

Bachelor of Social Sciences (Honours)
in
Environmental and Resource Economics

Prospectus
Session 2025-26



Dhaka School of Economics
(Constituent Institution of the University of Dhaka)

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PART- I: ABOUT DHAKA SCHOOL OF ECONOMICS

The newly established Dhaka School of Economics (DScE), Constituent Institution of the University of Dhaka, has begun its journey on 8 April 2010 aspiring to promote advanced studies and research in economics and other related disciplines to cater to the fast growing demand for well-trained economists and professionals, particularly in the areas of applied environmental and development economics and in related areas to contribute to teaching, research and evaluation, policy making and implementation of nation-building programmes for the fast expanding economy of Bangladesh. Apart from its main focus on teaching and research, the School is also committed to establishing a ‘data-bank’, with easy access for those who intend to engage themselves in economic research and policy analysis.

To achieve these targets, Dhaka School of Economics sets out its vision to establish it as a ‘Centre of Excellence’ for advanced teaching and research in economics in line with London School of Economics and Political Science (LSE) and Delhi School of Economics (DSE), for example. More specifically, the school targets to continue its activities to fulfill the following missions:

- To deliver challenging, stimulating and research-oriented academic programmes in an environment that facilitates learning and development of independent critical thinking among the students.
- To ensure, through critical self-reflection, that its teaching and research remain at the forefront of economics and related disciplines, addressing the evolving challenges of the contemporary society.
- To make the institution internationally competitive and establish it as a ‘Centre of Excellence’ for advanced study and research in economics and related disciplines.
- To establish and intensify interactions with society in Bangladesh and leading academic institutions in different parts of the world.

The School is currently being housed in the Bangladesh Economic Association (BEA) Building with an extended campus at the SWID building at Eskaton Garden Road, Dhaka. The place is free from noise and transport hazards. DScE aspires to shift to its permanent campus at

Purbachal in the course of time.

1.1 Academic Programme

DScE has formally started its teaching programmes from the academic session, 2011-12, with the following two programmes:

- Post Graduate Diploma in Economics; and
- Master of Economics (Environmental Economics)

The classes of the first batch of Post Graduate Diploma in Economics started on February 26, 2012 whereas the Master of Economics (Environmental Economics) classes started on 10 April 2012. Following the successful completion of the first 13 batches of students of the Master of Economics (Environmental Economics), the students of the 14th batch are now in their 2nd semester while the admission for the 15th batch is now underway. In the meanwhile, DScE also has started another two postgraduate programmes: Master of Economics (MEcon) in Development Economics from the academic year 2013-14 and Master of Economics (Entrepreneurial Economics) programme from session 2017-18. Under the development economics programme, 12 batches have already been admitted; of which ten have successfully completed their programme. Under the Entrepreneurial economics programme, 8 batches have already been admitted; of which six have successfully completed their programme. In line with DScE's success in postgraduate studies and to meet the increasing demand for trained manpower in the field of environmental and resource economics, the school has started a specially designed undergraduate programme in *Environmental and Resource Economics* for the first time in South Asia from the academic session 2015-16. This is the 11th batch of students the school is going to admit under this programme after 10th batches of students have been admitted in the academic sessions 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21, 2021-22, 2022-23, 2023-24 and 2024-25.

The school has also started another two specialized Bachelor programmes in Development Economics and Entrepreneurial Economics.

DScE focuses on the application of theoretical, methodological and applied research-oriented approaches so that the students can acquire in-depth knowledge and understanding of the subjects studied. As a result, the students can confidently apply the knowledge and experiences gained in their respective fields to cope with the fast-changing circumstances of grow

economy and an evolving society like Bangladesh. Special focus, thus, is given on applied economics, along with computer applications, besides endowing students with a strong theoretical understanding on the courses taught.

In addition to formal class lectures, the school also organizes regular seminars, extension lectures and open discussions on various issues of contemporary interests, including socioeconomic, environmental and other multidisciplinary issues with strong involvement of students, scholars and faculty members. This helps the students/scholars to improve their knowledge and practical understanding on diverse economic and related issues through interaction with a large number of specialists and experts from home and abroad from various fields.

Other masters and research degree programmes, including MPhil and PhD, shall be introduced in phases. Specialized diploma and certificate programmes may also be introduced in the coming years.

1.2 Research Programme

Dhaka School of Economics (DScE) cherishes the philosophy of ‘spreading advanced teaching and research in economics’ for a fast-growing economy like Bangladesh to deal with the challenges the country is increasingly facing in relation to the production of quality graduates and economists. In this regard, research and evidence-based teaching are given very high emphasis.

The focus of DScE’s applied economics research programme is to contribute to poverty eradication through multi-directional and multi-disciplinary applied research and giving special emphasis on relevant subjects. Climate change, environment, water and other emerging development challenges are given proper attention. Currently, a multi-dimensional and interdisciplinary research programme is being developed, where such concerns will be given special emphasis through research. DScE’s research programmes are largely led by its faculty members, with valuable support and guidance from Dr. A. K. Enamul Haque, who serves as Chairman of both the Governing Body and the Academic Council.

Several research projects have been carried out by DScE since the beginning of its academic activities.

Besides these, a number of other research project proposals are currently being developed by Dhaka School of Economics under its multi-disciplinary research programme.

1.3 Library

DScE has set-up its own modern library and has procured a considerable number of important textbooks, reference books, research publications and periodicals from home and abroad. The School has given the highest priority on purchase of quality books. A good collection of text and reference books on environmental and development economics, including the most widely referred and recent textbooks, are also available in the DScE Library. It has also successfully collected sufficient digital resources, including access to numerous journals on economics, environmental economics and other disciplines of social sciences, on-line books and other study materials suitable for students and researchers. In addition, the School has secured access to over 500 refereed journals of economics, environment and development studies.

1.4 Data Centre

Data deficiency, unavailability of data in required formats and limited access to data as required for various purposes are some of the major problems in conducting research and policy analysis in most developing countries, including Bangladesh. To overcome such challenges and to create an atmosphere for more economic research and analyses, DScE has started to establish a state-of-the-art data bank. Data on various socio-economic, environmental and other development indicators will be collected, analyzed, categorized and stored. Apart from this, important secondary data will also be organized, stored and made available to all in a user-friendly way so that interested researchers can conduct research and policy analysis much hurdle. The school may also try to explore the possibility of joining with other similar institutes and organizations that work on data and get access to their data resources.

It is expected that besides DScE's own students, faculty members and researchers, other economists, policy makers, researchers, investors and freelance researchers from Bangladesh would be benefited from the data bank through user-friendly data accessibility on issues of diverse economic interests.

1.5 Governing Council of DScE

Dr. A K Enamul Haque, Chairman of GB

Director General
Bangladesh Institute of Development Studies (BIDS)
E-17 Agargaon, Sher-e- Bangla Nagar, Dhaka-1207, Bangladesh.

Rehana Parvin, Member Secretary of GB

Director
Dhaka School of Economics
4/C, Eskaton Garden Road
Dhaka – 1000.

Dr. Firdousi Nahar, Member of GB (Educationist)

Professor
Department of Economics
University of Dhaka
Dhaka-1000.

Shabnaz Amin, Member of GB (Educationist)

Professor
Department of Finance
University of Dhaka
Dhaka-1000.

Dr. Shamsun N. Ahmed, Member of GB (Representative from Academic Council)

Professor (Retd)
Department of Economics
University of Dhaka
Dhaka-1000.

Dr. Serajul Hoque, Member of GB (Representative from Academic Council)

Professor
Department of Marketing
University of Dhaka
Dhaka-1000.

Dean

Faculty of Social Sciences
University of Dhaka, Dhaka – 1000.

Joint Secretary (University Wing-2)

Secondary and Higher Education Division
Ministry of Education

Dr. Narayan Chandra Sinha, Member of GB (Teacher Representative)

Associate Professor
Dhaka School of Economics
4/C Eskaton Garden Road
Dhaka-1000.

Tonmoy Chowdhury, Member of GB (Teacher Representative)

Assistant Professor
Dhaka School of Economics
4/C Eskaton Garden Road

Dhaka-1000

PART-II: ABOUT THE BACHELOR OF SOCIAL SCIENCES (HONOURS) IN ENVIRONMENTAL AND RESOURCE ECONOMICS PROGRAMME

The overwhelming demand for the Master of Economics in Environmental Economics programme of Dhaka School of Economics (DScE) since the beginning of its academic programme started in 2012 has inspired the institution to come up with this new specialized bachelor programme in environmental and resource economics. As a result of sustained GDP growth over the past several years Bangladesh economy is now doing very good in many respects. The international community now considers Bangladesh as a highly prospective economy, which has enormous possibilities in the coming decades. Bangladesh a middle-income earning country by 2021 already is a reality, while by 2041 it aspires to become a developed country. In the eyes of the international community, the country has enormous possibilities in the years to come. Despite that, the challenges before the country are also tremendous. This programme has been developed with the realization of a growing demand for trained manpower in the area of environmental and resource economics in this age of sustainable development by the country's vibrant economy. The rapidly declining state of the environment in the country also demands specialized manpower to deal with these challenges.

A growing population and the need for ensuring quality education for them; political instability; climate change; loss of arable land, forests and wetlands; unhealthy urban environment; widespread air, water and noise pollution; loss of biodiversity, depletion of groundwater layers, fall in river flows during dry season, destruction of ecosystems, etc. are some mentionable challenges the country needs to address in its drive towards higher economic growth and development. A paradigm change in our overall development policy, planning and execution is thus warranted to face this reality. Besides the need for trained policy makers and bureaucrats, the country also requires expert manpower around environmental and resource economics for participation in planning and executing development plans and policies to realize the full economic possibilities in the years to come. In this backdrop, this programme has been designed to create human capabilities aimed at fulfilling this requirement.

This four-year (eight semesters) long programme is designed to carry a total of 136 credit hours. The programme comprises courses on core areas of both basic economics, environmental and resource economics, and quantitative techniques. In addition, a number of courses, which are

multidisciplinary in nature but important to this discipline, are also included. For anyone to become a graduate in this discipline, a total of 136 credits must be completed.

It is expected that upon completion of this programme, a student will have acquired advanced theoretical and methodological knowledge and understanding on environmental and resource economics with academic depth and professional skills, which will enable her/him to understand the nature of the environmental challenges, deal with them in an appropriate manner from both theoretical and practical points of view.

2.1 Salient Features of the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme

The Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme of Dhaka School of Economics has the following major features:

- ◆ Total 136 credits; while each semester carries 17 credits. This includes 4 taught courses units and a 1.0 credit viva voce at the end of every semester.
- ◆ Total 8 semesters spanning over a period of 48 months (4 years), and the semester's duration is 6 months.
- ◆ For the successful completion of this programme, a student needs to study a total of 136 credits.
- ◆ For the 8th semester, selected students will get a chance to opt for writing dissertation but is subject to securing a minimum CGPA of 3.75 in a 4.0 scale from the 1st to the 7th Semester of their studies. Others will be offered an optional course instead (C-411: Project Planning and Evaluation). In certain exceptional cases, DScE may lower the CGPA criterion and offer dissertation to any student upon an approval from its examination committee after receiving a written request from the Programme Coordinator.
- ◆ For a 4.0 credit course, there will be two one and half hours (90 minutes) lectures per week. In addition, there shall be a 90-minute equivalent tutorial/discussion/lab work/group presentation/class test.
- ◆ English is the medium of instruction at DScE.

2.2 Eligibility Criterion & Admission for Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme

For admission to the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme of Dhaka School of Economics for the Session 2024-25, the School has

set up the criterion that a candidate should have completed SSC/Dakhil/O level or equivalent examinations of 2020 to 2023 and HSC/Alim/A Level or equivalent examinations of 2024 and 2025 securing a minimum combined score of 6.0 or an equivalent certificate from any recognized education board of Bangladesh or abroad in any discipline (i.e. science, humanities, commerce or business studies). O and A level candidates must have at least 5 subjects in the O level and 2 subjects in the A level examination with a minimum of B in 4 and C in 3. Preference will be given to those who either studied mathematics or economics in HSC/Alim/A level or equivalent examinations. DScE reserves the right to choose or change its admission criterion for this programme.

2.3 Selection Process

The selection criterion comprises both written tests and interview from the short listed candidates. The short listing will be done on the basis of candidates' performances in the SSC/Dakhil/O level or its equivalent and HSC/Alim/A level or its equivalent examinations. The admission test may include both MCQ and short answer type questions, including focus writing, problem solving, quantitative understanding (i.e. statistics and mathematics) and basic knowledge on elementary/common/contemporary environmental issues of local, regional and international issues of interests. Based on the outcomes of written test, shortlisted candidates will be called for a viva voce for the final selection. Dhaka School of Economics (DScE) reserves the right to change its admission procedure/criterion without any prior notice and may consider taking both written test and viva voce or one of them for the two for the selected of students into this programme. Any decision made by DScE shall be the final one.

2.4 Evaluation and Grading¹ System

Evaluation and grading for all taught courses (except for the dissertation² and viva voce/presentation) shall be determined as per the rules of Dhaka School of Economics (DScE). These include:

¹ This section is prepared following the guidelines of the Faculty of Social Sciences of the University of Dhaka (DU) for its undergraduate programmes. Any change in the examination rules by DU and applicable to its constituent institutions shall also be applicable to DScE. For any ambiguity, DScE shall follow the rules of examinations sets out by the University of Dhaka for its Faculty of Social Sciences.

² For the evaluation of dissertation, 50% marks is reserved for internal assessment which is based on a student's synopsis development and presentation (20 marks), presentation of her/his research outcomes in pre submission seminar (20 marks) and supervisor's report to the Programme Coordinator (10 marks). Another 50% marks is based on external evaluation of dissertation.

- Semester final examination
- Term paper/assignment and presentation
 - Class attendance and
- Active participation in class/tutorial/group discussion and class tests, etc.

Figure-2.4.1: Distribution of Marks for Evaluation of the Taught Courses for the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme is as follows:

<i>Evaluation Criterion</i>	<i>% of Marks</i>
Class Attendance	10
Active participation in class discussion/tutorial class/group discussion and class test	20
Submission of term paper/assignment and presentation	20
Semester final examination	50
Total	100

For each course, the average marks awarded in the semester final examination and the sessional marks awarded by the course teacher(s) for class attendance, term papers and assignments and class performance based on active participation in classroom discussions, tutorial classes and class tests shall be totaled and converted into equivalent letter grades following a 4-point grading scale shown below:

Figure-2.4.2: Grading Structure for the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme of DScE:

<i>Mark Range (in %)</i>	<i>Letter Grade</i>	<i>Explanation</i>	<i>Grade Point</i>
80 and above	A+	Excellent	4.00
75 to less than 80	A		3.75
70 to less than 75	A-		3.50
65 to less than 70	B+	Very Good	3.25
60 to less than 65	B		3.00
55 to less than 60	B-		2.75
50 to less than 55	C+	Good	2.50
45 to less than 50	C		2.25
40 to less than 45	D	Passing	2.00
Below 40	F	Failing	0.00
.....	I		<i>Incomplete</i>
.....	W		<i>Withdrawal</i>

- An ‘F’ grade is indicative of an unacceptable ‘failing’ performance overall by a student, i.e. fail to earn any credit. If a student, in certain exceptional cases, fails to appear a course final examination (maximum two courses in a single semester) and if the Examination Committee recommends her/his case to the University of Dhaka, then the case will be considered as ‘F’ grade. In such a case, a student shall be required to appear the semester final examination for the course(s) she/he fails with the next batch without fine for every course she/he appears (upto two courses maximum in a single semester).
- ‘I’ grade is indicative of a situation where a student, for any non-academic reason beyond his control, is unable to complete the full requirements of the course for not being able to sit for the semester final examination. With the submission of valid and authenticated evidence of such reason(s), and the recommendation of the course teacher (to be reported to the Chairman of Examination Committee via the Programme Coordinator), that particular student shall be allowed to complete the semester final examination with the next batch. Meanwhile, the student concerned will be promoted to the next semester if she/he meets the minimum passing grade. If an ‘incomplete’ grade (Grade ‘I’) is not cleared with the next batch, the ‘I’ grade shall automatically be changed into an ‘F’ grade (fail). A maximum of two ‘I’ grades shall be allowed to a student in one semester. In such a case, a student shall be required to pay the normal fee without fine for every course she/he appears (upto two courses maximum in a single semester).
- ‘W’ grade (withdrawal) shall be awarded when a student is permitted to withdraw/drop a course/semester. In such a case, a withdrawal without fine is not permitted after two months of any semester started. A student may take re-admission in the semester concerned with the next batch by paying the full fees for that semester.

2.5 Promotion / Improvement/ Readmission/ Drop-out Policies³

Promotion

- For promotion from the first to second semester, a student shall have to earn a minimum SGPA of 2.00, excluding the viva voce.

³This part is prepared in line with the guidelines of the Faculty of Social Sciences of the University of Dhaka (DU). Any change in the guidelines of the University of Dhaka will be applicable to Dhaka School of Economics (DScE). For any ambiguity in DScE’s examination rules, the School shall follow the examination rules set out by the University of Dhaka for its undergraduate programmes under the Faculty of Social Sciences. In no situation, a student shall be allowed to claim any undue benefit (grade and promotion related benefits) which are not permitted under the examination rules of the University of Dhaka.

- For promotion from the second through the final semester, a student shall have to earn a minimum CGPA of 2.25, taking into consideration all the grade points earned in total number of courses of first through the final semester and improved grade, if any, excluding the viva voce examinations⁴.
- A student failing to clear up the annual University of Dhaka and DScE dues of the year of the study shall not be promoted to the next semester, as prescribed.

Improvement/Repeat

- A student earning 'F' grade in any course shall be allowed to improve the grade with the next batch without fine.
- If a student obtains a grade lower than 'B-' (B Minus) in a course, she/he shall be allowed to repeat the semester final examination only once with the immediate next batch for the purpose of grade improvement by forgoing her/his earlier term final marks. In such a case, sessional marks earned by the student shall be remained same and only the semester final grade can be improved.
- If a student obtains 'B-' (B Minus) or better grade in any course, she/he shall not be allowed to repeat the course for the purpose of grade improvement.
- If a student likes to improve the grade point earned in a course of the 8th semester (in case, if she/he scores less than B Minus in a course), she/he must apply for such improvement examination before the certificate is issued. In such a case, a student shall be allowed to appear the grade improvement examination within the next 45 days of publication of the final result. In such a case, a student shall be required to inform DScE in written her/his intension to improve the grade within 7 days of the publication of her/his final result.
- Improvement shall not be allowed once the certificate is issued.
- A student carrying 'F' grade in any course shall not be awarded the degree unless she/he improves it by appearing at the final semester examination with the next batch.
- If a student gets 'F' grade in the improvement examination, she/he shall automatically be dropped out from the semester and the student shall have to take re-admission with the next batch, provided the student concerned is eligible for re-admission.

⁴ Any change in this context by the University of Dhaka will be considered the final.

- For improvement of grade in a course, the student shall apply to the Chairman of the concerned examination committee at least 4 (four) weeks before the start of semester final examination.
- A student shall be allowed to improve the grade of a particular course only once.
- No student shall be allowed to improve the grade of any term paper/assignment, active participation in the class discussion/tutorial class/ group discussion/class test marks and the grade earned in the written or oral (if any) comprehensive examination i.e. no improvement shall be allowed for sessional marks/grades once awarded to a student for any course in a semester, but semester final examination can be improved if requires.

Re-admission

- A student failing to get the necessary grade points for promotion from one semester to the next may seek re-admission to with the following batch.
- For re-admission, a student shall have to apply within one month after the announcement of the result of the concerned semester.
- On re-admission, grades earned earlier by a student in the class of re-admission shall cease to exist and the student has to retake all the course works and examinations.
- A student shall not be allowed re-admission in more than two semesters during the total time span (48 months) of the Bachelor of Social Sciences (Honours)in Environmental and Resource Economics programme.

Drop Out

- A student failing to earn the GPA for promotion from one semester to the next after taking the re-admission in any semester shall be dropped out from the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme.
- A student earning 'F' grade in any course after taking re-admission or improvement examination(s) in any semester shall be considered dropped out from that semester.

2.6 Fee Structure of the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme:

(Effective from 2026 until further order)

The fee structure for the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme by Dhaka School of Economics for the students to be admitted in the academic session 2025-26 is as follows:

Sl. No.	Particulars	Amount (in BDT)			
		Admission & 1 st Semester	2 nd Semester	3 rd - 8 th Semester (Each Semester)	Total
A	University of Dhaka (DU) (Subject to change on basis of DU decisions)				
	Registration fee	2,000.00	0.00	0.00	2,000.00
	Examination fee	3,000.00	3,000.00	3,000.00	24,000.00
	Transcript	450.00	450.00	450.00	3,600.00
	Examination entry fee	100.00	100.00	100.00	800.00
	Sub-total	5,550.00	3,550.00	3,550.00	30,400.00
B	Dhaka School of Economics (DScE)				
	Admission fee	10,000.00	0.00	0.00	10,000.00
	Tuition fee	46,080.00	46,080.00	46,080.00	3,68,640.00
	Library fee	2,500.00	2,500.00	2,500.00	20,000.00
	Computer lab fee	2,500.00	2,500.00	2,500.00	20,000.00
	Session charge	4,000.00	4,000.00	4,000.00	32,000.00
	Examination Center fee	2,000.00	2,000.00	2,000.00	16,000.00
	Library caution money (refundable)	0.00	2,000.00	0.00	2,000.00
	ID card	160.00	0.00	0.00	160.00
	Sub-total	67,240.00	59,080.00	57,080.00	4,68,800.00
C	Grand total (A+B)	72,790.00	62,630.00	60,630.00	4,99,200.00

2.7 Course Structure of Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme

A semester-wise course outline with credit allocation for this eight-semester undergraduate programme is presented below:

Semester	Course No	Course Title	Credits
Semester I First Year	C-101	Principles of Microeconomics	4.0
	C-102	Mathematics for Economics I	4.0
	C-103	Environmental Studies	4.0
	C-104	English Language Skills	4.0
	C-105	Viva Voce	1.0
	First Semester Total Credits		
Semester	Course No	Course Title	Credits
Semester II First Year	C-106	Principles of Macroeconomics	4.0
	C-107	Statistics for Economics	4.0
	C-108	Bangladesh Economy	4.0
	C-109	Studies in Disaster Management	4.0
	C-110	Viva Voce	1.0
	Second Semester Total Credits		
Semester	Course No	Course Title	Credits
Semester III Second Year	C-201	Advanced Microeconomics	4.0
	C-202	Mathematics for Economics II	4.0
	C-203	Development Economics	4.0
	C-204	Principles of Sociology	4.0
	C-205	Viva Voce	1.0
	Third Semester Total Credits		

Semester	Course No	Course Title	Credits
Semester IV Second Year	C-206	Advanced Macroeconomics	4.0
	C-207	Environmental Economics- Theories and Practices	4.0
	C-208	Environmental Statistics	4.0
	C-209	Agricultural and Rural Economics	4.0
	C-210	Viva Voce	1.0
	Fourth Semester Total Credits		

Semester	Course No	Course Title	Credits
	C-301	Public Finance and Welfare Analysis	4.0

Semester V Third Year	C-302	Resource Economics	4.0
	C-303	Energy Economics	4.0
	C-304	Economics of Sustainable Development	4.0
	C-305	Viva Voce	1.0
	<i>Fifth Semester Total Credits</i>		17.0

Semester	Course No	Course Title	Credits
Semester VI Third Year	C-306	Ecological Economics	4.0
	C-307	International Trade and Environment	4.0
	C-308	Econometric Methods for Economics	4.0
	C-309	Environmental Impact Assessment	4.0
	C-310	Viva Voce	1.0
	<i>Sixth Semester Total Credits</i>		17.0

Semester	Course No	Course Title	Credits
Semester VII Fourth Year	C-401	Economics of Environmental Valuation	4.0
	C-402	Economics of Climate Change	4.0
	C-403	GIS for Natural Resource Management	4.0
	C-404	Research Methodology for Economics	4.0
	C-405	Viva Voce	1.0
<i>Seventh Semester Total Credits</i>		17.0	

Semester	Course No	Course Title	Credits
Semester VIII Fourth Year	C-406	Environmental Policy Analysis	4.0
	C-407	Labour Economics	4.0
	C-408	Computer Applications in Economics	4.0
	C-409*	Dissertation	4.0
	C-410	Viva Voce	1.0
	C-411*	Project Planning and Evaluation	4.0
	<i>Eighth Semester Total Credits</i>		17.0

* Selected students will be offered the option of writing dissertation purely based on their average grades earned from the first to the 7th semester of their studies. Others have to opt for the alternative course offered instead (C-411).

2.8 Syllabus of Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme

The Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme is designed to provide students with both theoretical and applied training in environmental and resource economics to face the growing demand for trained graduates in the

area of economics of the environment. Besides, a special focus of the programme is to understand and analyze diverse development and environmental challenges that Bangladesh as well as the South Asian region are currently facing to understand economic approaches to resolve them. It is expected that upon completion of this programme, a student is expected to develop the required theoretical approaches and quantitative analytical skills to deal with such challenges with efficiency. Semester-wise syllabus, course curricula and basic references are given below:

First Semester

C-101: Principles of Microeconomics

Course Contents:

1. *Nature and Scope of Economics*: Definition of Economics; Economic Problems- Scarcity, Choice, Opportunity Costs and Trade-Offs; Scope of Economics, Types of Economics; Microeconomics vs. Macroeconomics, Positive vs. Normative Economics, Subject Matters of Microeconomics.
2. *Demand, Supply and the Equilibrium*: The Law of Demand, the Demand Curve, Individual and Market Demand, Factors Affecting the Demand Curve, Shifts vs. Movement along the Demand Curve, Elastic and Inelastic Demand; the Law of Supply, the Supply Curve, Factors Affecting the Supply Curve, Shifts vs. Movement along the Supply Curve; Interaction of Demand and Supply: Equilibrium, Effect of a Shift in Demand or Supply or both, Effect of a Tax or a Subsidy, Price Controls; Elasticity, Types: Price Elasticity of Demand, Price Elasticity of Supply and Income Elasticity, Applications of Elasticity.
3. *Consumer Behavior*: Utility and Choice, Marginal Utility, Diminishing Marginal Utility, Equi-marginal Principle, Indifference Curves and their Properties, Budget Sets, Equilibrium of the Consumer with Indifference Curves and Budget Sets, Income and Substitution Effects, Deriving the Demand Curve from the Indifference Curves and Budget Sets, Complements and Substitutes, Consumer surplus.
4. *Theory of Firm*: Production: Concept of a Production Function, Total, Average and Marginal Product, the Law of Diminishing Returns, Returns to Scale; Cost: Fixed and Variable Cost, Total, Average and Marginal cost, Short Run and Long Run Costs; Revenues: Total, Average and Marginal Revenue; Decision of a Firm: Isoquants, Isocosts and the Least Cost Combination, Equating Marginal Revenue with Marginal Cost.

Suggested References:

- Pindyck, Robert S; Rubinfeld, Daniel L. and Mehta, Prem L., 2009. Microeconomics, Pearson, 7th Edition.
- Arnold, R A., 2007. Economics, South Western Publishing Company, 8th Edition.
- Samuelson P A and W D Nordhaus, 2005. Economics, McGraw-Hill USA, 18th Edition.
- Varian, Hall R., 2009. Intermediate Microeconomics: A Modern Approach, W. W. Norton & Company, 8th Edition.
- Mankiw, NG, 2006. Principles of Economics, Thomson South Western Publishing, 4th Edition.

C-102: Mathematics for Economics I

Course Contents:

1. *Economic Models*: Variables, Constants, Parameters, Equations, Identities, the Real Number System, the Concept of Sets and Operations on Set, Equations, Functions, Types of Functions, Graphs, Slopes and Intercepts.
2. *The Derivative*: Rules of Differentiation, First Derivative, Second Derivative and Convexity, Higher Order Derivatives, Limits, Partial Differentiation, Maxima and Minima; Functions of Several Variables and Partial Derivatives; Exponential Functions and Logarithmic Functions; Rules of Differentiation; Total Differential, Rules of Differentials, Total Derivative.
3. *Constrained and Unconstrained Optimization*: Rules of Unconstrained Optimization; Economic Applications of Unconstrained Optimization, Optimization of Cobb-Douglas Production Functions, Profit Maximization; First and Second Order Conditions, Lagrange Multiplier, Economic Applications, Constrained Optimization of CES Production Function; Economic Applications, Constrained Optimization of CES Production. Function, Utility Maximization, Cost Minimization, Indirect Utility Functions.
4. *Matrix*: Matrices and Vectors, Matrix Operations, Kronecker Products, Commutative, Associative and Distributive Laws, Identity and Null Matrices; Determinants and Non-singularity, Minors and Cofactors, Properties of a Determinant, Properties of Transposes, Inverses and their Properties, Inverse Matrix and Solution of Linear Equation System, Cramer's Rule for Matrix solutions, Economic Applications.
5. *Integral Calculus*: The Indefinite Integral: Rules of Integration, Integration by Substitution, Integration by Parts, Economic Applications; The Definite Integral: The Fundamental Theorem of Calculus, Properties of Definite Integral, Area between Curves, Improper Integrals, Economic Application, Domar Growth Model.

Suggested References

- Dowling, E. T., 2001. Theory and Problems of Introduction to Mathematical Economics, Schaum's Outline Series, 3rd Edition, McGraw-Hill.
- Chiang A C. and K. Wainwright, 2005. Fundamental Methods of Mathematical Economics, 4th Edition, McGraw-Hill.
- Hoy, M. et al., 2011. Mathematics for Economics, 3rd Edition. The MIT Press, Cambridge, Massachusetts.
- Simon, C. P. and L. Bloom, 1994. Mathematics for Economists, Viva Books Limited, India.

C-103: Environmental Studies

Course Contents:

1. *The Multidisciplinary Nature of Environmental Studies*: Definition, Scope and Importance of Environmental Studies; the Need for Public Awareness and Environment and Its Components.
2. *Natural Resources*: Concepts and Types of Natural Resources; Renewable and Non-renewable Natural Resources; Natural Resources, Associated Problems and Need for Management: Forest Resources, Water Resources, Mineral Resources, Energy Resources and Land Resources; Role of Individuals in Conservation of Natural Resources; Natural Resources and Sustainability.
3. *Ecosystems*: Concept of an Ecosystem; Structure and Functions of an Ecosystem; Types of an Ecosystem; Functional Components of an Ecosystem: Producers, Consumers and Decomposers; Energy Flow in the Ecosystems; Food Chains, Food Webs and Ecological Pyramids; Different Ecosystems: Forest, Grassland, Desert, Aquatic, etc.
4. *Biodiversity and Its Conservation*: Definition of Biodiversity; Types of Biodiversity: Genetic, Species and Ecosystem Diversity; Value of Biodiversity: Economic, Cultural, Social, Educational, etc.; Biodiversity Hotspots of Bangladesh; Degradation of Biodiversity: Causes and Consequences; Endangered and Endemic Species of Bangladesh; Conservation of Biodiversity: In situ and Ex situ Conservation.
5. *Environmental Pollution*: Introduction; Causes, Types, Effects and Control Measures of Different Types of Pollutions: Air Pollution, Water Pollution, Soil Pollution, Noise and Sound Pollution, Thermal Pollution and Nuclear hazards; Pollution and Solid Waste Management; Climate Change: Causes, Consequences and Measures to Control the Impacts of Climate Change; Case Studies on Different Types of Pollutions Facing by Bangladesh; Role of Individuals in Pollution Control.

Suggested References

- Bharucha, Erach, 2011. Textbook of Environmental Studies for Undergraduate Courses, University Grants Commission (India), Universities Press (India) Pvt. Limited, Hyderabad, India.
- Basak, Anindita, 2009. Environmental Studies, Pearson Education in South Asia, New Delhi, India.
- Rajagopalan, R., 2011. Environmental Studies: From Crisis to Cure, 2nd Edition, Oxford University Press, New Delhi, India.

C-104: English Language Skills

Course Contents:

1. *Formation of Words and Sentences:* Affixes, rules of syntax, use of participles and of to-infinitives, sequences of tenses.
2. *Use of Words and Phrases:* Phrases, group of verbs, use of modals, sentences connectors.
3. *Vocabulary Enrichment:* Content words (which appear in more than one form e.g. able-ability-enable-ably) and their use in sentences, appropriate prepositions, single word for a group of words (e.g. incapable of being admitted –inadmissible).
4. *Construction of Sentence:* Sentence structure, transformation of sentences, conditional sentences.
5. *Comprehension:* Seen and Unseen Compositions; Reading Comprehension.
6. *Writing Practices:* Writing Paragraph, Story Writing, Agreement and Disagreement in Short Answers, Dialogue Writing; Report writing

Suggested References

- A.J. Thomson and Martinet, 1986. A Practical English Grammar, Oxford University Press, 3rd Edition.
- Wren, P C., 2008.High School English Grammar and Composition, Chand and Company.
- A.S.Hornby, 1954.A Guide to Patterns Usage in English, Oxford University Press.
- Harold E. Palmer, Latest Edition.A Grammar of English Words, Prentice Hall Press.

C-105: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Second Semester

C-106: Principles of Macroeconomics

Course Contents:

1. *Introduction*: Definition of Macroeconomics, Difference between Microeconomics and Macroeconomics, Macroeconomic Variables, Subject Matters of Macroeconomics, Objectives and Instruments of Macroeconomics.
2. *National Income Accounting*: Concept of National Income Accounting; Differences between: Gross and Net, Domestic and National, Market Price and Factor Cost, Real and Nominal; Methods of Measuring National Income: Value Added/Production Method, Expenditure Method and Income Method; Problems of National Income Accounting; Importance of National Income Accounting; GNP as an Indicator of Economic Welfare; Concept of Circular Flow of Income and Expenditure in a Two, Three and Four Sector Economy; Price Deflators, GDP and its Components: Consumption, Investment, Government Expenditure, Net Exports.
3. *Income and Employment Determination*: Output and Employment; Aggregate Demand and Supply; Equilibrium Level of Output and Income; the Classical Theory of Income and Employment Determination: the Say's Law; Savings-Investment Equality; Wage-Price Flexibility; Changes in Equilibrium Output and Employment in the Classical Framework; Criticisms of the Classical Model: the Great Depression; Keynes' criticism of the classical model; the Keynesian Theory of Income, Employment; Concept of Multiplier.
4. *Consumption and Investment Demand*: Consumption Function; Savings Function; Concepts of MPC, MPS and APS; Short Run and Long Run Consumption Function; Reconciliation of the Short Period and Long Period Consumption Functions; Income Hypotheses: Relative Income, Permanent Income, Life Cycle and Absolute Income Hypothesis; Concept of Investment Function; Gross and Net Investment; Induced and Autonomous Investment; Business Fixed Investment; Residential Investment; Changes in Inventories; Concepts of MEC and MEI.

Suggested References

- Mankiw, G. N., 2012. Macroeconomics, 8th Edition, Worth Publishers, Inc.
- Barro, R. J., 1997. Macroeconomics, 5th Edition, the MIT Press.
- Vaish, M C, 2000. Macroeconomic Theory, 12th Revised Edition, Vikas Publishing House Pvt. Limited, New Delhi, India.
- Dornbusch, Rudiger; Stanley Fischer and Richard Startz, 2010. Macroeconomics, 11th Edition, McGraw Hill/Irwin.
- Andrew B. Abel, Ben S. Bernanke, 2009. Macroeconomics, 5th Edition, Pearson Education, Inc.
- M.L. Jhingan, 2012, Macro Economic Theory, 12th Edition, Varinda Publications (P) LTD.

C-107: Statistics for Economics

Course Contents:

1. *Introduction to Statistics*: Meaning of Statistics, Scope and Limitations of Statistics, Application of Statistics in Different Disciplines, Uses and Abuses of Statistics, Concepts of Descriptive and Inferential Statistics.
2. *Statistical Concepts and Data Collection*: Data, Data Set and Sources of Data- Primary and Secondary Data, Population, Sample, Random Sample, Parameter, Statistic, Variables and Types of Variable - Qualitative and Quantitative Variable, Discrete and Continuous Variable, Scales of Measurements, Classification of Variable by Scales of Measurements, Primary Data, Secondary Data, Different Sampling Techniques.
3. *Descriptive Statistics*: Tabular and Graphical presentation: Summarizing Categorical Data, Summarizing Quantitative Data, Exploratory Data Analysis, Cross Tabulation and Scatter Diagram; Numerical Measures: Measures of Location, Measures of Variability, Measures of Distribution Shape, Relative Location, and Detecting Outliers, Five Number Summary, Boxplot, Correlation and Covariance and weighted mean and working with grouped data.
4. *Theory of Probability*: Random variables, Probability axioms, experiment, events, sample space, event space and probability space, Discrete and Continuous probability distributions, Elementary theorems on probability, prior and posterior probability and Baye's theorem.
5. *Inferential Statistics*: Estimation of Parameters: Point estimation and Interval estimation, properties of a good point estimator, Maximum Likelihood Estimation, Least Square Estimation and the Bay's Estimation Procedure; Test of Hypothesis: Developing Null and Alternative Hypotheses, Different Parametric and Non-parametric Tests of Hypotheses.
6. *Simple Linear Regression*: Simple Linear Regression Model, Least Squares Method, Coefficient of Determination, Model Assumptions, Testing for Significance, Residual Analysis.
7. *Index Numbers*: Price Relatives, Aggregate Price Indices, Consumer & Producer Price Index, Deflating, Splicing, Base Shifting.
8. *Time Series and Forecasting*: Different Types of Time Series Pattern, Decomposition methods, Moving Average and Exponential Smoothing, Seasonality and Trend.

Suggested References

- Spiegel, Murray R (2003). *Theory and Problems of Probability and Statistics*, McGraw Hill Inc. New York.
- Anderson, D. R., Sweeney, D.J.; Williams, T.A. (2011). *Statistics for Business and Economics*, 11th edition, South Western-Cengage Learning.
- Newbold, P., Carlson, W. L. and B. Thorne (2006). *Statistics for Business and Economics*, Prentice Hall.
- Jain, D. and B. Jhunjhunwala (2006). *Business Statistics*, Tata McGraw-Hill Inc. New York.
- Gupta, S. P. and M. P. Gupta (2006). *Business Statistics*, 14th Enlarged Edition, Sultan Chand and Sons, New Delhi, India

C-108: Bangladesh Economy

Course Contents:

1. *Economic History of Bangladesh*: Pre-Mughal Period, Mughal Period, British Period, Pakistan Period.
2. *Emergence of Bangladesh*: The Freedom Movement and the Independence War, Economic, Social and Cultural Backdrops against the Independence War.
3. *Agriculture in Contemporary Bangladesh Economy*: Growth; Farm size and tenancy structure; Landlessness and impact on production; Employment and income; Pricing and marketing of agro-products; Subsidy policy; Problems of agricultural development; Structural development; Seed, fertilizer, and irrigation technology.
4. *Industry in Contemporary Bangladesh Economy*: Industrial background and growth; Structure of industrial sector and thrust sub-sectors; Labour force and employment; Role of public and private sectors in industrial development; Capital supply; Industrial policy; FDI; Decentralization.
5. *Banking and Financial Sector in Contemporary Bangladesh Economy*: Bangladesh Bank; Commercial Banks of Bangladesh; Problems of Banking; Share Market and Its Problems.
6. *Role of External Sector for Contemporary Bangladesh Economy*: External Sectors: Roles, Problems, and Policy Reforms.
7. *Major Strengths and Challenges for Contemporary Bangladesh Economy*: Strengths of Bangladesh Economy: Demographic Dividend and Population, Increasing Local and Expanding Global Markets for Bangladeshi Products, a Sound Economy and Attainment of Sustained Growth; Challenges: Political Instability, Weak Infrastructure and Communications facilities, Corruption and Lethargic Bureaucracy, Climate Change, Pollutions and Environmental Degradations.

Suggested References

- A M A Mohit, 1992. Bangladesh: Emergence of a Nation, University Press Ltd, Dhaka.
- Rashid, Selim, 1995. Bangladesh Economy, the University Press Limited, Dhaka.
- M. Hossain, 1988. Green Revolution in Bangladesh-Problems, Policies and Prospects
- H.Z. Rahman and M. Hossain, 1995. Rethinking Rural Poverty- Bangladesh as a Case Study, UPL.
- A. L. Malabre Jr., 1998. Understanding the New Economy, IRWIN, ILLINOIS.
- Planning Commission, Govt. of Bangladesh, Five Year Plan -Various Issues.
- Planning Commission, Govt. of Bangladesh, Economic Review-Variou Issues.
- Statistics Department, Bangladesh Bank, Economic Trends-Variou Issues.

C-109: Studies in Disaster Management

Course Contents:

- *Introduction:* Disaster: Definition, Factors and Significance; Difference between Hazard and Disaster Risk- Vulnerability Relationship, Natural and Manmade Disasters: Difference, Nature, Types and Magnitude.
- *Hazards, Risks and Vulnerability Assessment:* Process and Techniques of hazard and Risk Assessment, People's Participation in Risk Assessment (CRA); Vulnerability Identification and assessment, Socio-economic Factors of Vulnerability, Vulnerability and Capacity Analysis (CVA), Environmental Impact Assessment, Social Impact Assessment (if time allows).
- *Theories and Approaches to Disaster Management:* Development of Disaster related Theories, Major Approaches and Theories of Disaster Management.
- *Disaster Mitigation and Preparedness Management:* Structural and Non-structural Mitigation, Components of Preparedness, Disaster Management Plan Governmental and Community Preparedness, Institutional Preparedness (school, hospital, airport, business, etc.)
- *Responses to Disasters:* Information Management and Early Warning, Evacuation Planning, Shelter /Site Management, Need Assessment, Relief, Core Standard of Humanitarian Response, Role of National and International Agencies in Disaster Management.
- *Disaster Inclusion:* Gender, Children, Elderly and Disability Issues in Disaster Management
- *Disaster Rehabilitation and Reconstruction:* Post-disaster Rehabilitation and Reconstruction, Trauma Management, Ethical Issues of Disaster Management.
- *Regulatory Framework, Laws and Policies:* UNISDR Framework, Sendai Framework for Action, Bangladesh Institutional and Regulatory Framework, Law, Policy and Contemporary National, International Policies Related to Disaster Management.

Suggested References

- Bryant Edwards. 2005. *Natural Hazards*. Cambridge: Cambridge University Press, UK.
- Sinha P. C. 2006. *Disaster Mitigation: Preparedness, Recovery and Response*, SBS Publication & Distributions Pvt. Ltd. New Delhi
- Carter, W. Nick, 1991: *Disaster Management*, Asian Development Bank, Manila.

C-110: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Third Semester

C-201: Advanced Microeconomics

Course Contents:

1. *Market Theory*: Concept of Market in Economics; Types of Markets: Perfectly Competitive Markets, Monopoly Market, Monopsony Market, Monopolistic Competition Market and Oligopoly (duopoly) Market.
2. *Factor Markets*: Input Hiring Decision, Competitive Factor Markets, Monopsony, Capital Theory, Concept of Net Present Value, Project Appraisal.
3. *Game Theory*: Gaming and Strategic Decisions; Dominant Strategies; the Nash Equilibrium; Repeated Games; and Sequential Games.
4. *General Equilibrium and Economic Efficiency*: General Equilibrium Analysis; Efficiency in Exchange, Equity and Efficiency, Efficiency in Production; Time and Uncertainty, Imperfect Competition.
5. *The Problem of Asymmetric Information*: Quality Uncertainty and the Markets for Lemon; Market Signaling; Moral Hazard; the Principal Agent Problem; Asymmetric Information in Labour Market.

Suggested References

- Varian, Hall, 1992. Microeconomic Analysis, 3rd Edition, W W Norton & Company, New York.
- Pindyck, Robert S; Rubinfeld, Daniel L. and Mehta, Prem L., 2009. Microeconomics, 7th Edition, Pearson.
- Nicholson, W. and C. Snyder, 2012. Microeconomic Theory: Basic Principles and Extensions, 11th Edition, South Western Cengage Learning.
- Mas Colell, A., M. Whinston and J. Green, 1995. Microeconomic Theory, Oxford University Press.
- Gravelle, H. and R. Reese, 2004. Microeconomics, 3rd Edition, Prentice Hall Financial Times.

C-202: Mathematics for Economics II

Course Contents:

1. *Linear and Nonlinear Programming*: A Graphic Approach, the Extreme Point Theorem, Slack and Surplus Variable, Mathematical Expressions of Economic Problem, the Simplex Algorithm (Maximization and Minimization); Relaxing the assumptions of linear programming, Nature of Nonlinear Programming, Kuhn-Tucker Conditions, Economic Applications.
2. *Differential Equation*: First and Second Order Differential Equation, Economic Applications.
3. *Difference Equation*: First and Second Order Difference Equation and Economic Applications.
4. *Optimal Control Theory*: The Nature of Optimal Control, the Maximum Principle, Alternative Terminal Conditions, Economic Interpretation of the Maximum Principle, Optimum Control with Infinite Time Horizon, Neoclassical Growth Model, Current Value Hamiltonian and Phase Diagram.
5. *Real Analysis*: Real Numbers, Continuum Property, Natural Numbers, Convergence Sequence, Differentiation, Mean Value Theorem, Monotone Functions, Integration.

Suggested References

- Bartle, R. and D. R. Sherbert, 2011. Introduction to Real Analysis, 4th Edition, Wiley1.
- Chiang, A.C., Wainwright, K., 2005. Fundamental Methods of Mathematical Economics, 4th Edition.
- Dowling, E.T., 2000. Introduction to Mathematical Economics, Schaum's Outline Series, 3rd Edition.
- Rangarajan, K.S., 2014. A First Course in Optimization Theory, Cambridge University Press.
- Simmons, G.F., Robertson J.S., 1991. Differential Equations with Applications and Historical Notes, 2nd Edition, McGraw-Hill, Inc., New York.
- Kaiser H.M., and Messer K.D, 2011. Mathematical Programming for Agricultural, Environmental, and Resource Economics, Wiley.

C-203: Development Economics

Course Contents:

1. *Nature of Development and Underdevelopment*: Conceptualization of Development and Underdevelopment; Development Indicators; Measures of Economic Development: the Basic Needs Approach, Human Development, Development as Freedom; Core Values of Development; Objectives of Economic Development; Economics, Institutions and Development: a Global Perspective.
2. *Growth, Poverty and Income Distribution*: Structures and Characteristics of Developing Countries; Growth, Balanced vs. Unbalanced Growth; Poverty and Income Distribution, Size and Functional Distributions of Income; Growth vs. Poverty and Growth vs. Income Inequality/Equity; Sen's Capability Approach.
3. *Theories of Development*: The Linear Stages Theory: Rostow's Stages of Growth Model, the Harrod-Domar Model; Structural Change Model: The Lewis Theory of Development, Structural Change and Patterns of Development; the International Dependence Revolution: the Neoclassical Dependence Model, the False-Paradigm Model, the Dualistic-Dependent Thesis; the Traditional Neoclassical Growth Theory: the Solow Model.
4. *Economics of Population and Development*: Theory of Demographic Transition, the Malthusian Population Trap, Low Level Equilibrium Trap, the Micro-Economic Theory of Fertility, Policy Approaches.

Suggested References

- Ray, Debraj, 1998. Development Economics, Oxford University Press.
- Thirwal, A P, 2005. Growth and Development with Special Reference to Developing Countries
- Todaro, M. and Smith, S., 2011. Economic Development, 11th Edition, Pearson Education, Addison Wesley.
- Meier, G.M., 1995. Leading Issues in Economic Development. Oxford University Press.
- Meir, G.M. and R.E. Baldwin 1957. Economic Development: Theory, History and Policy. New York, John Wiley and Sons.
- Amin, S., 1957. The Origins of Underdevelopment: Capitalist Accumulation on a World Scale.

C-204: Principles of Sociology

Course Contents:

1. *Sociology*: The Sociological Perspective; the Origins of Sociological Thinking; the Development of Modern Sociology; Contemporary Theoretical Perspectives: Structural Functionalism and Conflict Paradigms.
2. *Sociological Research*: Why is Sociological Research Necessary? The Sociological Research Process; Quantitative and Qualitative Research; Theory, Hypothesis, Concepts, Variable, Indicator and Operational Definition; Techniques of Data Generation; Validity, Reliability, Generalizability and Ethical Issues in Sociological Research.
3. *Culture*: Culture and Society in a Changing World; Components of Culture; Cultural Relativity and Ethnocentrism; High Culture and Popular Culture; Multiculturalism and Subculture; Technology, Cultural Change and Diversity.
4. *Socialization*: Why is Socialization Important? Nature vs. Nurture; Agents of Socialization; Sociological Theories of Human Development; Socialization through the Life Course.
5. *Social Inequality and Stratification*: Systems of Stratification; Forms of Social Stratification: Caste, Estate and Class; Theories of Social Stratification: Marxian, Weberian and Davis–Moore Theories; Closed vs. Open Society; Social Mobility; Stratification System in Bangladesh.
6. *Ethnic Relations and Race*: Race and Ethnicity; Prejudice. Discrimination; Racism; Sociological Perspectives on Race and Ethnic Relations; Minorities. Immigrant and Minority.
7. *Population and Urbanization*: Demography: the Study of Population; Population Growth in a Global Context; Urbanism, Urbanization and Chicago School; Perspectives on Urbanization and the Problems of Developing Country Mega Cities.
8. *Collective Behaviour, Social Movements, and Social Change*: Collective Behaviour; Social Movements; Social Movement Theories; Social Change in the Future.

Suggested References

- Macionis, J. J. 2004.*Sociology*, Pearson, Toronto.
- Giddens, A. 2009.*Sociology*, Polity Press, Cambridge.

C-205: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Fourth Semester

C-206: Advanced Macroeconomics

Course Contents:

1. *Demand for and Supply of Money*: Definition and Functions of Money; Transactions, Precautionary and Speculative Demand for Money; Transactions Demand for Money: the Inventory-Theoretic Approach (Baumol-Tobin); Speculative Demand for Money: Portfolio Balance Theory; Supply of Money: Concept of Money Supply, Determinants of Money Supply; Theory of Money: Old Quantity Theory of Money, Fisher's Equation, Cambridge Equation, Quantity Theory of Money and Say's Law; Milton Friedman's Quantity Theory of Money.
2. *Fiscal Policy and Monetary Policy*: Introducing fiscal policy, instruments of fiscal policy, effectiveness of fiscal policy; budget-concepts, types and elements, budget deficit and surpluses, crowding out effect; money and banking, roles of a central bank and commercial bank, central bank and monetary policy instruments.
3. *Inflation*: Meaning, Types of Inflation, Theories of Inflation: Demand Pull and Cost Push Inflation, Inflationary Gap, Effects of Inflation, Inflation and Economic Growth, Measures to Control Inflation, Philips Curve and Inflation, Deflation, Stagflation and Inflation in Bangladesh.
4. *Business Cycle*: Concept of Business Cycle Causes of Business Cycle, Effects of Business Cycle, Equilibrium Business Cycles, the Real Business Cycle Theory.

Suggested References

- Mankiw, G. N., 2012. Macroeconomics, 8th Edition, Worth Publishers, Inc.
- Barro, R. J., 1997. Macroeconomics, 5th Edition, the MIT Press.
- Vaish, M C, 2000. Macroeconomic Theory, 12th Revised Edition, Vikas Publishing House Pvt Limited, New Delhi, India.
- Dornbusch, Rudiger; Stanley Fischer and Richard Startz, 2010. Macroeconomics, 11th Edition, McGraw Hill/Irwin.

C-207: Environmental Economics- Theories and Practices

1. *Economy-Environment Linkages*: Economic Development and the Environment; the Notion of Carrying Capacity of the Environment; Environmental Thinking in Economics; Genesis of Environmental, Evolutionary and Ecological Economics; Linkage Between Economy and the Environment.
2. *Market Failure, Public Goods and Externalities*: Social Efficiency and Markets; Market Failure and the Theory of the Second Best: Public Bads and Externalities; Property Rights; Addressing Pollution Problems: Pigovian Tax and Coase Theorem; the Economics of Environmental Quality.
3. *Open Access and Common Property Resources*: Concepts and Nature of Common Property Resources (CPRs) and Open Access Natural Resources; Open Access Resource and Free Riding Problem; Institutional Failure and Degradation of CPRs; the Tragedy of the Commons; Economics of the Conservation of CPRs and the Role of State.

Suggested References:

- Bhattacharya, R.N., 2001. Environmental Economics, Oxford University Press.
- Hanley, N; Shogren, J.F. and White, B., 1997. Environmental Economics in Theory and Practice, McMillan.
- Kolstad, Charles D, 2010. Environmental Economics, Oxford University Press.
- Nick Hanley, Jason F. Shogren and Ben White, 2001. Introduction to Environmental Economics, Oxford University Press.
- Sankar, U., 2001. Environmental Economics, Oxford University Press.
- Tietenberg, Tom, 2008. Environmental and Natural Resource Economics, 8th Edition, Prentice Hall.

C-208: Environmental Statistics

Course Contents:

1. *Introduction:* Environmental Statistics: Concepts and Subject Matters.
2. Extremal Stresses: Ordering the Extremes- application, models and inference, outliers and Robustness.
3. *Collecting Environmental Data- Sampling:* Finite- Population Sampling, Inaccessible and Sensitive data, Sampling in the Wild.
4. *Examining Environmental Effects: Stimulus-Response Relationships:* Linear models Transformations, the generalized liner model.
5. *Spatial Methods for Environmental Processes:* Spatial point process models and methods, Prediction, interpolation and Krigging, estimation of the variogram, Spatial Sampling and Spatial Design, Spatial-Temporal models and methods.
6. *Environmental Monitoring:* Monitoring sites, special monitoring designs, monitoring designs typically used, Detection of Changes by Analysis of Variance, Detection of Changes Using Control Charts, Detection of Changes Using CUSUM Charts, Chi-Squared Tests for a Change in a Distribution.
7. *Impact Assessment:* The Simple Difference Analysis with BACI Designs, Matched Pairs with a BACI Design, Impact-Control Designs, Before–After Designs, Impact-Gradient Designs, Inferences from Impact Assessment Studies.
8. *Quantifying and Analyzing Risks:* Monte Carlo Risk Assessment-Principles for Monte Carlo Risk Assessment and Risk Analysis Using a Spreadsheet.

Suggested References

- Wayne R. Ott, 1994. Environmental Statistics and Data Analysis, CRC Press, 1st Edition.
- Barnett, Vic, 2004. Environmental Statistics: Methods and Applications, John Wiley and Sons.
- Gregoire, Timothy G. and Harry T. Valentine, 2007. Sampling Strategies for Natural Resources and the Environment, Chapman and Hall/CRC.
- Manly, B.F.J., 2009. Statistics for Environmental Science and Management, 2nd Edition, CRC Press

C-209: Agricultural and Rural Economics

Course Contents:

1. *Introduction*: Definition of Agricultural Economics, Need for a separate study, Concept and Importance of Rural Economics, Difference and Interrelationship between Agricultural Economics and Rural Economics.
2. *Structure and Characteristics of Traditional Agriculture*: Basic Features of Traditional Agriculture, Development in Traditional Agriculture, Lessons from Traditional Agriculture.
3. *Contribution of Agriculture to Economic Development*: Product Contribution; Factor Contribution, Market Contribution and their Relative Importance: Importance of Agriculture for Industrial Development.
4. *Types of Farming*: Commercial, Cooperative and Collective Farming; Share Cropping, Subsistence Farming Vs. Capitalist Farming.
5. *Agricultural Finance*: Importance of Agricultural Credit, Sources of Agricultural Credit, Institutional and non-Institutional, Functions of Rural Money Markets in the LDCs, Rural Incensement.
6. *Agricultural Marketing*: Role of Agricultural Marketing, Marketing Functions and Market Structure, Market Intelligence, Imperfections of Agricultural Marketing in LDCs.
7. *Agriculture and Climate Change*: Climate Change and Its Impacts on Agriculture, Agriculture and Climatic Vulnerability, Adaptation in Agriculture, etc.
8. *Emerging Agricultural Issues in the Context of Bangladesh*: Agricultural Produces and Profitable Prices, Roles Female Farmers in Bangladeshi Agriculture, GM Seeds and their Sustainability, Corporate Agriculture in Bangladesh: A Critical Assessment.

Suggested References

- Norwood, B. and J. Lusk (2008).Agricultural Marketing and Price Analysis, Pearson Prentice-Hall.
- Hudson, D. (2006).Agricultural Markets and Prices, Wiley-Blackwell.
- Kolhs, R. and J. Uhl (2002). Marketing of Agricultural Products, 9th Edition, Pearson Prentice-Hall.
- Schrimper, R. (2001).Economics of Agricultural Markets, Pearson Prentice-Hall.

C-210: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Fifth Semester

C-301: Public Finance and Welfare Analysis

Course Contents:

1. *Introduction to Public Economics*: Nature of Economic Effects of Policies, Positive & Normative Analysis, Criteria for Policy Evaluation, Market Efficiency: General Equilibrium in Competitive Market and Efficiency.
2. *Theory of Public Expenditure and Budgeting*: Concept of Public Expenditure, Types of Public Expenditure, Analyzing Public Expenditure; Concept of Budgeting, Contents in Budget, Types of Budget, Budget Analysis: Bangladesh as a Case Study.
3. *Principles of Tax Analysis*: Desirable Characteristics of a Tax System, General Factors Affecting Incidence of Various Taxes, Partial vs. General Equilibrium Analysis of Incidence of Taxation, The Efficiency Costs of Taxation, Elasticity and Incidence, Different Bases for Taxation, The Concept and Measurement of Welfare Cost of Taxation.
4. *Basic Concepts in Welfare Economics*: Nature of Welfare Economics; Approaches of Welfare Economics: the Early Neo-classical Welfare Economics and the New Welfare Economics; Welfare Criteria: the Paretian Criterion, the Compensation Criterion, the Social Welfare Function, the Bergson Criterion and Arrow's Impossibility Theorem.
5. *Welfare Maximization*: Maximization of Social Welfare: from Production Function to the Production Possibility Curve, from Production Possibility Curve to the Grand Utility Possibility Curve, from the Grand Utility Possibility Curve to the Point of Constrained Bliss.

Suggested References

- Musgrave, Richard Abel and Peggy B. Musgrave, 1989. Public Finance in Theory and Practice, 5th Edition, McGraw-Hill College.
- Stiglitz J. E. 1988. Economics of Public Sector, Norton & Company.
- Just, Richard E.; Hueth, Darrell L. and Schmitz, Andrew, 2004. The Welfare Economics of Public Policy- A Practical Approach to Project and Policy Evaluation, Edward Elgar Publishing Limited, 2004
- Broadway, Robin W and Bruce, Neil, 1991. Welfare Economics, Wiley-Blackwell; 1 Edition.
- Jhingan, M.L., 2012. Micro Economic Theory, Vrinda Publications (P) Ltd, 7th Edition.
- Varian, Hall R. 1992. Microeconomic Analysis, W. W. Norton & Com, Third Edition.

C-302: Resource Economics

Course Contents:

1. Resources
2. *Economic Perspective of Natural Resource Use:* Concept of the Economics of Nature, The Neoclassical Economic Perspective on the Nature, Static Efficiency, Dynamic Efficiency, Approaches to Cost and Benefit in Natural Resource Economics, Treatment of Risks and Uncertainties, Choosing Rate of Discount in Natural Resource Economics.
3. *Efficient and Optimal Use of Non-Renewable Resources:* The Economics of Mineral Extraction, Market Failures in the Extraction of Mineral Resources, Optimal Extraction Path, Profit-Maximization for a Mine, The Hotelling Model for a Perfectly Competitive Mining Industry, Monopoly in Mineral Extraction - Price and Output Determination for a Mineral Industry in Monopoly, A Comprehensive Mineral Policy.
4. *Efficient and Optimal Use of Renewable Resources:* Fisheries, Water and Forests, Optimal Harvesting Schedule: Basic Model, Socially Optimal Harvesting, Public Policy towards Renewable Resources.
5. *Economics of Biodiversity and Habitat Preservation:* Natural Extinctions, Anthropogenic Causes of Species Extinction, Loss of Habitat, Competition from Nonnative Species, Open-Access Harvesting, Costs of Losses of Biodiversity, Policies for Maintaining Biodiversity and Protecting Habitat, Policies to Reduce Loss of Habitat, Problems with Nonnative Species and Open-Access Exploitation.

Suggested References

- Bhattacharya, R.N., 2001. Environmental Economics, Oxford University Press.
- Conrad, J.M. and Clark, C.W. 1987. Natural Resource Economics, Cambridge University Press.
- Field, B. C. and M. K. Field, 2006. Environmental Economics. McGraw-Hill/Irwin.
- Kolstad, C. D. (2010). Environmental Economics. Oxford University Press.
- Pearce, D. & Turner, R.K. 1990. Economics of Natural Resources and the Environment. Harvester Wheatsheaf.
- Perman, R. et al., 2011. Natural Resource and Environmental Economics, 4th Edition, Addison Wesley.
- Tietenberg, T. and L. Lewis, 2012. Environmental & Natural Resource Economics, 9th Edition, Addison Wesley.

C-303: Energy Economics

Course Contents:

1. *Introduction*: Introduction to Energy Fundamentals- Types of Energy Resources, Energy vs. Power, Energy Demand, Supply and Nature of Energy Market in the Global Context; Role of Energy in Development and Growth.
2. *Energy Demand and Supply*: Short and Long Run Energy Demand and Supply, Elasticities of Energy Demand and Supply; Economics of Energy Extraction; Economic Theory of Energy Supply.
3. *Energy Markets and Pricing*: Structure of Energy Markets, Natural Resource Cartels: the Case of OPEC Oil Embargo, Concepts of Energy Pricing: Average and Marginal Cost Pricing, Peak and Off-Peak Pricing, Cross Subsidization, Pricing Exhaustible Resources; Energy Price Regulation, Deregulation and Markets.
4. *Economics of Energy Efficiency*: Concept of Energy Efficiency, Economics of Energy Efficiency, Role of Technology for Energy Efficiency and Conservation of Energy Resources.
5. *Economics of Renewable Energy*: The Classical Theory- Fundamental Economics of Depletable Energy Supply; the Adelman Approach- The Real Oil Problem.
6. *Energy Resources and Energy Policy in the Context of Bangladesh*: State of the Energy Resources Available in Bangladesh; Energy Policy: Command and Control vs. Market-Based Approach to Energy Policy, Emissions Trading; Energy Policy of Bangladesh.

Suggested References

- BC Field and MK Field, 2009. Environmental Economics: An Introduction, McGraw-Hill, 5th Edition.
- Bhattacharya, R.N., 2001. Environmental Economics, Oxford University Press.
- Bhattacharya, Subhes C. 2011. Energy Economics: Concepts, Issues, Markets and Governance, University of Dundee, UK.
- Conrad, J.M. and Clark, C.W. 1987. Natural Resource Economics, Cambridge University Press.
- Banks, Ferdinand E. 2000. Energy Economics: A Modern Introduction, Springer.
- Hanley, N; Shogren, J.F. and White, B., 1997. Environmental Economics in Theory and Practice, McMillan.
- N. Hanley, Jason F. Shogren and Ben White, 2001. Introduction to Environmental Economics, Oxford University Press.

C-304: Economics of Sustainable Development

Course Contents:

1. *Introduction to Sustainable Development: Debates, Definitions and Dilemmas; Evolving the Concept of Sustainable Development; Sustainable Development: from the Intergenerational Sustainability to the Three Pillars of Sustainability (Economics, Environmental and Social).*
2. *Measuring Economic Success and Need for Sustainable Development: Traditional tools of measuring economic performance (GDP); problems with traditional measures; concept of green/environmental accounting; qualitative development Vs quantities development sustainable consumption and production and theory of limits to growth.*
3. *Indicators of Sustainable Development: Indicators of sustainable development, global vision for sustainable development; the Millennium Development Goals (MDGs); evaluation of the Agenda 21 and the Rio+20.*

Suggested References:

- Bhattacharya, R.N., 2001. Environmental Economics, Oxford University Press.
- Daly, Herman E, 1997. Beyond Growth: The Economics of Sustainable Development, Beacon Press.
- Joshi, M.V., 2001. Theories and Approaches of Environmental Economics, Atlantic Publishers and Distributors, New Delhi.
- N. Hanley, Jason F. Shogren and Ben White, 2001. Introduction to Environmental Economics, Oxford University Press, New Delhi.
- Sankar, U., 2001. Environmental Economics, Oxford University Press, New Delhi.
- Sengupta, R.P., 2001. Ecology and Economics: An Approach to Sustainable Development, Oxford University Press, New Delhi.

C-305: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Sixth Semester

C-306: Ecological Economics

Course Contents:

1. *Introduction to Ecological Economics*: Definition, Concepts, Scale, Distribution, Efficiency; Resources and Prioritization, Ends and Means; Principles of Ecological Economics.
2. *Economic Growth in a Finite World*: Grounding Economics in a Biophysical World- Physical Limits to Growth; Economic Growth, Carrying Capacity and the Environment, Ecological Footprints; First Two Laws of Thermodynamics; Problems of Ecological Economics.
3. *Measuring Well-Being*: Quantitative Growth vs. Qualitative Development, Traditional Methods of Measuring Economic Well-being and Associated Shortcomings, Emerging Methods of Measuring Economic Well-being; Pricing of Natural Capitals and Ecosystem Services,
4. *The Vision for Our Future*: Design Principles, Controlling Throughput and Scale; Impacts of Public Policy and Legislation; Evolutionary vs. Revolutionary Change; Policies, Institutions, and Instruments.
5. Suggested References
 - Daly, H. E., and J. Farley, 2003. *Ecological Economics: Principles and Applications*, Island Press, Washington, DC.
 - Common, Michael, 2005. *Ecological Economics- An Introduction*, Cambridge University Press.
 - Hanley, N; Shogren, J.F. and White, B., 1997. *Environmental Economics in Theory and Practice*, McMillan.
 - Sengupta, R.P., 2001. *Ecology and Economics: An Approach to Sustainable Development*, Oxford University Press, New Delhi.
 - Tietenberg, Tom, 2008. *Environmental and Natural Resource Economics*”, 8th Edition.
 - Robert Costanza, John H. Cumberland, Herman Daly, Robert Goodland, Richard B. Norgaard, 1997. *An Introduction to Ecological Economics*, St. Lucie Press and International Society for Ecological Economics.

C-307: International Trade and Environment

Course Contents:

1. *Theories of International Trade*: Gains from Trade and Patterns of Trade; Trade Theories: Ricardian Model, Heckscher-Ohlin Model and the Standard Trade Model; Imperfect Competition and Increasing Returns; the Pollution Heaven Theory.
2. *WTO, Trade and Environment*: Origins, Principles and National Environmental Management; WTO and International Trade; Environmental Requirements and Market Access: Eco-Labels, EMS Certification and International Trade, Environmental Management System Certification; Green Economy and WTO; Environmental Provisions in RTAs, MEAs and WTO.
3. *Trade, Environment and Technologies*: Trade Opening in Environmental Technologies; Environmental Techniques and Intellectual Property Rights; Environmental Goods and Services Negotiations; Environment Related Support Measures; Environmentally Harmful Subsidies: Cases of Fossil Fuels and Fisheries.
4. *International Environmental Agreements and Trade*: Multilateral Environmental Agreements and Trade Linkages: the Committee on Trade and the Environment, the Kyoto Protocol and Trade, International Negotiation on Climate Change and Trade.

Suggested References

- Krugman, Paul; Obstfeld, Maurice and Melitz, Marc, 2011. *International Economics: Theory and Policy*, Prentice Hall; 9 Edition.
- Krugman, Paul, 1990. *Rethinking International Trade*, Cambridge: MIT Press.
- Copeland, B and Taylor, M S, 2003. *Trade and the Environment: Theory and Evidence*, Princeton University Press.
- Najam, Adil; Halle, Mark and Melendez-Ortiz, Ricardo (Eds), 2007. *Trade and Environment: A Resource Book*, IISD, ICTSD and the Ring.
- *Environment and Trade: A Handbook*, 2000. IISD and UNEP.
- Werner Antweiler, Brian R. R. Copeland & M. Scott Taylor, 2001. Is free trade good for the environment? *American Economic Review*, Vol. 91(4), pp. 877-908.
- Copeland, Brian R and Taylor, M Scott, 1994. North-South Trade and the Environment, the *Quarterly Journal of Economics*, MIT Press, Vol. 109(3), pp. 755-787.

C-308: Econometric Methods for Economics

Course Contents:

1. *Nature of Econometrics and Economic Data*: What is Econometrics? Why a Separate Discipline? Methodology of Econometrics, Economic Data.
2. *Two-Variable Regression Analysis*: Introduction, the Concept of Population Regression Function (PRF), Stochastic Specification of PRF, the Significance of the Stochastic Disturbance Term, Sample Regression Function (SRF); the Method of Ordinary Least Squares (OLS), the Gauss-Markov Theorem, the Coefficient of Determination.
3. *Relaxing the Assumptions of the Classical Model*: Multicollinearity: the Nature of Multicollinearity, Estimation in the Presence of Perfect Multicollinearity, Estimation in the Presence of High but Imperfect Multicollinearity, Consequences of Multicollinearity, Detection of Multicollinearity, Remedial Measures; Heteroskedasticity: The Nature of Heteroskedasticity, OLS Estimation in the Presence of Heteroskedasticity, The Method of Generalized Least Squares (GLS), Consequences of Heteroskedasticity, Detection of Heteroskedasticity, Remedial Measures; Autocorrelation: Introduction, Estimation in the Presence of Autocorrelation, Properties of OLS Estimators in the Presence of Autocorrelation, Detecting Autocorrelation, Remedial Measures.
4. *Binary Outcomes*: The Linear Probability Model, Latent Variable Model for Binary Variables, Logistic Regression and Its Application in Environmental Economics, ROC Curves, Probit Model.
5. *Nominal Outcomes*: Multinomial Logit Model, ML Estimation, the Conditional Logit Model and Other Related Models.
6. *Limited Outcomes*: The Problem of Censoring, Truncated and Censored Distribution, Tobit Model for Censored Outcomes, Other Extensions.
7. *Regression Models for Count Data Analysis*: Poisson Regression Model, Negative Binomial Regression Model, Models for Truncated Counts, Zero Modified Count Models.

Suggested References

- Gujarati, D. 2004. Basic Econometrics, 4th Edition, McGraw-Hill.
- Kmenta, J. 1986. Elements of Econometrics, 2nd Edition, Macmillan, New York.
- Wooldridge, J. M. 2005. Introductory Econometrics: A Modern Approach, 3rd Edition, South-Western College Pub.
- Maddala, G.S. 1992. Introduction to Econometrics, 2nd Edition, Prentice Hall.
- Hamilton, L. C. 2012. Statistics with STATA: Version 12, 8th Edition, Cengage Learning.
- Kleinbaum, D.G. and Klein, M. 2010. Logistic Regression- A self learning text, 3rd edition, Springer
- Scott Long, J. 1997. Regression models for categorical and limited dependent variables, Sage publication

C-309: Environmental Impact Assessment

Course Contents:

1. *EIA Process and Its Core Elements:* Concept of EIA; Screening; The Initial Environmental Examination (IEE); Scoping; Full Scale Assessment; EIA Review and Decision-Making; Monitoring, Follow-up and Project Audit.
2. *Prediction and Assessment of Impacts:* Physical Environment: Climate, Water Resource, Water Quality, Air, Noise; Biological Impacts: Terrestrial Ecosystems, Wetland Ecosystems, Aquatic Ecosystems, Threatened and Endangered Species; Human Resources: Demographics, Economic, Land Use and Infrastructures.
3. *Public Participation:* Regulations, Objectives, Types of Publics and Methods of Public Participation in EIA Process.
4. *Management of EIA:* Expertise Needed, Times Needed and Money Needed.
5. *Synthesis:* Environmental Planning and the Future of EIA in the Context of Bangladesh.

Suggested References

- Birley, Martin, 2011. Health Impact Assessment: Principles and Practices, Earthscan, London.
- Peralta, Gene and Joseph M. Hunt, 2003. A Primer on Health Impacts of Development Programs, Asian Development Bank, Manila.
- Glasson, J., R. Therivel and A. Chadwick. 2012. Introduction to Environmental Impact Assessment. Routledge.

C-310: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Seventh Semester

C-401: Economics of Environmental Valuation

Course Contents:

1. *Concept of Environmental Valuation: Decision Making Under Uncertainty and the Role of Environmental Valuation; Defining the Value of a Change in Environmental Quality; Environmental Values and the Concept of Shadow Prices; Concept of Total Economic Value (TEV); Need for Environmental Cost-Benefit Analysis (CBA).*
2. *Economic Valuation of Environment Using market Price-based valuation Techniques: Introduction of Market Price-based Valuation; Productivity Change Method; Valuing Health Effects; Defensive Expenditures; and Opportunity Cost Approach.*
3. *Non-Market Environmental Valuation Using Stated Preference Methods: Measuring the Welfare Effects of Environmental Changes; Major Theories of Environmental Decision Making and Valuation of Nature; Valuation Techniques: Contingent Valuation, Contingent Ranking and Choice Experiment Methods.*
4. *Non-Market Environmental Valuation Using Revealed Preference Methods: Revealed Preference Methods: Travel Cost, Hedonic Pricing and Benefit Transfer Methods; Recent Debates on Environmental Valuation and Concept of Discounting.*

Suggested References

- Gunatilake, Herath M. 2003. *Environmental Valuation: Theory and Applications*”, University of Peradeniya, Sri Lanka.
- Freeman, A M, 1993. *The Measurement of Environmental and Resource Values, Resource for the Future*, Washington DC.
- Bhattacharya, R.N., 2001. *Environmental Economics*, Oxford University Press, 2001
- Hanley, N; Shogren, J.F. and White, B., 1997. *Environmental Economics in Theory and Practice*, McMillan.
- Nick Hanley, Jason F. Shogren and Ben White, 2001. *Introduction to Environmental Economics*, Oxford University Press, New Delhi.
- Tietenberg, Tom, 2008. *Environmental and Natural Resource Economics*, 8th Edition.
- Sankar, U, 2001. *Environmental Economics: Readers in Economics*, Oxford University Press.

C-402: Economics of Climate Change

Course Contents:

1. *Introduction to Climate Change*: The Science of Global Warming; Global Warming and Climate Change- Concepts, Indicators and Historical Responsibilities; Vulnerability to Climate Change; Economic and Social Impacts of Climate Change; Implications of Climate Change (on the World Economy and Bangladesh).
2. *Political Economy of Climate Change*: Historical Perspective of Climate Change; Neoliberalism and the Concurrent World Economic Order; Political Economy of International Climate Regime (the UNFCCC Process); Climate Negotiations- Agenda 21, Kyoto Protocol and Major COP Processes; the Developing and the Most Vulnerable Economies; Emerging Issues of Climate Change- Carbon Trading, REDD, REDD+; Climate Justice and Southern Perspectives.
3. *Economics of Climate Change*: Climate Change and Development Challenges; Climate Change as a Market Failure; GHG Emissions as Externalities; Impacts of Climate Change over Time and Space; Uncertainty and Irreversibility; Economics of Climate Change Adaptation and Mitigation (Agriculture, Energy Use); Frameworks for Costing the Impacts of Climate Change: General Equilibrium Analysis (CGE/Input-Output Modeling, etc.) and Partial Equilibrium Analysis (CVM, etc.)

Suggested References

- Stern, N., 2007. Review on Economics of Climate Change: The Stern Review, Cambridge University Press.
- ADB, 2009. Economics of Climate Change in Southeast Asia: A Regional Review.
- BC Field and MK Field, 2012. Environmental Economics: An Introduction, McGraw-Hill.
- OECD, 2009. The Economics of Climate Change Mitigation: Policies and Options for Global Actions beyond 2012, Organization for Economic Cooperation and Development, Paris.

C-403: GIS for Natural Resource Management

Course Contents:

1. *Introduction to GIS*: A Basic Understanding on GIS; GIS Techniques and Technology: Relating Information from Different Sources, GIS Uncertainties.
2. *Spatial Information Concept*: Spatial Awareness; Geographical Entities; Measurements, Locations and Patterns; Sampling and Inferences; Maps and Their Characteristics; Map Projections and Coordinate Systems.
3. *Dealing with GIS Data*: Data Models: Basic Computer File Structure, Database Structure, Relational Database, Representation of Graphic Data, Topology, Raster and Vector Data Model, TINs and Objectives Oriented Data; Data Input, Storage and Editing: Input Devices, Map Digitizing, Data Sources, Data Storage, Metadata, Georeferencing and Projections.
4. *Basic Spatial Analysis*: Recoding, Proximity Analysis, Proximity Operations: Buffer Operations and Neighbourhood Functions, Overlay, Network Operations.
5. *Statistical Surface*: Surface Basics, Interpolation, Terrain Analysis, Discrete Surfaces.
6. Models and Modeling: Site Suitability, Predictive Modeling, Model Development, Model Verification.
7. *GIS Output*: Output Design, Hardcopy vs. Interactive, Non-graphic Outputs.

Suggested References

- Bolstad, Paul, 2012. GIS Fundamentals- A First Text on Geographic Information System, 4th Edition, Eider Press.
- Morain, Stan, 1998. GIS Solutions in Natural Resource Management, OnWord Press, 1st Edition.
- Wing, Michael G and Pete Bettinger, 2008. Geographic Information System: Applications in Natural Resource Management, 2nd Edition, Oxford University Press.

C-404: Research Methodology for Economics

Course Contents:

1. *Research Methodology*: Types of Research, Research Approaches, Research Methods versus Research Methodology and Criteria of a Good Research.
2. *Research Problems And Research Designs*: Necessity of Selection of a Research Problem, Technique Involved in Defining a Problem, Identification of Variables and Converting Concepts into Variables, Features of a Good Research Design, Concepts Related to Research Designs and Different Research Designs.
3. *Data Collection, Assessment Methods and Measurement Strategies*: Measurement Scale, Reliability and Validity and their Relationship to Measurement, Sampling Errors.
4. *Collection of Primary Data*: Observational Method, Interview Method, Participant Observation, FGD, Collection of Data Through Questionnaire and Schedule, Guideline for Preparation of a Questionnaire/Schedule, Collection of Secondary Data, Data Collection Using Attitudinal Scale and Selection of Appropriate Method for Data Collection.
5. *Data Preparation, Analyses and Interpretation*: Logging and Tracking Data, Data Screening, Construction of a Database, Data Codebook, Data Entry, Transforming Data, Missing Value Imputation, Different Steps in Report Writing, Layout of Research Report, Types of Reports, Mechanics of Writing a Research Report and Statistical Significance Versus Clinical Significance.
6. *Ethical Consideration in Research*: The Belmont Report-Summary of Basic Principles, Informed Consent and Development of a Consent Form, Institutional Review Board and Its Review.

Suggested references:

- Kothari C.R., 2004.*Research Methodology- Methods & Techniques*, New Age Int. Limited
- Marezyk, G., Dematteo, D., Festinger, D.,2005. *Essentials of Research Design and Methods*, John Wiley & Sons, Inc.
- Kumar, R., 1996.*Research Methodology-A Step by Step Guide for Beginners*, Sage, New Delhi
- May, T., 2001. *Social Research: Issues, Methods and Process*, Buckingham: Open University Press.

C-405: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

Eighth Semester

C-406: Environmental Policy Analysis

Course Contents:

1. *Introduction:* Environmental Perspective, Problems and Politics; Need for Environmental Policy Analysis.
2. *Environmental Analysis:* Framework Analysis: Impact Analysis (Environmental Impact Analysis, Economic Impact Analysis and Regulatory Impact Analysis), Cost-Effectiveness Analysis, Damage Assessment and Risk Analysis; Cost-Benefit Analysis: the Damage Function, Measuring Damage Costs (Various Methods) and Problems in Benefit Estimation.
3. *Environmental Policy Analysis:* Criteria for Evaluating Policy Analysis: Efficiency, Cost Effectiveness, Fairness, Incentives for Technology, Improvements, Enforceability, Materials Balance Issues, Moral Considerations and Government Failure; Command and Control Measures—Types of Standards, the Economics of Standards, Standards and Incentives, the Economics of Enforcement; Incentive-Based Strategies: Emission Charges and Subsidies- Emission Charges and Abatement Subsidies; Transferable Discharge Permits: General Principles and Cases of CO₂Emission in the Present Context.
4. *Theories of Environmental Regulation:* Information, Enforcement and Technology Issues; the Porter Hypothesis; Case Studies: Selected Success Stories and Failure in Implementing Environmental Regulation of Bangladesh, South Asia and Other Countries.

Suggested References

- BC Field and MK Field, 2012.Environmental Economics: An Introduction, McGraw-Hill.
- Bhattacharya, R.N., 2001. Environmental Economics, Oxford University Press.
- Hanley, N; Shogren, J.F. and White, B., 1997.Environmental Economics in Theory and Practice, McMillan.
- Murty, M.N., 2004.Environmental Regulation and Economics of Environmental Policies, Oxford University Press, New Delhi.
- N. Hanley, Jason F. Shogren and Ben White, 2001.Introduction to Environmental Economics, Oxford University Press.
- Sankar, U., 2001. Environmental Economics, Oxford University Press, New Delhi.
- Kraft, M., 2011. Environmental Policy and Politics, 5th Edition, Longman Press.

C-407: Labour Economics

Course Contents:

1. *Introduction*: Labour Market: Facts and Trends; Labour and Unemployment.
2. *Theory of Labour Supply*: Labour Supply Decision; Labour Supply of Women and Effects of Income Assistance Programmes on Labour Supply; Duality.
3. *Theory of Labour Demand*: Neoclassical Demand Theory, Review of Hicks Marshall Formulas; Immigration: Reasons and Effects, Empirical Evidences; Minimum Wages: Review of Monopsony, Affirmative Action and Non-competitive Markets; Competitive Labour market; Differences in Differences Methods; Role of Collective Bargaining and Efficient Contracts.
4. *Wage Determination*: Wage Determination, Wage Structure and Wage Differentials, Executive and Alternative Pay Trends, Wages & Productivity.
5. *Human Capital*: School Experience and Earnings, Basic Theory, Ability Bias; Signaling, Returns to Schooling, Returns to On the Job Training (OJT); Education Production: School Input, School Quality, Student and Teacher Incentives; Competition and Regulation; Human Capital Policy and Higher Education; Evaluation of Government Training Programme.
6. *Theory of Discrimination*: Discrimination and Human Capital; Wage Gap Theory; Anti-discrimination Policy.

Suggested References

- Pierre Cahuc, Stéphane Carcillo, and André Zylberberg, 2014. Labour Economics, The MIT Press, 2nd Edition.
- Borjas, George J. 2008. Labour Economics. McGraw-Hill Higher Education, 4th Edition, New York.
- Ehrenberg, Ronald G. Smith, and Robert Stewart, 2009. Modern Labour Economics: Theory and Public Policy, Pearson, 10th Edition.
- McConnell, Brue & Macpherson, 2006. Contemporary Labor Economics, 7th Edition, McGraw-Hill, New York.

C-408: Computer Applications in Economics

Course Contents:

1. *Introduction to Computer*: Binary, Octal and Hexadecimal Number System, 2's Complement System; Codes: ASCII, BCD, EBCDIC and Unicode, Parity Bit; Computer Hardware.
2. *Software*: Basic Classification of Software- System Software, Application Software, Operating Systems: MS-DOS, Windows, Linux; Application Packages: MS Word, MS Excel and MS PowerPoint.
3. *English Language Communications*: The Ability to Use Tools, Programs and Software Designed Specifically for the Study of the English Language and its Literature. Practical Activities to Learn How to Communicate in English Using Web-based Platforms. Activities in English to Learn How to Look for Information Using the University's Electronic Resources.
4. *Statistical Packages*: STATA, SPSS and MATLAB.
5. *Laboratory Work*: Installation of Software (OS, MS Office and others), Operating System Commands, Application Packages (MS Word, MS Power Point) and Working with Statistical Packages (SPSS, MATLAB and STATA).

Suggested References

- Sinha, P. K., 2004. Computer Fundamentals, BPB Publications.
- Norton, P., 2005. Introduction to Computer, McGraw-Hill.
- Kosiur, D., 1997. Understanding Electronic Commerce, Microsoft Press, Washington.
- Bajaj, K. K. and D. Nag, 1999. E Commerce-The Cutting Edge of Business, TATA McGraw-Hill Publishers.
- Brook-Hart, Guy, 2008. Complete First Certificate. Cambridge: Cambridge University Press.

C-409: Dissertation

The basic purpose of introducing a mandatory dissertation for the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics students is to give selected students an opportunity to conduct a research work on any area of environmental and resource economics using the knowledge and skills they have acquired throughout the programme. It is expected that at least three major objectives will be achieved from writing the dissertation: (i) to be acquainted with research problem formulation; (ii) learn the techniques of data management and data processing; and (iii) know how to write a research report using the findings.

It is thus expected that upon completion of the dissertation, a student will be able to understand basic research, formulate research questions, and be familiar with the methods of collection of data and data management tools and how to analyze data for writing a dissertation. Thus one needs to be equipped with good skills for conducting empirical research to be able to fulfill the need of the time. The Bachelor of Social Sciences (Honours) in Environmental and Resource Economics programme follows this principle.

Guidelines for Writing the Dissertation: The steps to write a dissertation by a student of the Bachelor of Social Sciences (Honours) in Environmental and Resource Economics will be based on the following guidelines:

Choice of the Research Topic: Topics can be chosen on any aspect of environmental and resource economics where the students will be able to utilize their acquired knowledge and techniques throughout this programme. This should be an empirical work and the use of both primary and secondary data are strongly encouraged. In the selection of the research topic students will be required to discuss with their (assigned) supervisors and faculty members of DScE. It is strongly recommended that environmental and resource management related economic challenges common to Bangladesh and other developing countries be given high priority in writing this dissertation.

Development of Synopsis: Once the research topic is selected (on the basis of consultation with supervisor/faculty members of DScE), a student will be required to design a research proposal/synopsis on the proposed work *within a month* of the start of the semester. Upon completion of the synopsis they will have to give a formal presentation of their research proposals for approval. The faculty members, experts along with the academic and the governing council members are expected to be present in the synopsis presentation and will provide useful guidelines/suggestions. Following the suggestions made on the presentation, a student will have to finalize her/his synopsis within *fifteen days* and submit the same to the Coordinator.

Duration of the Research & Dissertation Writing: Once the synopsis is finally approved, a student will be required to start her/his research work under the guidance of a supervisor. The supervisor will have regular meetings with the student and will provide scholarly guidance.

The student will have to complete her/his research and finish writing the dissertation within *four months* from the final approval of the synopsis. Once the research is over, she/he needs to give a final presentation before an expert panel. A dissertation student will be given about *ten days* to incorporate the suggestions made by expert panel and submit final dissertation for external evaluation.

Instructions for Submission: The length of the dissertation will ideally be no more than 10,000 words. The medium of writing will be English. Standard formats of dissertation writing should be followed. A student will have to submit three copies of the dissertation in bounded versions (paperback) along with a soft copy of the same within the stipulated time period.

Evaluation of Dissertation: Dissertations submitted will then be sent for external evaluation. It is to be mentioned here that experts from outside of the University of Dhaka are also allowed to evaluate a dissertation, particularly considering the environmental and resource economics discipline is an emerging one and not many experts are currently available at DU. Of 100 marks (4 credits hours), 50 marks (2 credit equivalent grade) will be internal and the other marks 50 marks (2 credit equivalent grade) will be external evaluation by an external expert. The internal 50 marks will be awarded based on a student's performance on: designing of the research synopsis and presentation (20 marks), supervisor's report to the programme coordinator about a student's overall performance throughout the period of her/his dissertation work (10 marks) and pre submission presentation before faculty members and experts (20 marks).

Suggested References:

- Allan and Skinner (ed), 1993. Handbook for Research Students in the Social Sciences.
- Turabian, K.L., 1996. A Manual for Writers of Term Papers, Thesis and Dissertations, Chicago University Press.
- Saha, Dr. Subrota Kumar, 2010. Research Planning & Proposal Writing Skill, A H Development Publishing House, Dhaka.
- Collis, Jill and Hussey, Roger, 2009. Business Research- A Practical Guide for Undergraduate and Postgraduate Students, Palgrave Macmillan, London.
- Moser, Claus Adolf; Kalton, Graham and Moser, Sir Claus, 1985. Survey Methods in Social Investigation, Ashgate Publishing; 2nd Edition.

C-410: Viva Voce

The end of the Semester viva voce shall be based on the courses taught in the respective semester of studies. The School may reserve the right to ask the students to give oral presentation on selected topics of semester studies instead of viva voce considering this may help them immensely to brush up their presentation skills and help them doing some elementary level research on the issue of a student's presentation.

C-411: Project Planning and Evaluation

Course Contents:

1. *Concept of Development Project*: Introduction to Development Projects: Concept, Rationale, Categories, Features and Characteristics; Project Life Cycles; the Four P's: People, Planning, Policies and Project; Role of Development Projects in Economic Development.
2. *Project Planning, Design, Monitoring and Evaluation*: Project Planning and Designing Process; Steps in Project Planning and Designing; Tools of Project Monitoring and Evaluation.
3. *Selected Tools of Project Analysis, Design and Management*: Social/Economic/ Environmental Impact Assessment, Stakeholder Analysis, Logical Framework and SWOT Analysis; Role of Cost- Benefit Analysis.

Suggested References

- Chowdhury, S., 1993. Project Management, Tata McGraw Hill Publishing Co., New Delhi, India.
- Curry, S and Weiss, J., 2000. Project Analysis in Developing Countries, McMillan Press Limited, London.
- Gosling, L and Edwards M., 1995. Toolkits: A Practical Guide to Assessment, Monitoring, Review and Evaluation, Save the Children, London.
- Ad van der Weide, 2004. Project Planning and Management, Purdue University Press.
- Lester, Albert, 2006. Project Management, Planning and Control, Butterworth-Heinemann.
- Santos, Jose Maria Delos, 2013. Project Management: A Systems Approach to Planning, Scheduling and Controlling, Wiley, John & Sons.
- John Glasson, Riki Therivel, Andrew Chadwick, 2012. Introduction to Environmental Impact Assessment, Taylor and Francis.

Part-III: OTHER PLANNED ACADEMIC PROGRAMMES

3.1 MPhil & PhD Programmes

Demand for highly trained economists in a growing economy like Bangladesh is increasing day by day. Due to many emerging challenges pertaining to economic activities, particularly in the perspective of socio-economic and environmental issues, multi-disciplinary treatments linking economic, environmental and socio-cultural approaches are gaining increasing importance. This demands more economists from a multi-disciplinary background who can effectively face such challenges for the economy. Similarly, many budding economists of the country due to lack of opportunities (e.g. finance, family engagement, etc.) may also find the research degree programmes (MPhil and PhD) of Dhaka School of Economics highly suitable.

Dhaka School of Economics intends to give special focus on contemporary economic issues and emerging challenges in its research programmes which would pave the way for achieving some paradigm changes in our traditional development thinking in economic and development policy making. The school is indomitable to make it a ‘centre of excellence’ in research and teaching.

Besides its highly experienced and dedicated faculty members, the members of its academic council will also oversee the overall progress of the programmes. Understandings with renowned universities from home and abroad will also be explored and research scholars will be encouraged to participate in international conferences, seminars, workshops and short-training programmes and produce journal articles for refereed journals.

3.2 Other Anticipated Masters Programmes

Dhaka School of Economics will leave no stone unturned to make it a ‘Centre of Excellence’ in higher education in economics in the line of LSE or Delhi School of Economics (DSE). Apart from the currently offered two post graduate programmes, the school is also trying to get a positive nod from the University of Dhaka for opening more postgraduate programmes in economics, particularly programmes like Masters in International Economics, Masters in Quantitative Economics, etc.

3.3 Diploma/Certificate/Training Programmes

Dhaka School of Economics (DScE) also intends to offer certain specialized certificate and diploma programmes in the area of environmental economics, applied econometrics, computer applications in economics, economics of climate change and many other related fields given approval from the University of Dhaka. Such programmes will be designed keeping in mind especially the demand for many professionals who need to be up-to-date on emerging issues and the need of those who are engaged in economic research, teaching or other areas of applied economics to improve their capabilities.

Part-IV: Publication

4.1 Books/Reports/Seminar Proceedings

Dhaka School of Economics aspires to publish quality research reports, books and seminar proceedings besides publishing its own journal and quarterly campus magazine on a regular basis to promote research, publication and dissemination in the area of economics and allied subjects. It has already published a number of special reports based on the papers presented on various economic issues of importance in a national workshop organized by Dhaka School of Economics in association with Bangladesh Economic Association (BEA) and Palli Karma-Sahayak Foundation (PKSF) in April 2011, titled: “Bangladesh—A Country of Middle Standard of Living by 2021: Pathways, Potentials and Challenges”. Besides these, a few Working Papers have already been published and it intends to publish selected articles as seminar proceeding in an edited volume soon. In addition to these, it will also publish research reports based on the on-going research projects in due course of time.

It is also expected that DScE will regularly publish works mainly produced by the faculty members, people associated with DScE or other renowned economists, not only to produce its own research works in published forms but also to encourage scientific and quality research in economics as well as multi-disciplinary approaches in the perspective of changing economic environment. In this regard, the school also wants to set up its own publication brand titled “Dhaka School of Economics Press Limited”.

4.2 Journal

Without having a refereed journal published under the banner of any school of economics, it appears quite intangible to achieve the target of becoming a ‘centre of excellence’ in a discipline like economics as encouraging research and getting them published in a systematic and scientific manner should be an integral part of an institute of higher education like a school of economics. From this realization, Dhaka School of Economics has already joined forces with Bangladesh UnnayanParishad (BUP) to parting the BUP “*Asia Pacific Journal on Environment and Development*”. The journal publishes original research and review works on contemporary environmental and development issues with a special focus to developing country problems. It is

expected that this would not only benefit scholars, students and faculty members of DScE, but will also provide a platform for development researchers from around the world to get their works published for wider dissemination. A highly experienced and dedicated editorial panel, drawing from around the world with diverse backgrounds and multidisciplinary expertise and headed by Dr. QaziKholiquzzaman Ahmad, is the real strength of the journal. It is thus desired that the journal will continue publishing high quality research works and to promote and encourage research for wide dissemination.

4.3 Quarterly Campus Magazine

The School publishes its 'Quarterly Newsletter', mainly to encourage students and scholars to get familiar with and excel in writing in economics. Under the guidance of experienced faculty members and an advisory board, the magazine publishes short essays, research reports, news and views on economic, environmental, development and other multi-disciplinary issues of interests. The magazine also publishes news and updates on students' research activities, works presented in seminars and workshops and on cultural activities of the school. Students are strongly encouraged to contribute to the magazine on a regular basis.

Part-V: EXTERNAL COLLABORATION/ASSOCIATION

5.1 Institutional/Academic Collaborations

Dhaka School of Economics is expected to sign memorandum of understandings (MoUs) with many esteemed and renowned educational and research institutes from home and abroad. Building of working relationship with institutions like London School of Economics and Political Sciences (LSE), South Asian University, New Delhi, among others, is now under consideration.

Apart from this, it has also been working closely with many development organizations from a sense of social engagement and practical experience-based education. The school provides able guidance and support to the Government of Bangladesh through policy analysis and advisory services. It also organizes conferences and workshops on diverse subjects on a regular basis to debate, identify and highlight important policy issues.