

***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		ENG-SE-3014 English		ANT-HG-3016
		ANT-HC-3026				
		ANT-HC-3036				
IV		ANT-HC-4016		ANT-SE-4014/ ANT-SE-4024		ANT-HG-4016 ANT-HG-4026/ ANT-HG-4036/ ANT-HG-4046/ ANT-HG-4056/ ANT-HG-4066/
		ANT-HC-4026				
		ANT-HC-4036				
V		ANT-HC- 5016			ANT-HE-5016	
		ANT-HC-5026			ANT-HE-5026/ ANT-HE-5036/ ANT-HE-5046/ ANT-HE-5056	

VI	ANT-HC- 6016			ANT-HE-6016	
	ANT-HC-6026			ANT-HE-6026/ ANT-HE-6036/ ANT-HE-6046/ ANT-HE-6056	

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	
SEMESTER I	SEMESTER II
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
SEMESTER III	SEMESTER IV
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
SEMESTER V	SEMESTER VI
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)

ABILITY ENHANCEMENT ELECTIVE (SKILL BASED)		I SEMESTER	
ANT-SE-4014: Tourism Anthropology, Or ANT-HE-5016: Indian Archaeology ANT-SE-4024: Museum Method Any one from the following:		ANT-HG-1016: Introduction to Biological Anthropology	
ANT-HE-5026: Anthropology of Religion, Politics & Economy ANT-HE-5036: Visual Anthropology ANT-HE-5046: Tribal Cultures of India ANT-HE-5026: Anthropology of Health		II SEMESTER	
		ANT-HG-2016: Introduction to Socio-Cultural Anthropology	
		III SEMESTER	
		ANT-HG-3016: Introduction to Prehistoric Anthropology	
VI SEMESTER		IV SEMESTER	
ANTH-HE-6016: Dissertation Any one from the following: ANT-HE-6026: Human Genetics ANT-HE-6036: Forensic Dermatoglyphics ANT-HE-6046: Demographic Anthropology ANT-HE-6056: Physiological Anthropology		ANT-HG-4016: Research Methods N.B: In addition to the above Generic Elective Papers, students may select from the following list: ANT-HG-4016: Anthropology in Practice ANT-HG-4026: Human Genetics ANT-HG-4036: Tribe and Peasants in India ANT-HG-4046: Demographic Anthropology ANT-HG-4056: Demographic Anthropology ANT-HG-4066: Anthropology of India	
SEMESTER	COURSE OFFERED	COURSE NAME	CREDIT
I	ABILITY ENHANCEMENT COMPULSORY COURSE-1		
	ENG-AE-1014	English Communication	4
	ANT-HC-1016	Introduction to Biological Anthropology (Theory +Practical)	4+2=6
	ANT-HC-1026	Introduction to Socio-Cultural Anthropology (Theory +Practical)	4+2=6
	GENERIC ELECTIVE		

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

IV		(Theory+Practical)	
	ANT- HC-4036	Research Methods (Theory+Practical)	4+2=6
	GENERIC ELECTIVE		
	ANT-HG-4016	Research Methods	6 (Theory+ Practical)
	N.B: In addition to the above mentioned generic papers, a student may choose generic papers from the list given below:		
	ANT-HG-4026	Anthropology in Practice	
	ANT-HG-4036	Human genetics	
	ANT-HG-4046	Tribes and Peasants in India	
	ANT-HG-4056	Demographic Anthropology	
	ANT-HG-4066	Anthropology of India	
	SKILL ENHANCEMENT COURSE		
	SEC-II (Any one)		4
	ANT-SE-4014	Tourism Anthropology	
	ANT-SE-4024	Museum Method	
V	ANT-HC-5016	Human Population Genetics (Theory+Practical)	4+2=6
	ANT- HC-5026	Anthropology in Practice(Theory+Practical)	4+2=6
	DISCIPLINE ELECTIVE PAPERS		
	ANT-HE-5016	Indian Archaeology (Theory+Practical)	4+2=6
	ANY ONE THE FOLLOWING:		
	ANT-HE-5026	Anthropology of Religion, Politics & Economics	

	ANT-HE-5036	Visual Anthropology	6 (Theory+ Practical)
	ANT-HE-5046	Tribal Cultures of India	
	ANT-HE-5056	Anthropology of Health	
VI	ANT-HC-6016	Forensic Anthropology (Theory+Practical)	4+2=6
	ANT- HC-6026	Anthropology of India (Theory+Practical)	4+2=6
	DISCIPLINE ELECTIVE PAPERS		
	ANT-HE-6016	Dissertation	6
	ANY ONE FROM THE FOLLOWING:		6 (Theory+ Practical)
	ANT-HE-6026	Human Genetics	
	ANT-HE-6036	Forensic Dermatoglyphics	
	ANT-HE-6046	Demographic Anthropology	
	ANT-HE-6056	Physiological Anthropology	

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.
1. Human variation and evolution in ancient time's pre-19th and post-19th Century.
2. Theories of evolution: Lamarckism, Neo Lamarckism, Darwinism, Synthetic theory, Mutation, Shifting balance theory, Quantum Evolution, The Neutral Molecular Theory of Evolution, Punctuated Equilibrium Theory and Coalescent Theory
- Unit III:** Human Skeletal morphology: cranial osteology, post-cranial osteology and dentition.
- Unit IV:** 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)
- Unit V:** Mendelian inheritance in man (single factor and multifactorial inheritance), single locus (Mendelian) versus multilocus (quantitative/complex) inheritance, chromosome theory of inheritance (segregation and independent assortment Sex determination, Autosomal dominant, Autosomal Recessive, Sex-linked inheritance, X-linked dominant and recessive inheritance, Y-linked Inheritance, Sex- limited and Sex-controlled traits

Practical

Osteology: Skeletal Morphology:

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.

Craniometry: 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
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	

II. **Curvilinear or arc measurements**

Frontal arc	Parietal arc
Occipital arc	Sagittal cranial arc
Horizontal circumference of head	

III. **Measurements on Mandible (on at least 3 mandibles):**

Bi-condyler breadth
Bi-gonial breadth
Length of the mandible

IV. **Angular measurements**

Metopic angle	Facial profile angle
Nasal profile angle	Alveolar profile angle

Osteometry: Students should be trained to take following measurements of long bones (Humerus, Radius, Ulna, Femur)
Maximum length
Maximum circumference of the shaft
Minimum circumference of the shaft

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. Krober 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. 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 Introduction to Anthropology*. Wiley-Blackwell.
5. EmberC.R.etal.(2011). *Anthropology*. NewDelhi: Dorling Kindersley.
- 6.FerraroG.andAndreattaS.(2008).In *Cultural Anthropology: An Applied Perspective*. Belmont:Wadsworth.
- 7.KarenO'reilly.(2012). *Practical Issues in Interviewing EthnographicMethods*. 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.
- 12.Royal Anthropological Institute of Great Britain and Ireland (1971).'*Methods*'In *Notes and Queries on Anthropology*.London:Routledge&KeganPaulLtd.

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 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:** Understanding Culture, Concept of artifact, tradition, industry, assemblage in archaeology.
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:** Non human primates in relation to human evolution:
1. Classification and characteristics of living primates
(Based on ICZN guidelines)
2. Distinguishing characteristics of man
3. Comparative anatomy and behavior of human and non-human primates.
- Unit II:** Primate origins and evolution with special reference to 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. 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
- Unit IV:** The emergence of Archaic Homo sapiens: Neanderthals and Narmada man
- Unit V:** Origin of modern humans (*Homo sapiens sapiens*) and their dispersal: Cro Magnon, Grimaldi, Chancelade, Hominisation process.
- Unit VI:** Evolutionary Change in Human Skeleton with special reference to Skull, dentition, Vertebral Column, Pelvis, Femur and Foot

Practical

- I. **Living Anthropoid Skull:** Drawing, description of skulls of: Gorilla, Chimpanzee, Orangutan and Gibbon.
- II. **Fossil Anthropoid Skull:** Drawing and identification of Parapithecus and Dryopithecus (Cast models and appropriate photographs should be utilized).

- III. **Fossil Hominid Skull:** Drawing, description and identification of Pithecanthropus, Heidelberg jaw, Neanderthal and Cromagnon man (Cast models and appropriate photographs should be utilized).

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. Stanford 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: IIAS.
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

- 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 (Gloger;s, Allen's and Bergmann rules). Homeostasis and thermoregulation, ecological rules and their applicability among human beings.
- Unit III:** Influence of Heredity and environment on man with special reference to stature, weight, skin colour, head form , ABO blood group and finger patterns.
- Unit IV:** Bio-cultural factors influencing the diseases and nutritional status.
Evolution of Human diet, biological perspectives of ageing process among different populations.

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. **Somatometry**

- | | |
|--------------------------------|---------------------------------------|
| 1. Maximum head length | 9. Physiognomic facial height |
| 2. Maximum head breadth | 10. Morphological facial height |
| 3. Minimum frontal breadth | 11. Physiognomic upper facial height |
| 4. Maximum bizygomatic breadth | 12. Morphological upper facial height |
| 5. Bigonial breadth | 13. Head circumference |
| 6. Nasal height | 14. Stature |
| 7. Nasal length | 15. Sitting height |
| 8. Nasal breadth | 16. Body weight |
| | 17. Total Upper Extremity Length |
| | 18. Total Lower Extremity Length |

2. **Biological Dimensions: Indices**

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

3. **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 IrvendeVore. 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. Different approaches of classifying human population: Definition and concept of the term race, racial criteria (skin colour, hair, stature, head, nose, face, eye, ABO blood group, palm and finger prints) racial groups of mankind, their features and distribution
ii. UNESCO Statement on Race.
- Unit III:** A critical appraisal of contribution of Risley, Guha, Rickstett and Sarkar towards understanding ethnic elements in the Indian populations.
- Unit IV:** Pre and Proto historic racial elements in India. Linguistic classification of Indian population.
- Unit V:** Demographic Perspective
Demographic Anthropology; Sources of Demographic Data, Demographic Processes, Demographic profile of Indian populations and its growth structure.
- Unit VI:** Genetic diversity among Indian Population.

Practical

1. Analysis and interpretation of finger ball pattern types, palmar main lines and pattern index.
2. Finger print classification and development of chance prints and statistical treatment of the data collected (Ten Subjects).
3. Somatoscopy: Students should be trained to observe following somatoscopic characters on at least 5 individuals :

1. Head form	2. Hair form	3. Facial form	4. Eye form
5. Nose form	6. Hair colour	7. Eye colour	8. Skin colour
4. Students should be trained to collect of demographic data from 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:** 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: The students should be trained to assess the growth status of the individual, with emphasis on the children by following cross-sectional method of growth study.
2. Students should be trained to measure blood pressure, Pulse rate and heart rate.
3. Obesity assessment: The students should be trained to calculate following indices for obesity assessment of at least 10 children.
 - i. Conicity index
 - ii. Regional adiposity indices: Waist circumference index, Weight to Hip Ratio Index and Waist to Height Ratio Index.
4. Nutritional assessment: Students should be trained to assess the nutritional status of at least 3 children by adopting following methods: Dietary Method and Anthropometric method.

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: Measures 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.** Definition and concept of Population and population genetics, Landmarks in the history of population genetics Genotype and allele frequency, mating system,
- Unit II.** Ecological Genetics and Polymorphism
Phenotypic & genotypic polymorphisms, transient polymorphism, balanced polymorphisms, models explaining the maintenance of genetic polymorphisms (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: 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.
- Unit V:** Population structure and admixture in human populations
Random & non-random mating, population and disease association studies.
- Unit VI:** Recent understanding of human biological categories in the context of human genome research.

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 Blindness):** 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 Kehrer-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. Hurlst 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 history and development of Anthropology in India, the ethnic elements of North East India and the diversity of India.

COURSE OUTCOME:

- The knowledge about history and development of Anthropology in India can be gained.
- The knowledge about the diversity of India and North East India in particular, with problems of tribes and constitutional provisions for safeguarding their rights will be achieved.

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.
- Unit II:** 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.
- Unit III:** 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

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

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: Visual Anthropology

Or

ANT-HE-5046: Tribal Cultures of India

Or

ANT-HE- 5056; Anthropology of Health

ANT-HE-6016: Dissertation

ANT-HE-6026: Human Genetics

Or

ANT-HE-6036: Forensic Dermatoglyphics

Or

ANT-HE-6046: Demographic Anthropology

Or

ANT-HE-6056: Physiological 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:

- i. Lower palaeolithic
- ii. Middle palaeolithic
- iii. Upper palaeolithic
- iv. Mesolithic culture
- v. Neolithic Culture
- vi. Art, ritual and belief

Unit III: Bronze Age culture in Indus Basin:

Harappan Civilization: Sites, 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
Bambooti

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
Visual Anthropology
Credit 6 (Theory: 4; Practical: 2)

COURSE OBJECTIVE: The objective of the course is to acquaint the students with recent trends in visual representation of ethnography from a practical and theoretical perspective.

COURSE OUTCOME:

- Students will learn the theoretical basis of visual anthropology.
- Students will learn the practical aspects of producing ethnographic audio-visual media.

Theory

- Unit I:** Introduction to Visual Anthropology. Visual Culture. Photographic and Digital Media: Still, Interactive and Moving.
- Unit II:** Theory and Representation. Anthropology and Images: Ethnophotography and ethnographic films and mass media. Theories of representation, modern media and political advocacy.
- Unit III:** Early Ethnographic Photography: Contexts and Trends. Anthropology of Art and Aesthetics: Critical reflection on the relation of images, objects and persons. Objects and images from other societies valued as 'art'.
- Unit IV:** Ethnographic Photography: Conventions and Methodologies. Paradigms and Debates.
- Unit V:** Ethnographic Films: Theoretical issues concerning ethnographic film, ethical dimensions of ethnographic film, Interdependency of technology and culture.
- Unit VI:** Cinema Studies with emphasis on key feature, documentary and ethnographic films with a focal theme - the examination of the 'language of film'.

Practical:

This paper deals with analysis of visuals such as photographs and films pertaining to cultural practices dealing with institutions of religion, economy and politics.

Theory and Representation: Anthropology and Images: Ethnophotography and ethnographic films and mass media. Theories of representation, modern media and political advocacy.

Anthropology of Art and Aesthetics: Critical reflection on the relation of images, objects and persons. Objects and images from other societies valued as 'art'.

Ethnographic Film and Cinema Studies: This unit consists of screenings followed by seminars. The emphasis will be on key feature, documentary and ethnographic films with a focal theme- the examination of the 'language of film'.

Practical Implications: Explore traditional and experimental means of using visual and Audio visual media to research, represent and produce anthropological knowledge. Critical engagement with policy and the use of audio-visual and internet based media in advocacy and activism. The students are required to do the following exercises:

1. Basic principles of producing ethnographic films: text and its focus, camera angles, lighting and decision making behind the camera.
2. Analyze the visual data from classical ethnographies signifying how 'otherness' is constituted.
3. A gendered analysis of visuals produced during colonial and postcolonial times.
4. Hypertext and multimedia as analytic end points.
5. Collection, reporting and analysis of photo-ethnographic data.
6. Digital mirror: computer assisted exercises leading to production of ethnographic text.

Suggested Readings

1. Marcus Banks and Howard Morphy, 1998, Rethinking Visual Anthropology
2. David MacDougall Transcultural Cinema, (Princeton, 1999)
3. Ruby, Jay. 1996. "Visual Anthropology." In Encyclopedia of Cultural Anthropology, David Levinson and Melvin Ember, editors. New York: Henry Holt and Company, vol. 4: 1345-1351.
4. Ch. 1, "Reading Pictures," pp. 1-12 [From: Banks, Marcus. 2001. Visual Methods in Social Research. London: Sage.]
5. Ember C.R. et al (2011). Anthropology. New Delhi: Dorling Kinderslay. [Unit II, III, IV (Page: 282-321, 430-438, 464, 469-471)]
6. Banks M. and Ruby J. (2011). Made do Be Seen. Perspectives on the History of Visual Anthropology. University of Chicago Press [Practical]
7. Schneider A. and Wright C. (2010) Between Art and Anthropology: Contemporary Ethnographic Practice. Berg Publishers [Practical]
8. Henley P. (2010). The Adventure of the Real. Jean Rouch and the Craft of ethnographic Cinema. Chicago University Press [Practical]
9. Pink S. (2010). Doing Sensory Ethnography. Sage Publications [Practical]
10. Grimshaw A. and Ravetz A. (2009). Observational Cinema. Anthropology, Film, and the Exploration of Social Life. Indiana University Press [Practical]

ANT-HE-5046
Tribal Cultures of India
Credit 6 (Theory: 4; Practical: 2)

COURSE OBJECTIVE: To impart the knowledge on the concept of tribes and the problem, policies, provisions, arts, aesthetics associated with the tribes of India in general and of North East India in particular.

COURSE OUTCOME:

- The knowledge on the concept of tribes of India and their problem, policies, provisions, arts, aesthetics will be gained.
- The problems, distributions, policies, art and aesthetics of North East Indian tribes in particular, will be learned.

Theory

- Unit I:** Concept of tribes and its problematic nature, General and specific characteristics of tribes, Tribes in India: Antiquity, historical, academic, administrative and anthropological importance, Denotified tribes.
- Unit II:** Tribe- caste continuum, Constitutional safeguard/provisions, Gender and Tribe, Distribution of tribes in India
- Unit III:** Tribes: Nomenclature- emic and etic differences, Classification of tribes based on their economy, occupation and religion, Racial elements among the tribes, Scheduled and Non-scheduled categories of tribes
- Unit IV:** Tribal movements, Tribal monographs, Problems of tribal development
- Unit V:** Forest policies and tribes, Migration and occupational shift, Tribal arts and aesthetics
Displacement, rehabilitation and social change Globalization among Indian tribes.
- Unit VI:** Tribes of North East India, their distinctive culture and tradition.

Practical

Distribution of Indian Tribes: PTG, ST
Location of different tribes on the map of India
Write an annotated bibliography on any one tribe
Write the social structure of any one tribe of India

Suggested Readings:

1. Behera, D.K and Georg pfeffer. Contemporary Society Tribal Studies, Volume I to VII.
New Delhi: Concept Publishing Company
2. Georg Pfeffer. Hunters, Tribes and Peasant: Cultural Crisis and Comparison.
Bhubaneswar:
Niswas.
3. Vidarthy, L.P. and Rai. Applied Anthropology in India.
4. Vidarrthy.L.P. and B.N. Sahay . Applied Anthropology and Development in India. New
Delhi: National Publishing House

ANT-HE-5056
Anthropology of Health
Credit 6 (Theory: 4; Practical: 2)

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

COURSE OUTCOME:

- The students will learn different aspects of health and disease.

Theory

- Unit I:** Introduction and Overview of the Field of Anthropology & Health:
A. Health Anthropology within the context of Anthropology: The unique place of Health anthropology in anthropology, competing perspectives on the study of anthropology of health.
B. Defining health and illness in cross-cultural perspective. Looking at “health,” “illness,” and related concepts in western culture, including sociological “sick role” models, some important variations in the process of seeking health care.
- Unit II:** Measuring health: morbidity, mortality, and epidemiology morbidity, mortality. Epidemiology: Meaning, scope and methods. Epidemiology of common communicable diseases: Malaria, Tuberculosis, Leprosy, Diabetes, Cardiovascular disease and Sexually Transmitted Diseases (STDs), HIV/AIDS,
- Unit III:** Women’s health, sex, family planning, and maternal-infant health. Reproductive life, child birth, family planning adoption, male dominance, nursing and early nurture, hyper-menstruation and its corollaries. Population variation and its relation to health and disease.
- Unit IV:** Chronic disease, injury, stress, and mental health effect of chronic disease in health: Relationship between mental health, chronic disease, and injury, understanding stress and its effects cross-culturally, mental disorders and related phenomena, Diseases associated with specific socio cultural and environmental contexts: Kuru, osteomalacia, sickle cell anaemia. Developmental and cultural adaptations to adverse conditions.
- Unit V:** Variations in health care systems: A comparative perspective. Health promotion and health care delivery programmes. Family welfare programmes. Child health and nutrition programmes. Reproductive health awareness.

- Unit VI:** Healing and healers in cross-cultural perspectives.
 A. Shamanism, magic, and healing: Shaman, Magic, Witchcraft and Sorcery,
 B. Folk Healers and “Alternative Medicine.”
 Types of healers and healing, Problems in evaluating efficacy, Sources of dissatisfaction with mainstream medicine.
- Unit VII:** Health and Human Rights
 Introduction to human rights, evaluation of public health policies.
- Unit VIII:** Legal aspects & future prospects for health
 Rules and regulations of international health policy, Medico- Legal Problems in relation to health administration, International health organization / NGOs, Medical Ethics, Critical issues in global health.

Practical

1. Make a Schedule on Health and Demography.
2. Calculation of Infant Sex ratio, Fertility rate, Total fertility rate, Mortality rate, Birth rate,
 crude birth rate, crude death rate, Mortality rate, life expectancy, immigration rate, population growth rate.
3. Identification and Characteristics of Various diseases.
4. Case Studies of Traditional and Modern healers.

Suggested Readings

1. Rajesh Khanna and A.K. Kapoor. 2007. Ethnic Groups and Health Dimensions. Discovery Publishing House, New Delhi.
2. Chin, James, M.D., M.P.H. (ed.) 2000. Control of Communicable Diseases Manual. 17th Edition. American Public Health Association. *Anyone interested in field work in less developed areas should own this book for reference.*
3. Helman, Cecil G. 2001. Culture, Health, and Illness. 4th ed. London: Arnold. *This book is written for health care practitioners and clearly explains the relevance of culture to health.*
4. Mann, Jonathon M., et al. (eds.) 1999. Health and Human Rights. New York: Routledge.
5. Albrecht, Gary L., Ray Fitzparick, and Susan C. Scrimshaw (eds.) 2000. The Handbook of Social Studies in Health and Medicine, SAGE Publications.
6. Bannerman, Robert, J. Burton, and Ch'en Wen-Chieh (eds.) 1983. Traditional Medicine and Health Care Coverage. Geneva: World Health Organization.
7. Chen, Lincoln C. Arthur Kleinman, and Norma C. Ware 1994. Health and Social Change in International Perspective. Harvard University Press.

8. Coreil, Jeannine and J. Dennis Mull (eds.) 1990. *Anthropology and Primary Health Care*, Boulder: Westview Press.
9. Hahn, Robert A. 1999. *Anthropology in Public Health. Bridging Differences in Culture and Society*. New York: Oxford University Press.
10. Helman, Cecil G. 1994. *Culture, Health, and Illness*. 3rd ed. Oxford: Butterworth-Heinemann.
11. Inhorn, Marcia C. and Peter J. Brown 1997. *The Anthropology of Infectious Disease*. International health Perspectives. Gordon and Breach Publishers.
12. Koop, C. Everett, Clarence E. Pearson, and M. Roy Schwartz (eds.) 2001. *Critical Issues in Global Health*. San Francisco: Jossey-Bass. A Wiley Company.
13. Mayer, Kenneth H. and H.F. Pizer (eds.) 2000. *The Emergence of AIDS. The Impact on Immunology, Microbiology, and Public Health*. Washington, D.C.: American Public Health Association.
14. Nichter, Mark and Mimi Nichter 1996. *Anthropology and International Health. Asian Case Studies*. Gordon and Breach Publishers.
15. Paul, Benjamin D. (ed.) 1955. *Health, Culture, and Community. Case Studies of Public Reactions to Health Programs*.
16. Williams, Cicely D., Naomi Baumslag, and Derrick B. Jelliffe 1994. *Mother and Child Health. Delivering the Services*. 3rd Edition. New York: Oxford University Press
- Basch, Paul F. *Textbook of International Health* 1999. New York: Oxford University Press.
17. Tsui, Amy O., Judith N. Wasserheit, and John G. Haaga (eds.) 1997. *Reproductive Health in Developing Countries*. Washington, D.C.: National Academy Press.

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

Forensic Dermatoglyphics

Credit: Theory:4; Practical:2

COURSE OBJECTIVE: To provide an understanding of dermatoglyphics as a forensic tool.

COURSE OUTCOME:

- Students will learn about basics of finger and palmer dermatoglyphics.
- Students will learn the techniques of studying dermatoglyphics and methods of developing prints for identification.

Theory

- Unit-I:** Introduction to Dermatoglyphics: History and Development, scope and Applications.
- Unit-II:** Formation of fingerprint ridges, pattern types and patterns area. Classification of Fingerprints- Henry Classification, Vucetich System, Single-Digit Classification.
- Unit-III:** Types of Fingerprints: Plastic, Visible and Latent Prints. Conventional and Modern methods for development of latent fingerprints- Silver Nitrate, Ninhydrin, Iodine Fuming, Powder Methods, Metal Deposition Method, Small Particle Reagent and Laser Techniques.
- Unit-IV:** Basis of Fingerprint Comparison: Class Characteristics and Individual Characteristics, Determination of Identity.
- Unit-V:** Other Dermatoglyphic Patterns: Palm Print, Sole Prints and Toe Prints.
- Unit-VI:** Recent advances: Fingerprint and Palmprint Recognition, Automated Fingerprint Identification System.

Practical

1. Recording and study of Finger and Palm prints
2. Determination of Palmar main line formula, Ridge count and indices.
3. Comparison of Finger prints and Palm prints on the basis of class and individual ridge characteristics.
4. Development of latent finger prints using different chemicals and powder methods.

Suggested Readings:

1. Cowger, J. F. (1992). *Friction ridge skin: comparison and identification of fingerprints* (Vol. 8) CRC Press.
2. Cummins, H., & Midlo, C. (1961). *Finger prints, palms and soles: An introduction to dermatoglyphics* (Vol. 319). New York: Dover Publications.
3. Jain, A. K., Flynn, P., & Ross, A. A. (2007). *Handbook of biometrics*. Springer Science & Business Media.

4. Lee, H. C., Ramotowski, R., & Gaensslen, R. E. (Eds.). (2001). *Advances in fingerprint technology*. CRC press.
5. Berry, J., & Stoney, D. A. (2001). The history and development of fingerprinting. *Advances in fingerprint Technology*, 2, 13-52.
6. Mehta, M. K. (1980). Identification of thumb impression and cross examination of fingerprints. N. M. Tripathi Publication, Bombay.

ANT-HE-6046
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 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>
18. <http://www.marathon.uwc.edu/geography/demotrans/demtran.htm>

ANT-HE-6056
Physiological Anthropology
Credit 6 (Theory: 4; Practical: 2)

COURSE OBJECTIVE: Provide an understanding of the physiological aspects of human body.

COURSE OUTCOME:

- The students will learn about the fundamentals of physiology and physiological adjustments.
- The students will learn about the cardiovascular and respiratory endurance.
- The students will learn about the intrinsic and extrinsic factors that influence human physiology.

Theory

- Unit I:** Fundamentals of work physiology- homeostasis; metabolism and energy and systems; exercise, respiratory system and haemodynamics (blood pressure, pulse rate, heart rate and oxygen- transporting system, blood flow ,Hb, hematocritetc)
- Unit II:** Acute physiological adjustments during transition from resting homeostasis to sub-maximal and maximal exercise; chronic physiological adaptations to exercise training; age, sex and population variation in the physiological characteristics
- Unit III:** Cardio-vascular and respiratory endurance, physical working capacity and physical fitness- evaluation of response and assessment; relationship of body measurements with cardio-vascular and respiratory functions, aerobic and anaerobic exercise training, health related fitness in gender and ethnic group, Principles of effective physical conditioning techniques.
- Unit III:** Impact of smoking, alcohol, drug, pollution and occupation on cardio-respiratory Functions; physical performance and environmental stress, chronic diseases, malnutrition, lifestyle disease
- Unit IV:** Factors affecting physical performance and capacity, relation between physique, body composition, nutrition and performance.
- Unit V:** Ageing and health related aspects of exercise

Practical

1. Cardiovascular function (Blood pressure, heart rate, pulse rate)
2. Respiratory function (Tidal volume, vital capacity, forced vital capacity, minute ventilation)
3. Haemoglobin estimation
4. Step-test
5. Treadmill test

Suggested Readings:

1. McArdle WD, Katch FI and Katch VL. (2010). Exercise Physiology: Nutrition, Energy, and Human Performance. Lippincott Williams & Wilkins.
2. Powers SK and Howley ET. (2007). Exercise Physiology: Theory and Application to Fitness and Performance. McGraw-Hill.
3. Sherwood L. (2008). Human Physiology: From Cells to Systems. Brooks Cole.
4. Case RM. (1985). Variations in Human Physiology. Manchester University Press.
5. Vander AJ, Sherman JH and Dorothys L. (1978). Human Physiology: The Mechanisms of Body Functions. McGraw-Hill Education.
6. Nageswari KS and Sharma S. (2006). Practical workbook of Human Physiology. Jaypee Brothers, Medical Publisher.
7. Wildmaier EP, Raff H, Strang KT. (2014). Vander's Human Physiology: The Mechanisms of Body. McGraw Hill Education.
8. Hale T. (2003). Exercise Physiology. England : John Wiley & Sons Inc.

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: Introduction to Prehistoric Anthropology

ANT-HG-4016: Research Methods

ANT-HG-4026: Anthropology in Practice

ANT-HG-4036: Human Genetics

ANT-HG-4046: Tribes and Peasants in India

ANT-HG-4056: Demographic Anthropology

ANT-HG-4.66: Anthropology of India

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.
1. Human variation and evolution in ancient time's pre-19th and post-19th Century.
2. Theories of evolution: Lamarckism, Neo Lamarckism, Darwinism, Synthetic theory, Mutation, Shifting balance theory, Quantum Evolution, The Neutral Molecular Theory of Evolution, Punctuated Equilibrium Theory and Coalescent Theory
- Unit III:** Human Skeletal morphology: cranial osteology, post-cranial osteology and dentition.
- Unit IV:** 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)
- Unit V:** Mendelian inheritance in man (single factor and multifactorial inheritance), single locus (Mendelian) versus multilocus (quantitative/complex) inheritance, chromosome theory of inheritance (segregation and independent assortment Sex determination, Autosomal dominant, Autosomal Recessive, Sex-linked inheritance, X-linked dominant and recessive inheritance, Y-linked Inheritance, Sex- limited and Sex-controlled traits

Practical

- Osteology: Skeletal Morphology:**
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.

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

V. Linear measurements:

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

VI. Curvilinear or arc measurements

Frontal arc	Parietal arc
Occipital arc	sagittal cranial arc
Horizontal circumference of head	

VII. Angular measurements

Metopic angle	Facial profile angle
Nasal profile angle	Alveolar profile angle

Osteometry: Students should be trained to take following measurements of long bones (Humerus, Radius, Ulna, Femur, Tibia, Fibula)

Maximum length
Maximum circumference of the shaft
Minimum circumference of the shaft

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.
12. 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

Introduction to Prehistoric Anthropology

Credit 6 (Theory: 4; Practical: 2)

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

COURSE OUTCOME:

- Student will be acquainted with prehistoric and archaeological background of human civilization.
- Students will have practical understanding of prehistoric culture through tool technology and pottery technology.

Theory

- Unit I:** Introduction
Definition and concept of prehistoric 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:** Geochronology of Pleistocene Epoch :Plio-Pleistocene Boundary, The Great IceAge
- Unit III:** 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 IV:** Methods of Estimation of Time and Reconstruction of the Past:
Absolute dating methods (Radio-Carbon, Potassium-Argon, Dendrochronology), Relative dating methods (Stratigraphy, Typology, Patination, Seriation , Florin Analysis, Verve-Clay analysis).
Methods of climatic reconstruction: palynology, paleontology, soil pH estimation.
- Unit V:** Distribution and characteristics of the following cultures of India :
i. Lower palaeolithic
ii. Middle palaeolithic
iii. Upper palaeolithic
iv. Mesolithic culture
v. Neolithic Culture

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

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

Unit VIII : Important Excavated Archaeological Sites of North East India
Parsi Parlo ,Daojali Hading, Selbalgre, Bambooti,Ambari

Practical

1. Typo-technological Analysis of Prehistoric Tools: Identification, Interpretation and Drawings of the tool Types (one from each group)
 - a. Core Tool Types
 - b. Flake Tool Types
 - c. Blade Tool Types
 - d. Microlithic Tool Type
 - e. Neolithic Tool Type
2. Drawing and description of pottery and potchard. Wheel made and hand made. (one from each)
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 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

Semester IV

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
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- Measures 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. Peltó PJ and Peltó GH. *Anthropological Research, The Structure of Inquiry*. Cambridge: Cambridge University Press. 1978.
12. Sarantakos S. *Social Research*. London: Macmillan Press. 1998.

ANT-HG-4026
Anthropology in Practice
Credit 6 (Theory: 4; Practical: 2)

COURSE OBJECTIVE: To impart knowledge about the history and development of Anthropology in India, the ethnic elements of North East India and the diversity of India.

COURSE OUTCOME:

- The knowledge about history and development of Anthropology in India can be gained.
- The knowledge about the diversity of India and North East India in particular, with problems of tribes and constitutional provisions for safeguarding their rights will be achieved.

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.

ANT-HG-4036
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-HG-4046
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-HG-4056
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

Students will collect and compile demographic data 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>
18. <http://www.marathon.uwc.edu/geography/demotrans/demtran.htm>

ANT-HG-4056
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
3. Understanding the diversity of Indian social structure - concept of Varna, Jati, Caste, Ashram or purusharatha, gender hierarchies - their economic and cultural impact, origin and evolution of social structures and their underlying philosophies.

Unit II: 1. Critical appraisal of contribution of Risley, Guha, Rickstett and Sarkar towards understanding ethnic distinctness in the Indian populations
2. Contribution of conetemporary biological, social and archaeological anthropologists in India.

Unit III: 1. Aspects of Indian Village –social organisation, agriculture and impact of market economy on villages
2. 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
3. Developmental projects- tribal displacements and rehabilitation problem
4. Impact of culture-contact, urbanization and industrialization on tribal and rural population
5. Basic concepts -Great tradition and little tradition, sacred complex, Universalization and parochialization, Sanskritization and Westernization, Dominant caste, Tribe-caste continuum, Nature-Man-Spirit complex, pseudotribalism,

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.

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

**ABILITY ENHANCEMENT ELECTIVE
(SKILL BASED)**

ANT-SE-4014: Tourism Anthropology

Or

ANT-SE-4024: Museum Method

Semester IV

ANT-SE-4014 **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, anthropological issues and theoretical concerns, tourist as ethnographer; pilgrimage and Authenticity Issues

Unit II: Interconnections between tourism history and the rise of the socio-cultural study of tourism including temporary migration, colonial exploration, pilgrimage, visiting relatives, imagined and remembered journeys, and tourism

Unit III: Understand the implications of tourism as a major mechanism of cross-cultural interaction; role of symbolism, semiotics, and the imagination in tourism; tourism and the commodification of culture or cultural degradation

Unit IV: Understand the global and local political economy of contemporary tourism, particularly in relation to international development; explore dynamic relationships between heritage-making enterprises, revival and preservation projects, the international flow of capital; role of museums and other branches of the cultural industries" (including music, art, and food) in tourism economies; tourism and global mobility; Ecotourism and sustainable development

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-4024
Museum Method
CREDIT: 4

COURSE OBJECTIVE: The broad objective of the course is to understand the significance of museum and its operation from an anthropological perspectives.

COURSE OUTCOME:

- The student will acquire first hand knowledge of preservation, conservation (including preventives and curative measures) of objects of anthropological museum.

1. Museum – its definition, historical background.
2. Types of museum. Anthropological museum and its scope. Reflection of anthropological theories on anthropological museum. Anthropological museum in India and North East India.
3. Systematic documentation of data – from field case to showcase. Preparation of index card. Methods of arrangement and display
4. Preservation – Preventive and curative measure. Brief ideas of the factors and agencies causing deterioration to the museum exhibits

Suggested Readings:

1. Agrawal, O.P., Care and Treatment of Cultural Materials.
2. Bhatia, S.K., A Guide on the Preventive Conservation of Museum Materials.
3. Sol Tax (ed.), Current Anthropology.(Selected articles) 1969 Part II, Vol. 10 (4).
4. Wittlin, Alma, S., The Museum: Its History and Its Tasks in Education.