaman, priests, mystics; Overview of Anthropological Theories of Religion; Religion as the sacrality of ecological adaptation and socialness

**Unit II:** Economic institutions: principles of production, distribution, and consumption in simple and complex societies; critical examination of relationship between economy and society through neo-classical, substantivist, and neo-marxist approaches, various forms of exchange: barter, trade and market; Forms of currencies; reciprocities: generalized, balanced and negative.

**Unit III:** Political institutions: concepts of power and authority; types of authority; state and stateless societies; law and justice in simple and complex societies; the prospects for democracy and tolerance among and within the world's diverse civilizations; the meaning and sources of identity in complex contemporary societies; the origins of modern politics, its institutions, and cultures, both Western and non-Western

**Unit IV:** Interrelationship between religion, politics and economy; religious conversion and movements, emergence of new religious sects in the global order.

### **Practical**

Case study of any of the social institute (religion, economic, political) with respect to culture perspective

## Suggested Readings

1. Durkheim E. (1986). *The elementary forms of the religious life, a study in religious sociology*. New York:Macmillan.
2. Benedict A. (2006). *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. Verso
3. Gledhill J. (2000). *Power and Its Disguises: Anthropological Perspectives on Politics*. 2nd ed. London: Pluto Press.
4. Ellis F. (2000). A framework for livelihood analysis. In *Rural Livelihoods and Diversity in Developing Countries* . Oxford: Oxford University Press.
5. Henrich J, Boyd R, Bowles S, Camerer C, Fehr E, Gintis H, McElreath R, Alvard M et al. (2005). ‘Economic Man’ in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. *Behavior and Brain Science*.28(6):795-815;
6. Henrich J. (2002). Decision-making, cultural transmission, and adaptation in economic anthropology. In: J. Ensminger (Ed.), *Theory in Economic Anthropology* (pp. 251-295). Walnut Creek, CA: Altamira Press.
7. Eller JD. (2007). *Introducing Anthropology of Religion*. New York: Routledge.
8. Glazier SD. (1997). *Anthropology of Religion: A Handbook*. Westport, CT: Greenwood Press.
9. Frick GD and Langer R. (2010). *Transfer and Spaces*. Harrassowitz (Germany).
10. Evans-Pritchard EE. (1937). *Witchcraft, Oracles and Magic among the Azande*, Oxford: Clarendon Press.
11. Frazer JG. (1978). *The Illustrated Golden Bough*, London:Macmillan.
12. Barbara M. (2011). *Cultural Anthropology*. New Jersey: Pearson Education.
13. Ember CR. (2011). *Anthropology*. New Delhi: Dorling Kinderslay.
14. Herskovits MJ. (1952). *Economic Anthropology: A Study in Comparative Economics*. New York: Alfred A Knopf Inc.
15. Malinowski B. (1922) *Argonauts of the Western Pacific*. London: Routledge.

**ANT-HE-5036**  
**PALEOANTHROPOLOGY**  
Credit: 4

**COURSE OBJECTIVE:** To provide an understanding of the paleontological and archaeological background of evolution.

**COURSE OUTCOME:**

- Student will be acquainted with archaeological and paleontological background of prehistoric period.
- Students will have understanding of evolutionary biology and culture through fossilized evidences and bio-archeological approach.

**Unit I:** Dating methods, geological time scale, taphonomy and interpretation of the paleontological and archaeological records, taxonomic and chronological problems of fossils records.

**Unit II:** Primate speciation and extinctions: a geological perspective, adaptive primate radiation, differential rate of somatic evolution.

**Unit III:** Evolutionary biology: Origins and evolution of stone age technology (Human origins: Development, distribution and fossilized evidence of Australopithecines, Paranthropus (Zinjanthropus), Homo habilis, Homo erectus, Archaic H. sapiens, prehistoric hunter-gatherers, modern pastoral communities, emergence of prehistoric people in Africa).

**Unit IV:** Primate and Non-Primate Models for Early Hominid Behaviour; hominization process- Evolution of hominid-human bipedalism

**Unit V:** Palaeodemography- reconstruction of population patterns from skeletal analysis, determination of demographic variables in prehistoric populations and post-neolithic population growth, theory and techniques in paleodemography, methodological issues for reconstructing demographic structure, demographic models of mortality and their interpretation

**Unit VI.** Palaeopathology- bioarchaeological approach of disease; effects of agriculture, urbanization and slavery on health and disease; colonization and disease with special emphasis on the New World; dispersion of modern humans - molecular and morphological patterns of relationship

**Practical**

1. Comparative primate osteology
2. Description and identification of the disarticulated skeleton of non-human primates
3. Identification and description of fossil casts
4. Excursion to any archeological site and writing a report

**Suggested readings**

1. Napier JR and Napier PH. (1985). The Natural History of the Primates. Cambridge, MA: The MIT Press

2. Boyd R and Silk JB. (2009). *How Humans Evolved*. London: WW Norton.
3. Tattersall I. (2009). *The Fossil Trail: How We Know What We Think We Know about Human Evolution*. New York: Oxford University Press.
4. Waldron T. (2008): *Palaeopathology*. Cambridge University Press.
5. Cela-conde CJ and Frisancho J. (2007). *Human Evolution: Trails from the past*. Ayala Oxford University Press.
6. Barnes E. *Diseases and Human Evolution*. (2005). University of New Mexico Press.
7. Pinhasi R and Mays S (2008). *Advances in Human Palaeopathology*. Chichester: John Wiley & Sons, Inc. (PM).
8. Hoppa RD and Vaupel JW. (2002). *Paleodemography: Age Distributions from Skeletal Samples*. Cambridge University Press.
9. Lansen CS, Matter RM and Gebo DL. (1998). *Human Origin: The fossil Record*. Waveland Press.
10. Cameron DW and Colin P. Groves CP. (2004). *Bone, Stones and Molecules: "Out of Africa" and Human Origins*. Elsevier Inc.
11. Stringer C. (2011). *The Origin of Our Species*. London: Allen Lane.
12. Conroy GC. (2005). *Reconstructing Human Origins*. WW Norton and Compan

## **Semester-VI**

### **ANT-HE-6016**

#### **Dissertation**

**Credit 6**

**COURSE OBJECTIVE: To impart the knowledge of conducting ethnographic fieldwork and apply the anthropological field methods for data collection.**

**COURSE OUTCOME:**

- **The knowledge of conducting fieldwork by applying anthropological methods will be gained.**
- **The knowledge of data analysis and writing based on the collected data will be learned.**

Student will required to prepare a dissertation or Project work in the Six Semester as one of the Discipline Specific Paper. He/she will be attached with one supervisor or guide.

**ANT-HE-6026**  
**Human Genetics**  
Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** The course will provide an understanding of basic human molecular genetics.

**COURSE OUTCOME:**

- The students will learn about the structure and function human genome.
- The students will learn how genomic variation is studied.
- The students will learn about the genomic diversity and human evolution.

**Theory**

- Unit I:** Structure, Function and Inheritance of the human genome- gene, DNA structure and replication, DNA repair and recombination, gene expression, coding and non-coding region
- Unit II:** Expression of genetic information: from Transcription to Translation – the relationship between genes and protein, transcriptions; transcription and RNA processing, encoding genetic information, decoding the codons: the role of transfer RNAs
- Unit III:** Genomic Variation: Genomic Polymorphisms (SNPs, VNTR, CNVs, etc); haplotypes and haplogroups; genotype-phenotype correlations, epigenetics
- Unit IV:** Methods of Genetic Study in Human: Pedigree analysis and expressivity; Chromosomal Basis of Genetic Disorders (Karyotypes and identification of chromosome variation; Nucleic Acid Hybridization Assays, cytogenetic mapping), Genetic mapping (Microsatellite and other DNA polymorphisms), LOD score; sequencing strategies (PCR based Sanger sequencing to Exome sequencing), concept of non-mendelian inheritance and complex diseases.
- Unit V:** Genomic Diversity & Human Evolution  
Peopling of the Indian Subcontinent: Evidence from mtDNA and Y-chromosome; evolutionary genetics; Molecular evolution; DNA sequence variation and human origins

**Practical**

1. Blood Collection, transportation and storage in field
2. DNA Extraction from whole blood
3. DNA Quantification, Aliquoting and sample preparation
4. PCR and electrophoresis
5. Gel Documentation

### **Suggested Readings:**

1. Strachan T and Read AP. (2004). Human Molecular Genetics. Garland Science
2. Brown TA. (2007). Genomes. Garland Science.
3. Griffiths AJF. (2002). Modern Genetic Analysis: Integrating Genes and Genomes. WH Freeman Press.
4. Griffiths AJF, Wessler SR, Carroll SB, Doebley J. (2011). An Introduction to Genetic Analysis. Macmillan Higher Education.
5. Cavalli-sforza LL, Menozzi P, Piazza A (1994). History and Geography of Human Genes. Princeton University.
6. Giblett, ER. (1969). Genetic Markers in Human Blood. Blackwell Scietific, Oxford.
7. Cummings MR (2011). Human Heredity: Principles and Issues. Brooks/Cole, Cengage Learning
8. Jobling M, Hurls M and Tyler-Smith C. (2004). Human Evolutionary Genetics: Origins, Peoples & Disease. New York: Garland Science.
9. Lewis R. (2009). Human Genetics: Concepts and Application. The McGraw–Hill Companies, Inc.
10. Patch C. (2005). Applied Genetics in Healthcare. Taylor & Francis Group
- 11.** Vogel F. and Motulsky A.G. (1996). Human Genetics. Springer, 3rd revised edition.
12. Snustad .D.P. and Simmons M.J. (2006). Principles of Genetics, Fourth Edition, John Wiley & Sons USA



**ANT-HE-6036**  
**Demographic Anthropology**  
Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** To provide an understanding of the demographic aspects of population.

**COURSE OUTCOME:**

- Students will learn about the basics of demography and demographic theories.
- Students will learn about the tools used for population change.

**Theory**

**Unit I:** Demographic Anthropology

1. Introduction, definition and basic concepts
2. Relationship between demography, population studies and anthropology
3. Importance of population studies in Anthropology

**Unit II:** Population Theories

1. John Graunt
2. Thomas R. Malthus
3. Biological theory of population
4. Theory of demographic transition

**Unit III:** Tools of Demographic Data

1. Measures of population composition, distribution and growth
2. Measures of fertility
3. Measures of mortality
4. Measures of migration

**Unit IV:** Population of India

1. Sources of demographic data in India
2. Growth of Indian population
3. Demography of Indian tribal and non-tribal groups
4. Anthropological determinants of population growth
5. Impact of urbanization on the migration of tribal groups

**Unit V:** National policies

1. National Population Policy
2. National Health Policy
3. National Policy on Reproductive Health Care

**Practical**

A student will collect and compile demographic data either from primary data or from different secondary sources on any given topic by the concerned teacher and a project report will be submitted for its evaluation.

## Suggested Readings

1. Bhende A. and Kaniikar, T. (2006) *Principles of Population Studies*. Himalaya Publishing House. Mumbai (All Units, It covers most topics)
  2. Caldwell J.C. (2006). *Demographic Transition Theory*. Springer.
  3. Census of India (2001,2011), SRS bulletin (2013), NFHS (2006 ), CRS, NSSO (Can be seen from browsing net)
  4. Gautam R.K., Kshatriya, G.K. and Kapoor A.K. (2010) *Population Ecology and Family Planning*. Serials publications. New Delhi.
  5. Howell N. (1986) Demographic Anthropology. *Ann. Rev. Anthropol.* 15: 219-246
  6. Kshatriya G.K. (2000). Ecology and health with special reference to Indian tribes. *Human Ecology special volume 9:229-245*.
  7. Kshatriya G.K., Rajesh,G. and Kapoor , A.K. (2010) *Population Characteristics of Desert Ecology*.VDM Verlag Dr. Muller Gmbh and Co.,Germany.
  8. Misra BD (1982). *An introduction to the study of population*. South Asia publ. ltd. New Delhi.
  9. National Population Policy <http://populationcommission.nic.in/npp.htm>
  10. Park K. (2000) *Text book of Preventive and Social Medicine*. Banarsidas Bhanot, Jabalpur.
  11. Patra P.K. and Kapoor, A.K. (2009) *Demography And Development Dynamics in a Primitive Tribe of Himalayas*. International Book Distributors, Dehradun
  12. Riley N.E. and Mc Carthy, J. (2003) *Demography in the Age of the Postmodern*. Cambridge University press. UK. Pages 1-13 and 32-98
  13. Sharma A.K. (1979) Demographic transition: A Determinant of Urbanization. *Social Change 9: 13-17*.
  14. Srivastava O.S. (1996) *Demographic and Population Studies*. Vikas Publishing House, India
  15. Zubrow E.B.W. (1976) *Demographic anthropology. Quantitative approaches*. University of New Mexico Press, Albuquerque.
  16. <http://human-nature.com/dm/chap3.html>
  17. <http://biography.yourdictionary.com/john-graunt>
- <http://www.marathon.uwc.edu/geography/demotrans/demtran.htm>

**PART III**  
**GENERIC ELECTIVE**  
**(For the students of other disciplines)**

ANT-HG-1016: Introduction to Biological Anthropology

ANT-HG-2016: Introduction to Socio-Cultural Anthropology

ANT-HG-3016: Prehistoric Archeology

ANT-HG-4016: Research Methods

or

ANT-HG-4026: Anthropology in Practice

## Semester I

## ANT- HG-1016

### Introduction to Biological Anthropology

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE: Provide understanding of the essence of Biological Anthropology.**

#### COURSE OUTCOME:

- Students will learn about the genesis and development of biological anthropology.
- Learn about the aspects from which evolution and variation is studied.

#### Theory

- Unit I:** History of Physical Anthropology and development of modern Biological anthropology, aim, scope and its relationship with allied disciplines.  
Difference in the approaches of modern and traditional Biological anthropology, with emphasis on human evolution.
- Unit II:** History and development of understanding human variation and evolutionary thought.  
  
Theories of evolution: Lamarckism, Neo Lamarckism, Darwinism, Synthetic theory, Mutation and Neo mutation theory, Punctuated Equilibrium Theory and Coalescent Theory
- Unit III:** Non human primates in relation to human evolution:  
2. Classification and characteristics of living primates  
2. Comparative anatomy and behavior of human and non-human primates.  
3. Significance of non-human primate study in Biological Anthropology
- Unit IV:** Great division of Humanity  
4. A comparative account of various racial classifications (Hooton, Deniker, Risley and Guha)  
5. UNESCO Statement on Race.  
6. Recent understanding of human biological categories in the context of human genome research
- Unit V:** Elementary genetics: Cell, Cell division, Biological basis of Inheritance, Chromosome (Structure and shape, Human Karyotype), Gene, DNA (Structure, replication), RNA, mRNA (its role in understanding human evolution)

#### Practical

**I:** Somatometric measurements:

1. Maximum head length
2. Maximum head breadth
3. Minimum frontal breadth
4. Maximum bizygomatic breadth
5. Bigonial breadth
6. Nasal height
7. Nasal length
9. Physiognomic facial height
10. Morphological facial height
11. Physiognomic upper facial height
12. Morphological upper facial height
13. Head circumference
14. Stature
15. Sitting height

8. Nasal breadth

16. Body weight

17. Total Upper Extremity length

18. Total Lower Extremity length

2: Somatoscopic observation:

1. Head form

2. Hair form

3. Facial form

4. Eye form

5. Nose form

6. Hair colour

7. Eye colour

8. Skin colour

### **Suggested Readings**

Gebo L. Daniel (2014). Primate Comparative Anatomy, John Hopkins University, Baltimore, USA

Groves C (2001). Primate taxonomy. Smithsonian, USA

Jurmain R., Kilgore L., Trevathan W., Ciochon R.L. (2012). Introduction to Physical Anthropology. Wadsworth Publ., USA

Krober A. L. (1948). Anthropology. Oxford & IBH Publishing Co., New Delhi.

Rastogi S and Shukla B.R.K (2003). Laboratory Manuals of Physical Anthropology, Bharat Book Centre, Lucknow, India

Stanford C., Allen J.S. and Anton S.C. (2010). Exploring Biological Anthropology. The Essentials. Prentice Hall Publ, USA.

## Semester-II

# ANT-HG-2016 Introduction to Socio-Cultural Anthropology

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE :** To impart the conceptual and theoretical knowledge of Social and Cultural Anthropology along with practical knowledge of data collection techniques.

**COURSE OUTCOMES :**

- The basic theoretical knowledge about Social and Cultural Anthropology can be achieved.
- The knowledge of first-hand field data collection and analysis can be gained.

### Theory

- Unit I:** Anthropological perspective and orientation; Scope and relevance of Social Anthropology; Relationship of Social Anthropology with other disciplines
- Unit II:** Concepts of society and culture; status and role; groups and institution, social stratification; caste and class; characteristics of culture, culture and civilization; Material and non material aspects of culture; acculturation, enculturation, structure of culture-culture trait, culture complex, culture area, age area, culture focus, variation and diversity in culture.
- Unit III:** Social Institutions:  
Family –definition, forms, approaches to the study of family.  
Marriage – forms, regulations, rules, alliance systems.  
Kinship – terminology, behaviour, avoidance, incest, rules of descent.
- Unit IV:** Anthropological concept of Religion: Theories, religious specialists, magic, witchcraft and supernaturalism; Contributions of E. B. Tylor, James Frazer, Emile Durkheim, E. E. Evans Pritchard.
- Unit V:** Theory and practice of ethnographic fieldwork; survey research; comparative and historical methods

### Practical

Methods and Techniques of Social Anthropology: The practical will include the following techniques and methods in collection of data in Social Anthropology.

- |                              |              |
|------------------------------|--------------|
| 1.Observation                | 2.Interview  |
| 3.Questionnaire and Schedule | 4.Case study |
| 5.Lifehistory                |              |

## Suggested Readings

1. BeattieJ.(1964).Other Cultures. London: Cohen & West Limited.
2. BernardH.R.(1940).Research Methods in Cultural Anthropology. Newbury Park: Sage Publications.
3. DavisK.(1981).*Human Society*. NewDelhi: Surjeet Publications.
4. DelaneyC.(2004).*Orientation and disorientation In Investigating Culture:An Experiential*
5. *Introduction to Anthropology*.Wiley-Blackwell.
6. EmberC.R.etal.(2011).*Anthropology*. New Delhi: Dorling Kindersley.
7. KarenO'reilly.(2012).*Practical Issues in Interviewing Ethnographic Methods*. Abingdon: Routledge
8. LangG.(1956).Concept of Status and Role in Anthropology: Their Definitions and use. *The American Catholic Sociological Review* 17 (3): 206-218
9. O'reillyK.(2012).*Ethnographic Methods*. Abingdon:Routledge.
10. ParsonsT.(1968).*The Structure of Social Action*.NewYork:FreePress
11. Rapport N.and Overing J.(2004). *Key Concepts in Social and Cultural Anthropology*.London:Routledge.

Royal Anthropological Institute of Great Britain and Ireland (1971). '*Methods*'In *Notes and Queries on Anthropology*.London:Routledge & Kegan Paul Ltd

Semester III

ANT-HG-3016

## Archaeological Anthropology

Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE:** To provide an understanding of the prehistoric and archaeological background of evolution, variation and continuity of human society and culture.

**COURSE OUTCOME:**

- Student will be acquainted with archaeometrical background of prehistoric, protohistoric and historical evolution of human culture.
- Students will have practical understanding of prehistoric culture through tool technology and pottery technology.

**Unit I:** Introduction

Definition and scope of archaeological anthropology, Relation with other Disciplines. Division of Prehistoric period: Stone age and metal age; Lower Paleolithic, Middle Paleolithic and Upper Paleolithic, Mesolithic, Neolithic (Characteristic features of the period in general).

**Unit II:** Methods of studying archaeological anthropology: Archaeological, Paleontological and Geological Methods of classifications, Methods of Field Archaeology: Concept of site, artifact, culture and industry, Site survey and Aerial photography Excavation: Concepts, tools and test pits. Concept of Ethno archaeology and new archaeology

**Unit III:** Methods of Estimation of Time

Absolute dating methods ( Radio-Carbon, Potassium Argon, Dendrochronology), Relative dating methods ( Stratigraphy, Typology, Patination, Seriation, , Flurin Analysis, Varve-Clay analysis).

**Unit IV:** Geochronology of Pleistocene Epoch

Plio-Pleistocene Boundary  
Glacial and Interglacial  
Pluviation and Inter Pluviation

**Unit V:** Typo-Technological study of the prehistoric tools

**Unit VI:** Bronze age culture in Indus Basin : Harappan Civilization : Sites, Town planning Architecture, Artifacts and Causes of declination .

**Unit VII:** Megalithic Culture: Different Types of Megaliths. Megalithic culture of Northeast India.



## Practical

3. Typo-technological Analysis of Prehistoric Tools: Identification, Interpretation and Drawings of the tool Types
  - a. Core Tool Types
  - b. Flake Tool Types
  - c. Blade Tool Types
  - d. Bone tools
  - e. Microlithic Tool Type
  - f. Neolithic Tool Type
  
4. Ceramic Technology: Basic concept (Students have to draw one wheel made, one hand made and one partly wheel made and partly hand made pottery).

## Suggested Readings

- Allchin and Allchin (1993). *The Rise of Civilization of India and Pakistan*. Cambridge University Press.
- Bhattacharya D.K. (1978). *Emergence of Culture in Europe*, Delhi, B.R. Publication.
- Bhattacharya D.K. (1979). *Old Stone Age Tools and Techniques*. Calcutta, K.P. Bagchi Company
- Bhattacharya D.K. (1996). *Palaeolithic Europe*. Netherlands, Humanities Press.
- Champion et al. (1984). *Prehistoric Europe*. New York, Academic Press.
- Fagan B.M. (1983). *People of Earth: An Introduction*. Boston, Little, Brown & Company.
- Phillipson D. W. (2005). *African Archaeology*. Cambridge, Cambridge University Press.
- Sankalia H.D. (1964). *Stone Age Tools*. Poona Deccan College

**ANT-HG-4016**  
**Research Methods**  
Credit 6 (Theory: 4; Practical: 2)

**COURSE OBJECTIVE: To impart knowledge on research design formulation, fieldwork tradition, methods and techniques of data collection and ethics of research.**

**COURSE OUTCOME:**

- **The knowledge on formulation of research design, application of methods and techniques in data collection will be obtained.**
- **The ethics of research will be understood for an effective research study.**

**Theory**

- Unit I:** Research Design  
Conceptual framework, formulation of research problem, formulation of hypothesis, sampling, data analysis and reporting, basic tenets of qualitative research and its relationship with quantitative research
- Unit II:** Field work tradition in Anthropology  
Ethnographic approach, holistic approach, contribution of Malinowski, Boas and other pioneers; cultural relativism, ethnocentrism, etic and emic perspectives, comparative and historical methods, techniques of rapport establishment identification of representative categories of informants, maintenance of field diary and logbook.
- Unit III:** Tools and techniques of data collection  
Concept of survey, relationship of survey method with ethnographic method, construction of questionnaire and interview schedule, validation and internal consistency of questionnaire- Observation - Participant, Non-participant, Controlled Interview-Structured and unstructured, Focused Group Discussion, key informant Interview Case Study and life history. Genealogy - Technique and application
- Unit IV:** Ethics and Politics of Research  
Identify, define, and analyze ethical issues in the context of human subject research. Ethical importance of consent, privacy and confidentiality in research. Issues of academic fraud and plagiarism
- Unit V:** Analysis and Writing Up
3. Chapterization, preparing a text for submission and publication, concepts of preface, notes (end and footnotes), glossary, prologue and epilogue, appendix, bibliography (annotated) and references cited, review and index.
  4. Similarities and differences between qualitative and quantitative data analysis; introduction of software for data analysis.
- Unit VI:** Bio-Statistics:Types of variables, presentation and summarization of data (tabulation and illustration).  
Descriptive statistics: Measurers of Central Tendency, Measure of Variation, Variance and standard deviation.  
Tests of Inference: Variance ratio test, Student's't' tests, Chi-square test and measures of association, Analysis of variance, Correlation.

Pedigree Analysis- Importance and implication.

### **Practical**

6. Construction of Genealogy.
7. Observation: Direct, Indirect, Participant, Non-participant, Controlled
8. Questionnaire and Schedule, Interview- Unstructured, Structured, Key informant interview, Focused Group Discussion, and Free listing, pile sorting
9. Case study and life history
10. Project report writing- preparation of research problem, study design, data collection techniques, analysis and report writing based on somatometric, dermatoglyphic and serological data or social problem.

### **Suggested Readings**

1. Garrard E and Dawson A. What is the role of the research ethics committee? Paternalism, inducements, and harm in research ethics. *Journal of Medical Ethics* 2005; 31: 419-23.
2. Bernard H.R. *Research Methods in Anthropology, Qualitative and Quantitative Approaches*. Jaipur: Rawat Publications. 2006.
3. Madrigal L. *Statistics for Anthropology*. Cambridge: Cambridge University Press. 2012.
4. Zar JH. *Biostatistical Analysis*. Prentice Hall. 2010.
5. Michael A. *The Professional Stranger*. Emerald Publishing. 1996.
6. Bernard R. *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. AltaMira Press. 2011.
7. Emerson RM, Fretz RI and Shaw L. *Writing Ethnographic Fieldnotes*. Chicago, University of Chicago Press. 1995.
8. Lawrence NW. *Social Research Methods, Qualitative and Quantitative Approaches*. Boston: Allyn and Bacon. 2000.
9. O'reilly K. *Ethnographic Methods*. London and New York: Routledge. 2005.
10. Patnaik S.M. *Culture, Identity and Development: An Account of Team Ethnography among the Bhil of Jhabua*. Jaipur: Rawat Publications. 2011.
13. Pelto PJ and Pelto GH. *Anthropological Research, The Structure of Inquiry*. Cambridge: Cambridge University Press. 1978.
14. Sarantakos S. *Social Research*. London: Macmillan Press. 1998.

**ANT**

**-**

**HG-**

**4026**

**Anth**

**ropo**

**logy**

**in**

**Prac**

**tice**

**Credit 6**

**(Theory: 4;  
Practical: 2)**

**COURSE OBJECTIVE: To impart knowledge about the applied aspects of Anthropology.**

**COURSE OUTCOME:**

- **The knowledge of Applied Anthropology, Action Anthropology and Role of Anthropology in Development**
- **Student will gain knowledge of recent trend of Anthropology.**

### **Theory**

- Unit I:** Academic Anthropology  
Academics and Practitioners: Differences, Structure, Activities, Controversies and Issues: Applied Anthropology, Action Anthropology and Development Anthropology.
- Unit II:** Role of Anthropology in Development  
Anthropology and Public Policy, Need Assessment and Community Development, Anthropology of NGO's, Management Anthropology, Environment and Community Health, Social and economic sustainability, Cultural resource management.
- Unit III:** Future Dynamics in Anthropology  
Trends in Anthropology: Anthropology of Tourism, Anthropology In Census; Designing and Fashion, Visual Anthropology
- Unit IV:** Constitutional Perspective and Human Rights  
Constitutional Provisions, Evaluation, Planning and Development of Indian Populations; Human Rights, National and State Human Rights Commission and other Grievance Redressal Mechanism.

### **Practical**

1. The students will visit a NGO, corporate office, panchayat office or census office and write principal observations on the same.
2. Write a project on constitutional provisions or evaluation of any development project/report.
3. Write a project on Religious Tourism / Tribal Tourism / Health Tourism / Fashion / Human Rights / Ecotourism.

### **Suggested Readings:**

1. Arya A and Kapoor AK. (2012). Gender and Health Management in Afro-Indians. Global Vision Publishing House, New Delhi.
2. Kertzer DI and Fricke T. (1997). Anthropological Demography. University of Chicago Press.
3. Basu, A. and P. Aaby (1998). The Methods and the Uses of Anthropological Demography. 329 pp. Oxford, Clarendon Press
4. Carter A. (1998). Cultural Models and Demographic Behavior. In The Methods and the Uses of Anthropological Demography edited by Basu A and Aaby P. Oxford: Clarendon Press. pp 246-268.
5. Census of India (2001, 2011) and National Family Health Survey (2006, 2010).
6. Ervic, Alexander M., (2000). Applied Anthropology: Tools and Perspectives for Contemporary Practise, Boston, MA: Allyn and Bacon.

7. Erwin A. (2004). *Applied Anthropology Tools and Practice*, Allyn and Bacon.
8. Gupta S and Kapoor AK. (2009). *Human Rights among Indian Populations: Knowledge, Awareness and Practice*. Gyan Publishing House, New Delhi.
9. Willen SS. (2012). *Anthropology and Human Rights: Theoretical Reconsiderations and Phenomenological Explorations*. *Journal of Human Rights*. 11:150–159.
10. Goodale M. (2009). *Human Rights: An Anthropological Reader*. Wiley Blackwell.
11. Gupta S and Kapoor AK. (2007). *Human Rights, Development and Tribe*. In : *Genes, Environment and Health – Anthropological Perspectives*. K. Sharma, R.K. Pathak, S. Mehra and Talwar I (eds.). Serials Publications, New Delhi.
12. Margaret AG. (2003). *Applied Anthropology: A Career-Oriented Approach*, Boston, MA: Allyn and Bacon.
13. Halbar BG and Khan CGH. (1991). *Relevance of Anthropology – The Indian Scenario*. Rawat Publications, Jaipur.
14. Kapoor AK (1998). *Role of NGO's in Human Development : A Domain of Anthropology*. *J IndAnthropSoc*; 33:283-300.
15. Kapoor AK and Singh D. (1997). *Rural Development through NGO's*. Rawat Publ, Jaipur.
16. Klepinger LL (2006). *Fundamentals of Forensic Anthropology*. Wiley-Liss Publications
17. Kumar RK and Kapoor AK. (2009). *Management of a Primitive Tribe: Role of Development Dynamics*. Academic Excellence, Delhi.
18. Mehrotra N and Patnaik SM. (2008). *Culture versus Coercion: The Other Side of Nirmal Gram Yojna*, *Economic and Political weekly*. pp 25-27.
19. Mishra RC (2005). *Human Rights in a Developing Society*, Mittal Publications, Delhi.
20. Noaln RW. (2002). *Anthropology in Practice: Building a Career outside the Academy*. Publishing Lynne Reinner.
21. Patnaik SM (1996). *Displacement, Rehabilitation & Social Change*. Inter India Publications, New Delhi.
22. Patnaik SM (2007). *Anthropology of Tourism: Insights from Nagaland*. *The Eastern Anthropologist*. 60(3&4):455-470
23. Srivastav OS (1996). *Demographic and Population Studies*. Vikas Publishing House, India
24. Vidyarthi LP and BN Sahay (2001). *Applied Anthropology and Development in India*, National Publishing House, New Delhi.
25. Vidyarthi LP. (1990). *Applied Anthropology in India – Principles, Problems and Case Studies*. KitabMahal, U.P.
26. Vidyarthi V (1981). *Tribal Development and its Administration*. Concept Publishing Company, New Delhi.

**PART IV**

**ABILITY ENHANCEMENT ELECTIVE  
(SKILL BASED)**

ANT-SE-3014: Tourism Anthropology

ANT-SE- 4014: Public Health and Epidemiology

## Semester III

# ANT-SE-3014

## Tourism Anthropology

Credit: 4

**COURSE OBJECTIVE:** To understand the anthropological perspective of tourism in the current context.

**COURSE OUTCOME:**

- The students will learn about the socio-cultural background of developing tourism.
- The students will learn the basics of eco-tourism and heritage tourism in the current situation.

**Unit I:** Tourism- aspects and prospects, Definition and Concept  
History and Development of Tourism anthropology , Anthropological issues  
theoretical concerns and Authenticity Issues.

**Unit II:** Study of Socio- cultural impact of tourism  
Tourist as ethnographer

**Unit III:** Understand the implications of tourism as a major mechanism of cross- cultural  
Interaction: role of symbolism and semiotics.  
Tourism and the commoditization of culture or cultural degradation .

**Unit IV:** Contemporary tourism and sustainable Tourism : concept of alternative tourism , Concept  
of Cultural Tourism :Heritage tourism, Religious tourism, Ecotourism, Rural tourism ,  
Community Based Tourism and Conservation of heritage.  
Role of museums and other branches of the cultural industries  
(including art, performing art, food, handicraft in tourism economies. )

**Unit V:** New Directions in the Anthropology of Tourism: Globalization, Tourism and  
Terrorism; applied aspects of anthropology in tourism development and planning.

### Suggested Readings

1. Chambers E. (2000). Native Tours: The Anthropology of Travel and Tourism. Prospect Heights: Waveland.
2. Crick M. (1995). The Anthropologist as Tourist: An Identity in Question. In Lanfant MF, Allcock JB, Bruner EM (eds.)International Tourism: Identity and Change. London: Sage. pp. 205-223.
3. Dann GMS, Nash D and Pearce PL. (1988). Methodology in Tourism Research. Annals of Tourism Research. 15:1-28.
4. Gmelch SB. (2004). Tourists and Tourism: A Reader. Long Grove: Waveland.
5. Graburn NHH. (1977). Tourism: The Sacred Journey. Hosts and Guests: The Anthropology of Tourism. Valene L. Smith, ed. Philadelphia: University of Pennsylvania Press. Pp. 33-47.



6. Dann G. (2002). *The Tourist as a Metaphor of the Social World*. Wallingford: CAB International.
7. Nash D. (1996). *Anthropology of Tourism*. New York: Pergamon.
8. Kirshenblatt-Gimblett B. (1998). *Destination Culture: Tourism, Museums, and Heritage*. University of California Press.
9. Lippard LR. (1999). *On the Beaten Track: Tourism, Art and Place*. New Press.
10. Picard M and Wood R. (1997). *Tourism, Ethnicity, and the State in Asian and Pacific Societies*. University of Hawai Press.
11. Crick M. (1994). *Anthropology and the Study of Tourism: Theoretical and Personal Reflections*. In Crick M (eds.). *Resplendent Sites, Discordant Voices: Sri Lankans and International Tourism*. Chur, Switzerland: Harwood Publishers.
12. Wood R. (1997). *Tourism and the State: Ethnic Options and the Construction of Otherness*. In Picard and Wood *Tourism, Ethnicity and the State in Asian and Pacific Societies*. University of Hawai Press.
13. Richard B. (1992). *Alternative Tourism: The Thin Edge of the Wedge*. In Valene Smith and Eadington Tourism (eds.). *Alternatives: Potentials and Problems in the Development of Tourism*. University of Pennsylvania Press.
14. Hitchcock. (1997). *Cultural, Economic and Environmental Impacts of Tourism among the Kalahari*. In Chambers E (eds.) *Tourism and Culture: An Applied Perspective*. SUNY Press.

## **ANT-SE-4014 : Public Health and Epidemiology**

**COURSE OBJECTIVE: To provide an understanding of the anthropological dimension of health.**

**COURSE OUTCOME:**

**The students will learn different aspects of health, diseases and principles of epidemiology**

**Unit I: Principles of Epidemiology in Public Health:**

Overview of epidemiology methods used in research studies to address disease patterns in community and clinic-based populations, distribution and determinants of health-related states or events in specific populations, and strategies to control health problems

**Unit II: Statistical Methods for Health Science**

Analysis and interpretation of data including data cleaning, data file construction and management; implementation of analytic strategies appropriate for the type of data, study design and research hypothesis; parametric and nonparametric methods, measures of association, Linear and Logistic regression, Generalized Linear Modeling, and Survival analysis

**Unit III: Environmental Health**

Effects of biological, chemical, and physical agents in environment on health (water, air, food and land resources); ecological model of population health; current legal framework, policies, and practices associated with environmental health and intended to improve public health

**Unit IV: Psychological, Behavioural, and Social Issues in Public Health**

Cultural, social, behavioural, psychological and economic factors that influence health and illness; behavioural science theory and methods to understanding and resolving public health problems; assess knowledge, attitudes, behaviours towards disease and patient compliance to treatment.

**Unit V: Management of Health Care Program and Service Organizations**

Techniques and procedures for monitoring achievement of a program's objectives, generating evidence of program effectiveness, assessing impacts in public health settings; evaluate framework that leads to evidence-based decision-making in public health. Organizational principles and practices including organizational theory, managerial role, managing groups, work design, and organization design at primary, secondary, and tertiary levels of care

**Unit VI: Epidemiology of disease**

Contemporary methods for surveillance, assessment, prevention, and control of infectious and chronic diseases, disabilities, HIV/AIDS; understanding etiology; determining change in trend over time; implementation of control measures

### **Suggested reading**

1. Gordis L. (2004). *Epidemiology*. Third edition. Philadelphia: Elsevier Saunders.
2. Remington PL, Brownson RC, and Wegner MV. (2010). *Chronic Disease Epidemiology and Control*. American Public Health Association.
3. Pagano M and Gauvreau K. (2000). *Principles of Biostatistics*. Belmont, CA: Wadsworth.
4. Turnock B. (2011). *Public health*. Jones & Bartlett Publishers.
5. Edberg M. (2013). *Essentials of Health Behavior. Social and Behavioral Theory in Public Health*. Second Edition, Jones and Bartlett Publishers.
6. Griffith JR and White KR. (2010). *The Well-Managed Healthcare Organization*. Health Administration Press: Chicago, IL.
7. Kovner AR, McAlearney AS, Neuhauser D. (2013). *Health Services Management: Cases, Readings, and Commentary*. 10th Ed. Chicago, IL: Health Administration Press.
8. Lee LM. (2010). *Principles and Practice of Public Health Surveillance*. Oxford University Press
9. Turnock B. (2011). *Essentials of Public Health*. Jones & Bartlett Publishers
10. Merson M, Black RE, Mills A. (2006). *International Public Health: Diseases, Programs, Systems and Policies*. Jones & Bartlett Learning.
11. Aschengrau A and Seage GR. (2008). *Essentials of Epidemiology in Public Health*. Boston, Massachusetts.

