Ambedkar University Delhi

School of Human Ecology

1. **Courses to be offered in Monsoon Semester (July –December,2017)**

Courses	
Semester 1 (Compulsory), 4 credits each	**Semester 3 (Electives) 2 or 4 credits**
1. Development and Social change	1. Agrarian Environments (2)
2. Ecology, Ecosystems and Biodiversity	2. Basic Principles of Restoration Ecology (2)
3. Environmental History	3. Development and Public Health (2)
4. Research Methodology I	4. Ecological Statistics (2)
	5. Gender and Environment (2)
	6. Geographic Information System –I (2)
	7. Advanced Ecology (4)
	8. Urban Development and Environment (4)
	9. Environmental Impact Assessment (4)

2. **Course outline of all courses in AES format**

SEMESTER 1 COMPULSORY COURSES:

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	**Ecology, Ecosystems and Biodiversity**
Credits:	4 Credits
Course Code (new):	**SHE2ED101**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team:	Dr Suresh Babu (CC)
Email of course coordinator:	suresh@aud.ac.in
Pre-requisites:	None

Aim:

This course is an introduction to the scientific principles that govern the natural world around us and their applications to contemporary ecological concerns. The course will be a primer on basic ecological theory relating to the hierarchical organization of biological complexity as it is viewed in ecology – from individuals to ecosystems and beyond.

The contents would introduce students to processes that occur at populations, community and ecosystem levels. A brief section on Evolutionary Biology would produce the necessary anchorage for the central ecological principle discussed in the course.

The course will be taught in modules of 4 hours each week. The field skills module would be transacted at a field location with an opportunity to understand, estimate and measure ecological variables in the real-life conditions.

Learning Objectives:

The course will build a working knowledge of ecological concepts and terminology that are necessary to understand the contemporary ecological challenges. The students will also learn to apply theory to environmental/ecological problem solving. The field skills module will teach

them to measure ecological variables that are relevant to natural resource management and human ecology.

Course Content:

S. No.	Module
1	Introduction to Ecology, Ecosystems and Biodiversity
2	Basics of Evolutionary Biology
3	
4	Population Ecology
5	Basics of Community Ecology
6	
7	Basics of Community Dynamics
8	Basics of Community Dynamics: Ecological Succession
9	Food Webs and Food Chains
10	Ecosystems of the World
11	Ecology & Field Biology
12	

Indicative Reading List:

- Begon, M., Townsend, C. R., & Harper, J. L. (2006). *Ecology: From Individuals to Ecosystems*. Malden, MA: Blackwell Publishers.
- Diamond, J., & Case, T. J. (Eds.) (1986). *Community Ecology*. New York: Harper and Row Publishers, Inc.
- Futuyma, D. J. (2009). *Evolution* (2nd ed.). Sinauer Associates Inc.
- Krebs, C. J. (1999). *Ecological Methodology* (2nd ed.). Harlow, England: Addison Wesley Longman, Inc.
- Krebs, C. J. (2008). *The Ecological Worldview*. CSIRO Publishing/ CABI Publishing.
- Krebs, C. J. (2009). *Ecology: The Experimental Analysis of Distribution and Abundance* (6th ed.). New York: Harper & Row.
- Ricklefs, R.E. & Miller, G. (2000).*Ecology*(4th ed.). W.H. Freeman & Co.
- Townsend, C. R., Begon, M., & Harper, J. L. (2008). *Essentials of Ecology*(3rd ed.). Blackwell Publishing.

Assessment:

Course evaluation will be done through a combination of tests/quizzes, writing assignments, field projects and student presentations.

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Development and Social Change
Credits:	4 Credits
Course Code (new):	**SHE2ED102**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	Prof. Asmita Kabra (CC), Budhaditya Das
Email of course coordinator:	**asmita**@aud.ac.in
Pre-requisites:	None

Aim:
The course will seek answers to some key questions about the world we live in: What is 'development', and how can it be measured? What is 'underdevelopment'? Have these ideas and concepts changed over time? Why are some countries or regions so rich, and others so poor? What is the role of the state, the market and civil society in achieving 'development'? What are the new challenges of development in the 21st century?

In doing so, the course aims to integrate the concepts and perspectives of a range of social science disciplines to demonstrate how they can usefully be combined to further understanding of problems of development and social change.

Learning Objectives
By the end of this course, students will have a well-rounded understanding of key **theories** that have informed the idea of development. They will be informed about the diverse **experiences** of development in different parts of the world. They will understand of some of the most significant **debates** about sustainable development. They will also be able to examine the concept of development more **critically** in the context of the changed geopolitics of the 21st century. They will be able to ask additional questions like: Who decides what is development, for whom, and with what consequences? They will be able to understand the intricate links between economic growth and development on the one hand and poverty, inequality and environmental degradation on the other.

Course Outline

S. No.	Module
Unit I	**The history of development**
1	What is development – Issues of definition and measurement
2	Colonial, capitalism and development
3	Industrialization and nationalist growth
4	International relations and nationalist development
5	Globalization and development: the early decades
6	Structural adjustment, the Washington Consensus and beyond
Unit II	**Development Debates and Challenges in the 21st century**
7	Development, inclusion and social justice
8	Development and sustainability
9	Beyond development? Alternative imaginations
10	The anti-development and post-development critiques
11	Rejecting Development: New social movements
12	The everyday realities of development

Course Organization and Teaching

This course consists of five hours of face to face interactions each week, including classroom lectures, guided readings, group work and tutorials. Lectures will be interactive and will allow for intensive class participation and discussion. Outline notes for each lecture, as well as additional study material will be posted to students on Google Classroom.

Reading List

Core text books:

1. Chang, Ha Joon (ed.) Rethinking Development Economics London: Anthem Press.
2. McMichael, Philip (2007) *Development and Social Change* Pine Forge Press.
3. Reinert, Eric (2008). *How Rich Countries Got Rich . . . and Why Poor Countries Stay Poor*. London, Constable and Robinson Ltd.
4. Baker, Susan (2006). *Sustainable Development.* Routledge

Key readings:

1. Benedict J. Tria Kerkvliet (2009). Everyday politics in peasant societies (and ours), The Journal of Peasant Studies, 36:1, 227-243.
2. Carson, R. 1962. *Silent Spring.* Crest Books, New York. (excerpts)
3. Doyle, T and D. McEachern (2007). *Environment and Politics*. Routledge (excerpts)
4. Ferguson, James. 2006. The Anti-Politics Machine. In Aradhana Sharma and Akhil Gupta (Eds.). *The Anthropology of the State: A Reader*, London: Blackwell Publishing, pp. 270—286.
5. Jong-Il You. 2002. *The Bretton Woods Institutions: Evolution, Reform and Change*. Chapter 8 in Deepak Nayyar (ed.) "Governing Globalization". New Delhi, Oxford University Press.
6. Rodrik, Dani. 2006. "Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's *Economic Growth in the 1990s:Learning from a Decade of Reform".* Journal of Economic Literature, Vol. XLIV (December 2006), pp. 973–987.

7. Rodrik, Dani. The Globalization Paradox: Democracy and the Future of the World Economy. **W.W. Norton, New York and London, 2011.**Chapter 3.
8. Saith, Ashwani. Goals set for the Poor, Goalposts set by the Rich. IIAS Newsletter. Autumn 2007.

Other Resources

- Website: www.gapminder.org
- A variety of journal papers, films, blogs and other resource material will be made available online during the course transaction

Assessment:

There will be 3 types of assessments during the course:

Assessment	Weight	Description
1	30%	Participation in classroom activities
2	40%	Test
3	30%	Term paper and presentation

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School: Human Ecology

Programme with title: MA Environment and Development

Semester to which offered: (I/ III/ V) I semester

Course Title: Environmental History

Credits: 4 Credits

Course Code (new): **SHE2ED103**

Type of Course: Compulsory yes Cohort MAED

Course Coordinator and Team **Dr Praveen Singh (CC)**

Email of course coordinator: **praveen**@aud.ac.in

Pre-requisites: None

Aim:

It will discuss the environmental thoughts and ideas that emerged from other parts of the world, and also those that were developed in India. The discussion on India's environmental

history will broadly focus on four themes- forests, water, conservation and environmental movements. Though environmental history of the subcontinent is largely focused on the colonial encounter, the course will look at the history of environmental change over a longer historical frame.

Learning Objectives:

The course introduces the students to the early influences in the field of environmental history in India, and also the various changes that have emerged in the last twenty years to make this field into a rich area of scholarship. The course will help the students get a nuanced and historically contextualized understanding of the roots of some of the current environmental concerns.

Broad Topics:

- Four Ideal Types in the Environment Debate
- Environments and Histories
- Colonialism and India's Environment
- Conservation and Crisis in India's Environment
- Colonization of Forests and Shifting Frontiers
- Canals, Irrigation and Environmental Change
- Floodplains and their (mis) management
- Colonial state, pastures and herders
- The Changing face of Agrarian Environments
- Environmental movements and Third World Environmentalism

Indicative Reading List:

- Grove, Damodaran & Sangwan, Nature And The Orient: The Environmental History Of South And Southeast Asia, OUP, 2000.
- MacKenzie, J., The Empire of Nature: Hunting, Conservation and British Imperialism, Manchester Univ Press, 1997.
- Ravirajan,S., Modernizing Nature, Orient Longman, 2008.
- Rangarajan, M., Fencing The Forest, OUP, 1991.
- Skaria, A., Hybrid Histories: Forests, Frontiers And Wildness In Western India, OUP, 2001.
- Rangan, H., Of Myths And Movements, OUP, 2001.
- Sivaramakrishnan & Cederlof, Ecological Nationalisms, Orient Longman, 2006.
- Guha, S., Environment & Ethnicity In India:1200-1991, CUP, 1999.
- Worsters, D., Rivers Of Empire: Water, Aridity, And The Growth Of The American West, OUP, 1991.
- Richards, J.F., The Unending Frontier: An Environmental History of the Early Modern World, Univ of California Press, 2006.
- Williams, Michael, Deforesting the Earth: From Prehistory to Global Crisis, University of Chicago Press, 2006.
- Pratap, Ajay, The Hoe and the Axe: An Echnohistory of Shifting Cultivation in Eastern India, OUP, 2001.

- Mosse, D., Rule of Water: Statecraft, Ecology and Collective Action in South India, OUP, 2003.
- Worster, D., Nature's Economy: A History of Ecological Ideas, 2nd Ed., CUP, 1994.
- Grove, R., Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1800, CUP, 1995.
- Grove, R., Ecology, Climate and Empire: Colonialism and Global Environmental History, CUP, 1997.
- Saberwal, V., Pastoral Politics: Shepards, Bureaucrats and Conservation in the Western Himalaya, OUP, 1998.
- Sivaramakrishnan and Agrawal, Regional Modernities: The Cultural Politics Of Development In India, OUP, 2003.
- Lewis, M., Inventing Global Ecology: Tracking the Biodiversity Ideal in India, 1945-97, Orient Longman, 2003.
- Saberwal & Rangarajan, Battles over Nature: Science and the Politics of Conservation, Permanent Black, 2009.
- D'Souza, R., Drowned and Dammed: Colonial Capitalism and Flood Control in Eastern India, New Delhi: Oxford University Press, 2006.
- Kumar, D., V. Damodaran & Rohan D'Souza (eds.), The British Empire and the Natural World: Environmental Encounters in South Asia, OUP, 2010.

Assessment Design:
Two tutorials (30% each): Submission and Presentation
End Semester Exam (40%)

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Research Methodology I
Credits:	4 Credits
Course Code (new):	**SHE2ED201**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	Dr Oinam Hemlata Devi (CC)
Email of course coordinator:	**hemlata**@aud.ac.in
Pre-requisites:	None

Aim:

This course consists of three sections. An introductory module on social science research of section I is followed by two main sections. The second section on Basic Research Skills will help the students consolidate their basic academic and research skills through formal activity-centered, hands-on training. There are no prescribed readings for the course. Worksheets and some reading material will be distributed during the classroom interaction.

The third section provides an introduction to research and research design bringing the knowledge of theoretical foundation and research ethics of social science research consisting of the formulation of a research problem, research questions, and objectives to deconstruct a research design for understanding general framework of research.

This course will have continuous assessment in the form of classroom and take-home assignments to be done individually, in pairs and in groups. The repertoire of skills included will hold the students in good stead for the remainder of the Master's programme and will also constitute the foundation for qualitative and quantitative research methods training that they are required to undertake.

Learning Objectives:

- Train the students the basic elements of research.

- Know the basic tenets of research as a creative and strategic process
- Train students to think logically and scientifically in a multi-disciplinary framework.
- Ability to identify, analyze and evaluate alternative approaches to ways of problem solving
- Logical reasoning, argumentation skills and use of the scientific method
- Formulation of a logical, relevant and practicable research design

Section I: Introduction to Social Science Research (4 hours):
Section II: Basic Research Skills (34 hours)
Section III: Research Design (12 hours)

Assessment:
There will be a continuous assessment of the classroom activities and end-term examination. The Classroom activities are the learning process which should be flexible enough to provide the students time and scope for improvement. The students have to perform well in both the examinations.

SEMESTER 3 ELECTIVE COURSES: 2 CREDITS

Ambedkar University Delhi

Course Outline

Winter Semester (Jan-May 2017)

School:	Human Ecology			
Programme with title:	MA Environment and Development			
Semester to which offered: (I/ III/ V)	IV semester			
Course Title:	**Agrarian Environments**			
Credits:	2 Credits			
Course Code (new):	SHE2ED303			
Type of Course:	Compulsory	No	Cohort	NA
	Elective	Yes	Cohort	MAED
Course Coordinator and Team:	Prof. Asmita Kabra			
Email of course coordinator:	asmita@aud.ac.in			
Pre-requisites:	None			

Aim:

This course aims to provide a theoretical and practical understanding of agrarian change and rural livelihoods in the 'marginal ecologies' of the Global South. It deliberately focuses on the less-studied agrarian practices in upland and dryland regions, instead of 'mainstream' agriculture in the more commercial river valley regions of the world. The bulk of the rural poor inhabit these regions, and a major share of the world's food production occurs here, and yet these regions are marginal to the bulk of work in agrarian studies. The reality of smallholders in the world today is that of diversified livelihoods, in which agriculture and other land based activities continue to play a significant (albeit changing) role. The course aims to familiarize students with the big debates on the role of agrarian and rural systems, as well as the lived realities and everyday practices of agriculture and land and natural resource based livelihoods in these regions. It focuses on shifting cultivators, pastoralists and forest-dependent households who are simultaneously smallholder peasants. Migration, mobility and diversification into non-farm livelihoods are a critical part of their coping strategy, and a key way in which they deal with natural and market-related risks.

The course provides various theoretical lenses and disciplinary perspectives for situating macro-level (from 'above') debates on agriculture/rural development within larger developmental discourses. It then introduces students to theories explaining micro-level (from 'below') decision making at the level of individuals, households and groups/communities with regard to land-based livelihoods. It ends with case studies of such livelihood strategies in the context of forest-dependent, pastoral and shifting cultivation based smallholders.

Objectives:

- To understand the contestations, negotiations, risks and opportunities involved in land-based livelihoods in marginal ecologies of the global South
- To question and problemmatize the binaries between urban-rural, local-global, traditional - Western, indigenous-scientific, farm-nonfarm, field-forest, and community-state in the present context

Brief description of modules/ Main modules:

S. No.	Module
1	Role of agriculture in development
2	Globalization, agriculture and rural livelihoods in the 21st century
3	Rural livelihoods and smallholder decision-making
4	Agro-pastoral livelihoods
5	Agrarian environments and forest-based livelihoods
6	Shifting cultivation based livelihoods

Core Readings

1. Bernstein H. (2008). 'Agrarian questions from transition to globalization'. In A. H. Akram-Lodhi and C. Kay (eds.) *Peasants and Globalization: Political economy, rural transformation and the agrarian question.* London: Routledge, 239-261.
2. Rigg, Jonathan (2006). 'Land, Farming, Livelihoods, and Poverty: Rethinking the Links in the Rural South' *World Development*, 34 (1): 180-202.
3. Li, Tania (2009). Exit from Agriculture: A Step Forward or a Step Backward for the Rural Poor? *Journal of Peasant Studies* 36(3): 629-636
4. Scoones, Ian et al. *Hazards and Opportunities: Farming livelihoods in dryland Africa - Lessons from Zimbabwe.* London and New Jersey: Zed Books Ltd., 1996.
5. Mortimore, Michael (1998), "Roots in the African Dust", UK, Cambridge University Press.
6. Agarwal, A. and K. Sivaramakrishnan (eds.). 2001. *Social nature: Resources, representations and rule in India*. Delhi: Oxford University Press.
7. Benedikt Korf, Tobias Hagmann & Rony Emmenegger (2015). Re-spacing African drylands: territorialization, sedentarization and indigenous commodification in the Ethiopian pastoral frontier. *The Journal of Peasant Studies* 42:5, 881-901, DOI: 10.1080/03066150.2015.1006628
8. Ickowitz, A. 2006. Shifting cultivation and deforestation in tropical Africa: critical reflections. *Development and Change* 37: 599-626.

Tentative Assessment schedule with details of weightage:

In this course students attend **two interactive weekly sessions** of two hours each, which will consist of lectures, in-class discussions, audio-visual resources and guided reading. These will be supplemented by regular tutorials. Outline handouts for each lecture will be posted to students by email. There will be 3 types of assessments during the course:

Assessment No.	Weight	Description
1	30%	Class participation based activities (2)
2	20%	Test
3	20%	Test
4	30%	Term paper

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Basic Principles of Restoration Ecology
Credits:	2 Credits
Course Code (new):	**SHE2ED305**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	**Dr Suresh Babu**
Email of course coordinator:	**suresh**@aud.ac.in
Pre-requisites:	None

Aim:

The course will focus on ecological theory and how to extend the theory to restoration practice as well as debates concerning restoration practice. This course is aimed at providing a broad understanding of Restoration Ecology as a science and as a practice.

The course has been developed as a 4-credit package (being offered in two parts, 2- credits each in 3rd and 4th semester) that provides a strong foundation of ecological principles that can be employed to solve problems of degradation across a range of ecosystems.

Learning objectives:

As a science, restoration ecology is about objective interventions that attempt to return an ecosystem to its historic trajectory. As a practice, it is an intentional activity that accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability. The founding ecological principles constitute the initial components of the course. Subsequently, the course deals with problems, intensity and nature of perturbations in ecosystems and with a problem solving-applied ecology approach. The methodology involved in selecting referencing ecosystems and setting of target conditions is discussed. Case studies are taken up on terrestrial, wetland and marine ecosystems and discussed at length and with a view to finding system-based solutions. The learning objectives are:

- Understand fundamental ecological principles that guide restoration
- Determine how to set references, target conditions and follow-through on goals for ecological restoration

Course Content:

S. No.	Module
1	Introduction to Restoration Ecology
2	Ecological Basis of Restoration • Disturbance and Recovery in Ecosystems • Reference Ecosystems • Assembly Rules in Ecosystems
3	Terrestrial Restoration
4	Wetland Restoration
5	Marine and Coastal Restoration
6	Restoration Planning
7	Implementation, Assessment and Monitoring of Restoration Programmes

Indicative Readings List:

- Andel, J. v.& Aronson, J. (Eds). (2005). Restoration Ecology: The New Frontier. Blackwell Publishing.
- Bradshaw, A. D. (1987). Restoration: An acid test for ecology. In W. R. Jordan, M. E. Gilpin, and J. D. Aber (Eds.), Restoration Ecology: A Synthetic Approach to Ecological Research (pp. 23–30). Cambridge, UK: Cambridge University Press.
- Chapin III, F. S., P. A. Matson, & Mooney,H. A. (Eds.). (2002). Principles of Terrestrial Ecosystem Ecology. New York: Springer-Verlag.
- Michener, W. K. (1997). Quantitatively evaluating restoration experiments: Research design, statistical analysis, and data management considerations. Restoration Ecology, 5, 324–337.
- Roberts, L., Stone, R.& Sugden, A. (2009). The rise of restoration ecology. Science, 325, 355.

- Society for Ecological Restoration International Science & Policy Working Group (2004). The SER International Primer on Ecological Restoration. www.ser.org & Tucson: Society for Ecological Restoration International.

Assessment:
There would be three assessments: Short Quiz (30%), Test(30%), End Semester Exam (40%)

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Development and Public Health
Credits:	2 Credits
Course Code (new):	**SHE2ED307**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	**Dr Oinam Hemlata Devi**
Email of course coordinator:	**hemlata**@aud.ac.in
Pre-requisites:	None

Aim:
Focus on health is the key principle of understanding development and well-being of individuals. It concern with physical, mental, and socio-environmental well –being of individuals providing an in-depth understanding of knowledge of diseases and illnesses, prevention and promotion of health and related issues. It will enable students gaining a wide range of knowledge of health in different ways and settings. This course will cover the general concept of health, development, environment and health, health promotion and services. This will further provide a scope for understanding and analysing the real life issues which will be beneficial at the individual, communities or global level.

Learning Objectives:
The course will enable the students
- To understand the framework and connections between Development and Health

- To familiarise the rationale of health through past administrative processes and experiences
- To study, analyse, and understand various parameters of health for the well-being of any population

Nature of teaching:
This course has 6 units, a 2 credit elective course of 24 hours teachings. It will consist of lectures, debates, group discussions, and film screening along with one field exposure.

Course Content:

S. No.	Module
1	Introduction to Development and Health
2	Post-Colonial Development and Health
3	Culture, Health and Lifestyle (case studies)
4	Health and Economic Development
5	Food Security and Health
6	Health Promotion and services

Indicative Reading List:
Books

- Park, K. (2002) Preventive and Social medicine,New Delhi: B Jain Publishers.
- Ember, C.R. & Ember, M. (2004). Encyclopaedia of medical anthropology. New York: Springer.
- Blaxter, M. (2004). Health and lifestyles. New York, Routledge.
- Behnassi,M., Draggan,S., &Yaya,S. (2011).Global Food Insecurity: Rethinking agriculture and rural development paradigm and policy. New York: Springer.

Articles

- Schauffler, H.H., & Rodriguez, T. (1994).Availability and Utilization of Health Promotion Programs and Satisfaction with Health. Medical Care, 32(12): 1182-1196.
- Raphael, D., Renwick, R., Brown,I., & Rootman, I.(1996) Quality of life indicators and health: current status and emerging conceptions. Social Indicators Research, 39(1): 65-88.
- Hare, R.M. (1986).Health. Journal of Medical Ethics 12(4):174-181.
- Back, D. (1991).Paying for Health. Journal of Medical Ethics, 17(3): 117-123.

Assessment:
The students will be assessed on the basis of classroom performances such as test, open book examination and one take home assignment.

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Ecological Statistics
Credits:	2 Credits
Course Code (new):	**SHE2ED311**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Course Faculty	Prof. Asmita Kabra (CC**); Dr. Raman Kumar (Adjunct)**
Email of course coordinator:	asmita@aud.ac.in
Pre-requisites:	None

Aim:

Ecological Statistics is designed as a course in ecological research design and analysis for post-graduate students who plan to undertake quantitative field-based research. It is aimed at developing skills for robust research design and also collecting, handling, exploration and analysis of observational/experimental data in the area of ecosystem management. The students will learn to design simple observational studies and field experiments in the ecological context, keeping in mind the needs and assumptions of different statistical frameworks (primarily parametric and non-parametric statistics). They will also learn to develop and analyse empirical models in ecology and ecosystem management and independently carry out data exploration and statistical analysis using a basic spreadsheet programme such as Excel.

Course contents:

S. No.	Module
1	Basics of Data and Data Description
2	Measures of Dispersion

3	Basics of Probability
4	Random Variables & Normal Probability Distribution
5	Statistical Inference
6	Statistical tests for difference in population means, tests of independence- I
7	Statistical tests for difference in population means, tests of independence- II
8	Non-parametric Statistical Methods- I
9	Non-parametric Statistical Methods- II
10	Concepts in Study design
11	Simple Regression Models
12	Choosing the Right Statistic

Indicative Reading List:

- J. Gotelli & A.M. Ellison, 2004. A Primer of Ecological Statistics. Sinauer Associates.
- Weiss, P. 2005. Elementary Statistics. Addison-Wesley Publishing Company.
- R.R.Sokal & P.J. Rohlf. Biometry, The Principles and Practice of Statistics in Biological Research.W.H. Freeman & Co.

Assessment Methodology:

A weekly quiz will be held to assess level of assimilation by the students. There will be an end-semester project in which the student will learn to use real-life data set, provided by the instructor, for statistical analysis and inference.

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School: Human Ecology

Programme with title: MA Environment and Development

Semester to which offered: (I/ III/ V) I semester

Course Title: Gender and Environment

Credits: 2 Credits

Course Code (new): **SHE2ED315**

Type of Course: Compulsory yes Cohort MAED

Course Coordinator and Team Prof. Asmita Kabra (CC) ; Dr Budhaditya Das (Adjunct)

Email of course coordinator: asmita@aud.ac.in

Pre-requisites: None

Aim:

This course introduces feminist perspectives of looking at environmental issues and conflicts, the relationship between gender and environment in the Third World, and discusses how gender complicates the fields of environmental politics, science and governance. It also provides an overview of the intersections of environmental and women's movements of the last forty years, their common agendas, interests and contestations. It aims to examine diverse theoretical perspectives that engage with these issues and how they influence and critique conventional interpretations, policy practice and research outcomes.

Learning Objectives:

It aims to introduce the concept of gender to the students and its relationship with environment in the context of third world. The course looks at the constant 'othering' of women in the sphere of environment and their struggle for 're claiming' the lost 'spaces', through the lens of diverse theoretical perspectives. At the end of the course the students will be able to appreciate the ways in which gender complicates the fields of environmental politics, science and governance and also the common agendas, interests and contestations of environmental and women's movements of the last forty years

Course contents:

S. No.	Module
1	Conceptualizing Gender
2	Troubled Relationships: nature, nurture and women
3	Approaches to understand relationship between Gender and Nature
4	Women and Environmental Movements: justice, participation and resistance
5	Women : resource regimes and production
6	Mainstreaming Gender in environmental projects: Law and policy imperatives

Indicative Reading List:

- Agarwal, B.(1994). A Field of One's Own: Gender and Land Rights in South Asia. Cambridge: Cambridge University Press. Chapter 1, pp. 1-44.
- Agarwal, B. (1999). The Gender and Environment Debate: Lessons from India in Nivedita Menon (Ed.) Gender and Politics in India (4th ed.) New Delhi. OUP
- Agarwal, B. (2000). Conceptualizing environmental collective action:why gender matters. Cambridge Journal of Economics, 24, 283-310
- Banerjee, D. and Michael Mayerfeld Bell. (2007). Ecogender: Locating Gender in Environmental Social Science. Society & Natural Resources: An International Journal, 20:1, 3-19
- Cleaver,F. and Hamada,K (2010) 'Good' water governance and gender equity: a troubled relationship. Gender & Development, 18:1, 27-41,
- Cornwall,A. Harrison, E and Whitehead, A. (2007). Gender Myths and Feminist Fables: The Struggle for Interpretive Power in Gender and Development. Development and Change 38(1):1-20

- Devlin, H. (2015) Early men and women were equal, say scientists. The Guardian. (May 14), accessed from http://www.theguardian.com/science/2015/may/14/early-men-women-equal-scientists
- Dietrich, G. (1999). Women, ecology and culture in Nivedita Menon (Ed.)Gender and Politics in India (4th ed.) New Delhi. OUP
- Fraser, N (2013). How feminism became capitalism's handmaiden - and how to reclaim it. The Guardian (October 14) accessed from (http://www.theguardian.com/commentisfree/2013/oct/14/feminism-capitalist-handmaiden-neoliberal)
- Gottfried,H. (1998). Beyond patriarchy? Theorising gender and class. Sociology 32(3), pp. 451-468
- Gururani, S. (2010). Forests of Pleasure and Pain:Gendered practices of labor and livelihood in the forestsof the Kumaon Himalayas,India. Gender, Place & Culture:A Journal of FeministGeography, 9(3), 229-243
- Jewitt, Sarah. 2000. Mothering earth? Gender and environmental protection in the Jharkhand, India, The Journal of Peasant Studies, 27:2, 94-131.
- Leach, M. 2007. Earth Mother Myths and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell. Development and Change 38(1): 67-85
- Menon, A. (January 21, 2006). Environmental Policy, Legislation and Construction of Social Nature, EPW.188-193
- Mies, M. and Shiva, V (1993). Ecofeminism. Fernwood publications
- Moore, N. 2008. The Rise and Rise of Ecofeminism as a Development Fable: A Response to Melissa Leach's Earth Mothers and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell. Development and Change 39(3): 461-475.
- Rai,S.M. (2008). The gender politics of development. New Delhi. Zubaan
- Ramdas, S.R. (2009). Women, Forestspaces and the Law: Transgressing the Boundaries. Economic and Political Weekly, Vol. XLIV, No. 44
- Ray, R. (Ed.). (2012). Handbook of Gender. New Delhi. OUP
- Sarker,D.and Das,N. (October 6, 2002). Women's Participation in Forestry Some Theoretical Issues. EPW.4407-4412
- Sharma, K (April 30, 1994). Gender, Environment and Structural Adjustment. EPW. WS5-11
- Shiva, V. (1988).Staying Alive: Women, ecology and survival in India.New Delhi:Kali for Women.
- Shiva, V. (1999). Colonialism and evolution of masculinist forestry in Nivedita Menon (Ed.)Gender and Politics in India (4th ed.) New Delhi. OUP
- Warren, K. (2000) Nature is a Feminist Issue. EcoFeminist Philosophy. Boulder: Rowman & Littlefield, pp. 1-19.
- Leach, M. (1994). Rainforest Relations: Gender and Resource Use Among the Mende of Gola, Sierra Leone. Edinburgh University Press

Assessment: Students will be evaluated on the basis of in-class presentation (25%), a take-home essay (40%) and an end-term exam so that the emphasis is more on interactive learning and less on memorising.

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Geographic Information System I
Credits:	2 Credits
Course Code (new):	**SHE2ED316**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	**Dr Pulak Das**
Email of course coordinator:	**pulak**@aud.ac.in
Pre-requisites:	None

Aim:

The course entails basic concept of Geographic Information system & Remote sensing techniques and their application in various fields. In this students acquire a base of geographic knowledge and data collection methods used in subsequent GIS application. Introductory raster GIS operations are discussed and reinforced in computer lab work. Subjects include the acquisition and compilation of data from maps, field surveys and satellite images; and an introduction to the linkage between a map and a database. Students learn to create and manipulate attribute tables, to create and manipulate graphic objects and to link attribute tables to graphic objects (using ArcGIS & QGIS). Students are introduced to: layer structures to organize data and maintain data integrity, projection, thematic mapping concepts, selection sets and SQL queries, summary statistics and geocoding.

Introduction in vector GIS, with an emphasis on GIS as a spatial data base for information management. Basic relational database management concepts are introduced and reinforced. Using GIS software (ArcGIS & QGIS), students create spatial databases, edit and manipulate data, query databases. Students explore topics including data organization, file structures, topology, and the linkage between graphic and non-graphic elements of a spatial database. The analytical capabilities of vector GIS, including thematic, Buffer, Area calculation are introduced.

Introduction to GPS and their application with a field work experience will be provided to students. They will be introduced to: the differences between and the capabilities of raster and vector data structures, the structure and organization of raster data, issues associated with display palettes and image resolution, data capture and manipulation, data transformation and processing, and data analysis and output.

Image processing techniques and classification techniques will be key focus in the second Section. Image georectification, unsupervised, supervised classification of the satellite image will be taught to the students.

Learning objectives:

- To understand functional basis of a GIS, appreciate the potential uses of GIS in natural resource management.
- Creation of quality spatial data involved in using GIS
- Develops a strategy to implement an effective GIS
- Implement the technology to store and manage large sets of spatial data, effective tool to identify spatial relationships and pattern recognized methodology to assist in decision-making mechanism for the production of high quality maps using the latest technology in natural resource management.

Broad topics:

Semester I

- Introduction to GIS & Remote sensing concepts
- Digitization, Creation of Vector layers,
- Various elements of GIS,
- Editing of Vector layers,
- Creation of Database.
- Introduction & Use of GPS,
- Plotting of GPS data on map
- Conversion of GPS data in to shape file format
- Making map using GPS
- Creating layouts from vector layers.
- Final map representation with all map elements

Indicative Reading list:

- Principles of Geographical Information Systems by P.A. Burrough, & McDonnell,
- Geographic Information Systems and Science. Second edition. By P. A.Longley, M. F. Goodchild, D. J. Maguire and D. W. Rhind. John Wiley, Chichester, 2005.
- Managing Natural Resources with GIS by Laura Lang, Environmental Systems Research Institute.
- Remote Sensing and Image Interpretation by Thomas M. Lilles and, Ralph W. Kiefer.
- GIS: A Visual Approach by Bruce Ellsworth Davis, Bruce Davis

Assessment:
Assessment will be carried out in three phases, submission of practical assignment (soft/hard), end term exam, and a field exercise. Assessments will be carrying 40%, 35%, and 35% of the total marks.

SEMESTER 3 ELECTIVE COURSES: 4 CREDITS

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Advanced Ecology
Credits:	4 Credits
Course Code (new):	**SHE2ED323**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	Dr Suresh Babu
Email of course coordinator:	**suresh**@aud.ac.in

Pre-requisites: Can be taken only after successful completion of coursework and assessments in EEB (SHE2ED101)

Aim:
Advanced Ecology will build on the basic introduction of ecology and ecosystems from the Ecology, Ecosystems and Biodiversity course (SHE2ED101), and address topics relating to ecosystem structure, function, and behaviour. A selection of topics associated with themes of core ecological research will be introduced to enable students to read, comprehend and potentially apply these concepts in their own areas of interest. These topics are organised in four clusters that will be developed in greater detail with seminar presentations and classroom discussions of seminal and current research on ecological networks, ecosystem function, non-equilibrium ecological theory and conservation biology.

Learning Objectives:

The objective of this course is to introduce students to the debates and scholarship on select advanced topics in ecology focusing on ecosystem structure, function and knowledge gaps/challenges in ecology. This course is expected to equip graduate students interested in exploring research questions around ecology to familiarise themselves in the theoretical backdrop of frontier areas in ecology, to enable them to participate actively in exchanges with peer groups and to appreciate scholarship in Ecology. It is expected that this course will enable students to articulate positions on the debates and engage with theory that will reflect in their final seminar paper that could be associated with any of the clusters but with the minimum rigour expected of a review of scholarship of the selected topic.

Course Content:

S. No.	Module	
I	**Trophic Interactions and Ecological Networks**	
	1	Food-Webs and Trophic Interactions
	2	Complex Systems and Ecological Networks
	3	Network Analysis
II	**Biodiversity and Ecosystem Function**	
	4	Biodiversity: Measurement
	5	Biodiversity and Ecosystem Function
	6	Diversity and Stability
III	**Non-Equilibrium Ecology**	
	7	Equilibrium Models in Ecology
	8	Emergence of Non-Equilibrium Ideas
	9	Scaling up: Transient patches to landscapes, State of Knowledge and Challenges
IV	**Ecology and Conservation**	
	10	Extinction Crisis and the Conservation Ethic
	11	Conservation Biology in Practice
	12	Deep Ecology: How deep is it?

Indicative Reading List:

- Bascompte, J., & Jordano, P. (2007). Plant-Animal Mutualistic Networks: The Architecture of Biodiversity. Annual Review of Ecology, Evolution, and Systematics, 38, 567-593.
- Bascompte, J., Jordano, P., & Olesen, J. M. (2006). Asymmetric coevolutionary networks facilitate biodiversity maintenance. Science, 312(5772), 431-433.
- Lusseau, D., Schneider, K., Boisseau, O. J., Haase, P., Slooten, E., & Dawson, S. M. (2003). The bottlenose dolphin community of Doubtful Sound features a large proportion of long-lasting associations. Behavioral Ecology and Sociobiology, 54(4), 396-405.
- May, R. M. (1983). Ecology: The structure of food webs. Nature, 301, 566-568.
- May, R. M., Levin, S. A., & Sugihara, G. (2008). Complex systems: Ecology for bankers. Nature, 451(7181), 893-895.
- Meadows, D. H. (2008). Thinking in Systems: A Primer. D. Wright (Ed.). White River Junction, VT: Chelsea Green Pub.

- Paine, R. T. (1966). Food Web Complexity and Species Diversity. The American Naturalist, 100(910), 65-75.
- Paine, R. T. (1980). Food Webs: Linkage, Interaction Strength and Community Infrastructure. The Journal of Animal Ecology, 49(3), 666-685.
- Pascual, M., & Dunne, J. A. (Eds.). (2005). Ecological Networks: Linking Structure to Dynamics in Food Webs. Oxford University Press.
- Pimm, S. L., & Lawton, J. H. (1978). On feeding on more than one trophic level. Nature, 275, 542-544.
- Pimm, S. L., Lawton, J. H., & Cohen, J. E. (1991). Food web patterns and their consequences. Nature, 350, 669-674.
- Sole, R. V., & Montoya, J. M. (2001). Complexity and fragility in ecological networks. Proceedings of the Royal Society of London. Series B: Biological Sciences, 268(1480), 2039-2045.
- Sugihara, G., & Ye, H. (2009). Cooperative network dynamics. Nature, 458, 979-980.
- Thébault, E., & Fontaine, C. (2010). Stability of ecological communities and the architecture of mutualistic and trophic networks. Science, 329(5993), 853-856.
- Thompson, J. N. (2006). Mutualistic webs of species. Science, 312(5772), 372-373.
- Winemiller, K. O. (1990). Spatial and temporal variation in tropical fish trophic networks. Ecological Monographs, 60(3), 331-367.

Assessment:

Five assessments in all, with four assessments associated with each cluster respectively and one final submission/seminar on a the literature review of a select topic

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Urban Development and Environment
Credits:	4 Credits
Course Code (new):	**SHE2ED320**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	Dr Rohit Negi
Email of course coordinator:	**rohit**@aud.ac.in
Pre-requisites:	None

Aim:

We recently witnessed a unique moment of world historical importance—for the first time in human history, the number of people living in cities passed those in villages globally. The implications of this shift are many: urban areas present different forms and challenges related to living, production, and social organization than do rural spaces. Urbanization also has significant ecological imbrications. Among others, residential buildings, industries, offices, and transportation networks predominate urban space and each in turn, impacts the environment. This course will approach cities with a perspective that considers the intertwined social and ecological processes that constitute urban development.

Learning Objectives:

- To understand key moments in the history of urbanization
- To examine urban environmental issues, particularly in the Global South.
- To critically analyze programmes, policies and politics related to urban service provision.
- To sharpen field research, writing and presentation skills

Modules:

S. No.	Title and keywords
1	Cities in History: Public Health, Suburbanization, Colonial urbanism

2	Urban Land Use and Resources: Land cover change, peri-urban developments, urban agriculture
3	Urban Informality: informal economy, politics of 'unauthorized' settlements, street vending and space
4	Urban Ecology: creation of patches; disturbance; urban fauna
5	Planning Instruments and Debates: Land use planning, zoning and byelaws, infrastructure
6	Urban Poverty (Slums) and State Policy: Relocation/renovation; legal views; gentrification

Indicative Reading List:

- Peter Hall (1988), Cities of Tomorrow, ch 2,4,6,7.
- Matthew Gandy (2003), Concrete and Clay ,Part I
- S. Kaviraj (1997), 'Filth and the Public Sphere: Concepts and Practices about Space in Calcutta', Public Culture, 10(1): 83-113.
- V. Narain (2009), 'Growing city, shrinking hinterland: land acquisition, transition and conflict in peri-urban Gurgaon, India', Environment and Urbanization 21(2): 501-512.
- Allen et al (2006), 'Theperi-urban water poor: citizens or consumers?'Environment and Urbanization, 18: 333-351.
- R. Negi (2010) 'Neoliberalism, Environmentalism and Urban Politics in Delhi', in New Economic Policy in India: A Critical Analysis, New York: Routledge.
- A.Sharan (2006), 'In the city, out of place: environment and modernity, Delhi 1860s to 1960s', EPW.
- K. Gill (2009), Of Poverty and Plastic: Scavenging and Scrap-trading Entrepreneurs in India's Urban Informal Economy, OUP.
- S. Dickey (2008), 'Permeable Homes: Domestic Service, Household Space, and the Vulnerability of Class Boundaries in Urban India', American Ethnologist 27(2): 462-489.
- Kevin Gaston (ed), Urban Ecology, Cambridge University Press. (ch1, 3, 6, 11)
- Franz Rebele (1994), 'Urban Ecology and Special Features of Urban Ecosystems', Global Ecology and Biogeography Letters, Vol 4(6): 173-187.
- E. Preteceille (1976), 'Urban Planning: The Contradictions of Capitalist Urbanization', Antipode 8(1)

Assessment:

- In-class exercises/quizzes
- Field Project
- Final Exam

Ambedkar University Delhi

Course Outline

Monsoon Semester (July-December 2017)

School:	Human Ecology
Programme with title:	MA Environment and Development
Semester to which offered: (I/ III/ V)	I semester
Course Title:	Environmental Impact Assessment
Credits:	4 Credits
Course Code (new):	**SHE2ED314**
Type of Course:	Compulsory yes Cohort MAED
Course Coordinator and Team	Dr Pulak Das
Email of course coordinator:	**pulak**@aud.ac.in
Pre-requisites :	None

Aim:

The course will begin with ethics in practice and action, in assessment of environmental impact. Students will be taught various types of assessment technique, stages of assessment, data gathering, data and information analysis and inference, environmental cost benefit analysis and investment decisions, ecological risk analysis, issues of time and geographical space. The course includes ongoing debates on assessment methods and assessment of alternatives. The course gives an overview of environmental impact assessment across nations and discusses its role in law and governance of environment in India. The course will discuss the importance of domain knowledge and legal principles, access to information, public participation, institutions and access to justice along with case studies of landmark cases and analysis of the role of environmental impact assessment. The course will discuss stakeholder perspective and its implication. Students will be taught to prepare environmental impact assessment reports on assigned projects.

Learning Objectives:

The aim of this course is to give students the conceptual basis and the necessary tools for understanding environmental impact in qualitative and quantitative terms and putting them to practice in environmental impact assessment. The emphasis is on understanding concepts and principles underlying the theory, and applying them to formulating parameters and indicators

relating to the environment for decision making in development projects. Students will learn law, governance, institutions and stakeholder issues related to EIA in India to be able to connect it with the trends of development and its impact on the ecological and social context. They will learn to use environmental impact assessment as a tool for assessing trajectories of alternate development. Students will be taught to prepare environmental impact assessment reports through practical knowledge on allocated projects.

Course content:

S. No.	Module
1	Introduction and overview of EIA
2	Governance of EIA systems, Legal and Policy Issues
3	EIA (Need, Project Cycle and the EIA Process)
4	Screening and Scoping
5	Assessment of Impacts (Physical, Biological, Social)
6	Mitigation and Impact Management
7	Social Impact Assessment I
8	Social Impact Assessment II
9	Strategic Environmental Assessment (SEA) and Biodiversity in EIAs
10	Risk Assessment, Vulnerability, and Decision Making
11	Cumulative Impact Assessment
12	EIA Practice, Case Studies and Critical Overview
Summary, Feedback Session	

Indicative Reading List:

- Introduction to Environmental Impact Assessment (3rd Edition) by John Glasson, Riki Therivel and Andrew Chadwi (2005).
- Methods of Environmental Impact Assessment (3rd Edition) by Peter Morris and Riki Therivel (2009)
- Environmental Impact assessment handbook - A practical guide for planners, developers and communities (2nd Edition) by Barbara Carroll and Trevor Turpin (2009)
- Handbook of Environmental Impact Assessment - Vol 1 (Environmental Impact Assessment: Process, Methods and Potential) by Judith Petts (2005).

Assessment:

1. Written test
2. Take home
3. In class activity/Field work